



*Task 2: Existing Conditions Analysis Report DRAFT*

# Central and Southern Marin Transit Study

December 23, 2008

## TABLE OF CONTENTS

<b>LIST OF EXHIBITS .....</b>	<b>ii</b>
<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
<b>CHAPTER 2: EXISTING TRANSIT SERVICES .....</b>	<b>3</b>
2.1 Public Transit Overview .....	3
2.2 Transit Service Coverage by Corridor .....	4
2.3 Golden Gate Transit Service Performance by Route .....	13
2.3.1 GT Revenue Hours and Ridership by Route.....	13
2.3.2 GGT Bus Productivity and Farebox Recovery .....	14
2.4 Proposed Near Term GGT Service Changes .....	16
2.5 Marin Transit Service Performance by Route .....	16
2.5.1 Marin Transit Revenue Hours and Ridership by Route.....	16
2.5.2 Marin Transit Bus Productivity and Farebox Recovery .....	17
2.6 Proposed Near Term Marin Transit Service Changes .....	17
2.7 GGT and Marin Transit Performance Standards .....	18
2.7.1 GGT Performance Standards .....	18
2.7.2 Marin Transit Performance Standards .....	18
<b>CHAPTER 3: TRANSIT HUB AND CORRIDOR FACILITIES .....</b>	<b>20</b>
3.1 Transit Hub and Corridor Facilities .....	20
<b>CHAPTER 4: CORRIDOR TRAVEL CONDITIONS.....</b>	<b>24</b>
4.1 Current Operating Environment on the Highway 101 Corridor .....	27
4.2 Current Operating Environment at Highway 101 Interchanges .....	30
4.3 Profiles of Current Operating Environment on Arterial Transit Corridors.....	30
<b>CHAPTER 5: TRAVEL FORECASTS AND TRANSIT DEMAND PROJECTIONS....</b>	<b>48</b>
5.1 Background and Assumptions .....	48
5.2 Trip Patterns.....	49
5.3 Estimated Transit Trip Patterns and Mode Shares.....	70
<b>CHAPTER 6: SUMMARY OF TRANSIT RIDER PROFILES .....</b>	<b>71</b>
<b>CHAPTER 7: KEY EXISTING CONDITIONS FINDINGS .....</b>	<b>72</b>
<b>APPENDIX A: EXHIBITS AND TABLES.....</b>	<b>75</b>

**LIST OF EXHIBITS**

(To be included in final version)

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## **CHAPTER 1: INTRODUCTION**

In July 2008, the Transportation Authority of Marin (TAM) approved the final work scope for the Central and Southern Marin Transit Study. The Study formally commenced in September 2008, and is jointly funded by the Golden Gate Bridge District, Marin County Transit District and TAM. The purpose of the study is to:

1. Develop an incremental program of feasible and fundable improvements to U.S. 101-oriented trunk line bus service.
2. Identify opportunities for transit to serve as effective feeders for both ferry and regional commute bus services.

The Central Southern Marin Transit Study offers an important opportunity to develop a comprehensive and implementable plan to improve the effectiveness of regional and local transit service within Southern Marin County's U.S. 101 corridor. The Study Area (see Fig 2.1) comprises Central and Southern Marin, from San Rafael southwards, excluding the Golden Gate National Recreation Area. The study is intended to build on the transit agencies' Short Range Transit Plan (SRTP) and the Regional Transportation Plan (RTP) processes to identify, evaluate, and present a broader base of integrated (or coordinated) U.S. 101-oriented alternatives.

The study scope also includes: the identification of strategic east-west corridor improvements, interface with future SMART rail facilities, a feasibility-level discussion of the potential for streetcar as a transit mode on the corridor between Mill Valley and Sausalito, and the preparation of a draft Project Study Report (PSR)/PSR equivalent for one or more transit hubs in Southern Marin. The final work product will be a phased implementation plan driven by funding capacity, value added to U.S. 101-oriented transit, and local/regional priorities. The study scope does not extend to recreational or visitor focused transit in the Study area.

The outcomes of the Central and Southern Marin Transit Study are intended to both provide a strategic blueprint for coordinated transportation improvements in Southern Marin, and to provide a prioritized listing of feasible projects designed to improve the effectiveness and attractiveness of public transit along Southern Marin's Highway 101 corridor. Consistent with the goal of an implementable plan, the study horizon has been set in the relatively near term – ten years out, to 2018.

This document is the draft of the Task 2 deliverable, *Existing Conditions Analysis Report*, documenting an inventory of existing transit services and infrastructure, transit service performance, planned service improvements, relevant General Plan impacts, travel forecasts, and transit ridership projections. Some sections of the draft are awaiting data before definitive conclusions or analysis can be completed, in the version to be prepared for the TAM Board review in 2009. The sections to be completed relate mainly to rider survey data, which will provide a fuller understanding of:

- Actual origins and mode of access to transit for trunk line service riders
- Transit mode shares on some corridors, today and in the study horizon year
- Transit transfer activity from local services to Hwy 101 trunk line services

Some other future facility descriptions, such as the configuration of the SMART stations, ferry facilities and Hwy 101 improvements in the Greenbrae/Twin Cities segment will also be updated or completed following input from the relevant agencies.

The Final Draft Task 2 report will be submitted for review by TAM's Executive Committee to serve as a background for the subsequent Tasks in the Study:

- Task 2: Define Applicable Improvements
- Task 3: Cost Benefit Evaluation of Improvements
- Task 4: Program of Improvements
- Task 5.a: Streetcar Corridor Feasibility Analysis
- Task 6: PSR (or PSR Equivalent) for one or more of the Transit Hubs
- Task 7: Final Plan, as accepted by the agency policy boards

This Task 2 Report is organized in the following six chapters:

- Chapter 2: Existing Transit Services
- Chapter 3: Transit Hub and Corridor Facilities
- Chapter 4: Corridor Travel Conditions
- Chapter 5: Travel Forecasts and Transit Demand Projections
- Chapter 6: Summary Of Transit Rider Profiles (to be provided upon Rider Survey completion)
- Chapter 7: Key Existing Conditions Findings

## CHAPTER 2: EXISTING TRANSIT SERVICES

This chapter provides an overview of transit services currently operated by Golden Gate Transit (GGT) and Marin Transit (MCTD)<sup>1</sup> within the Study Area.

### 2.1 Public Transit Overview

Public transit in Central and Southern Marin County is provided by GGT and MCTD. Currently GGT operates a network of Basic and Commute Routes and Marin Transit operates Local Routes:

- Basic Routes - operated by GGT providing daily service throughout the day between San Francisco, Marin, Sonoma and Contra Costa counties.
- Commute Routes - operated by GGT providing commute period service, mornings and evenings except holidays between San Francisco, Marin and Sonoma Counties.
- Local Service - operated by Marin Transit within Marin County on weekdays with limited weekend service.

GGT's Basic and Commute routes are designed to serve longer haul, regional inter-county as well as intra-county commuter markets. Marin Transit's Local routes are designed to complement GGT longer-haul services, serving both intra-county commuter, student and transit dependent markets. Both agencies have focused on the understanding of their respective markets and service improvements that increase the attractiveness of public transit alternatives in Marin County.

#### **Golden Gate Transit**

GGT is provided through the Golden Gate Bridge, Highway and Transportation District (GGBHTD). GGBHTD was originally formed under the authority of the Golden Gate Bridge and Highway Act of 1923 to build and operate the Golden Gate Bridge.

By the late 1960s, the Golden Gate Bridge was operating at capacity during the morning commute. In 1969, the California State Legislature authorized GGBHTD to use bridge tolls to develop transit service in the U.S. Highway 101 corridor as a means of managing traffic congestion and avoiding highway expansion. In August 1972, GGBHTD introduced ferry service between Sausalito and San Francisco supported by a GGBHTD operated shuttle bus to the Sausalito Ferry. Ferry service between Larkspur and San Francisco was introduced in 1981.

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<sup>1</sup> MCTD is the abbreviation for Marin County Transit District, the official organization operating Marin Transit.

GGT was established by GGBHTD in January 1972 to operate Transbay commute bus service. GGT currently operates 26 Basic and Commute Routes.

## **Marin Transit**

Marin Transit is provided through Marin County Transit District (MCTD). In 1971, GGBHTD contracted with MCTD to operate local transit service within the County. Local service was recently formalized under Marin Transit. Marin Transit in turn contracts with GGT, Marin Airporter, MV Transportation, and Whistlestop Wheels to provide local fixed route and ADA paratransit service. Marin Transit currently operates 18 routes county-wide.

## **2.2 Transit Service Coverage by Corridor**

The following series of tables summarizes public transit service by major corridor in the Central and Southern Marin study area. Routes are organized by route category and operator - Basic, Commute and Local. Major destinations, service hours and headways are summarized for each route.

Figure 2.1 provides a route map of both Golden Gate Transit and Marin Transit routes in the Study area

Table 2.1 summarizes route operated along the Highway 101 Trunk Corridor.

Table 2.2 summarizes routes operated along the San Rafael to San Anselmo Corridor (4<sup>th</sup> Street & Red Hill Avenue).

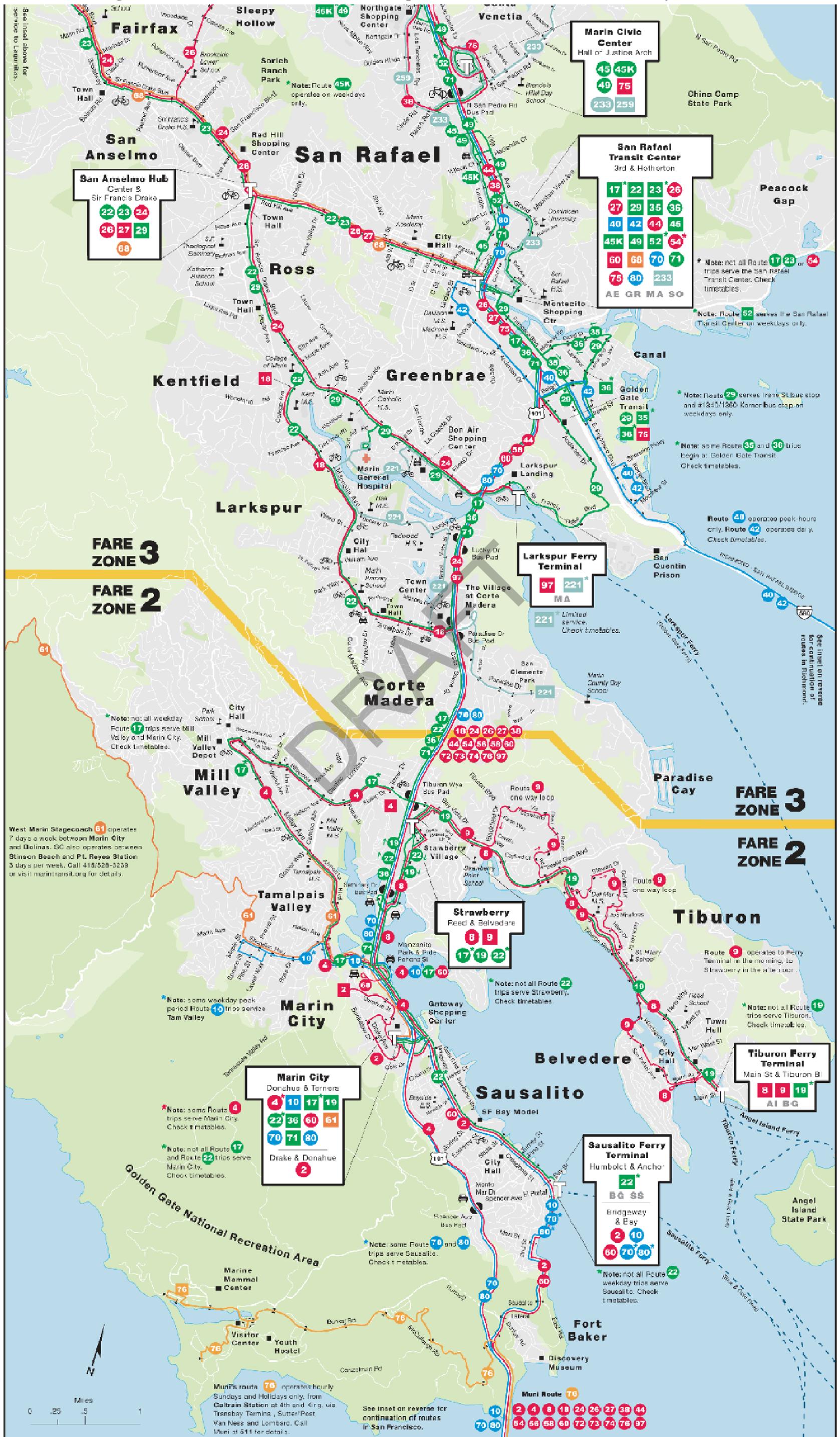
Table 2.3 summarizes routes operated along the San Anselmo to Larkspur Corridor (Sir Francis Drake).

Table 2.4 summarizes routes operated along the Ross Valley to Corte Madera Corridor (College Avenue, Magnolia Avenue & Tamalpais Drive).

Table 2.5 summarizes routes operated along the Mill Valley to Sausalito Corridor (Miller Avenue, Almonte Boulevard, Highway 101, & Caledonia Street).

Table 2.6 summarizes routes operated along the Blithedale & Bay Vista Drive Corridor.

Figure 2.1: GGT and Marin Transit Route Map for Central and Southern Marin Study Area

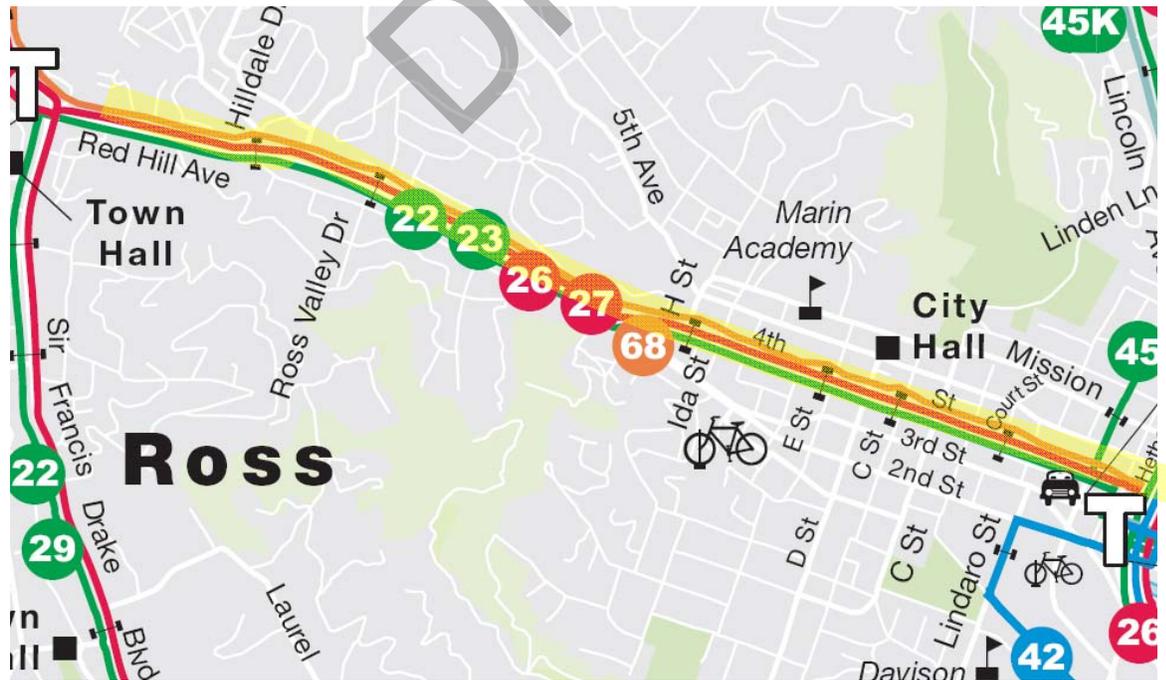


**Table 2.1: GGT and Marin Transit Routes Serving the Highway 101 Trunk Corridor**

Corridor	Route Type	Route	Major Destinations	Service Hour Span	Headways
HWY 101 Trunk	Basic Routes (GGT)	70	Serves Novato, San Rafael, Marin City, Sausalito, Toll Plaza & San Francisco.	<b>Weekdays:</b> 5:16 AM - 1:55 AM <b>Weekends/Holidays:</b> 5:27 AM - 1:55 AM	<b>Weekdays:</b> 17 to 57 min. <b>Weekends/Holidays:</b> 60 min.
		80	Serves Santa Rosa, Novato, San Rafael, Marin City, Toll Plaza & San Francisco.	<b>Weekdays:</b> 4:01 AM - 2:32 AM <b>Weekends/Holidays:</b> 4:03 AM - 2:28 AM	<b>Weekdays:</b> 45 to 60 min. <b>Weekends/Holidays:</b> 56 to 60 min.
	Commuter Routes (GGT)	4	Serves Mill Valley, Tam Junction, Manzanita PnR, Marin City, Sausalito, Toll Plaza & San Francisco.	<b>Weekdays:</b> 4:57 AM - 9:56 PM	<b>Weekdays:</b> 4 to 30 min.
		8	Serves Tiburon, Belvedere, Strawberry Village, Toll Plaza, & San Francisco	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 2 SB trips (AM Peak) 2 NB trips (PM Peak)
		18	Serves College of Marin, Larkspur, Corte Madera, Seminary Bus Pad, Spencer Bus Pad, Toll Plaza, & San Francisco.	<b>Weekdays:</b> AM Peak 5:59 AM - 9:24 AM PM Peak 4:00 PM - 7:31 PM	<b>Weekdays:</b> 12 to 28 min.
		24	Serves Lagunitas, Woodacre, Manor, Fairfax, San Anselmo, Ross, Kentfield/College of Marin, Greenbrae, Larkspur Ferry Terminal, Lucky Bus Pad, Paradise Bus Pad, Tiburon Wye Bus Pad, Seminary Bus Pad, Toll Plaza, & San Francisco.	<b>Weekdays:</b> AM Peak 4:29 AM - 9:45 AM PM Peak 3:06 PM - 8:19 PM	<b>Weekdays:</b> 8 to 20 min.
		26	Serves Sleepy Hollow, San Anselmo, San Rafael, Toll Plaza, & San Francisco.	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 2 SB trips (AM Peak) 3 NB trips (PM Peak)
		27	Serves San Anselmo, San Rafael, Spencer Bus Pad, Toll Plaza, & San Francisco.	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 6 SB trips (AM Peak) 3 NB trips (PM Peak)
		38	Serves Terra Linda, San Rafael, Toll Plaza, & San Francisco. <i>Operates as express along HWY 101 with no stops between San Rafael Transit Center and Toll Plaza.</i>	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 5 SB trips (AM Peak) 4 NB trips (PM Peak)
		44	Serves Marinwood, Lucas Valley, San Rafael, Toll Plaza, & San Francisco.	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 4 SB trips (AM Peak) 4 NB trips (PM Peak)
		54	Serves San Marin, Novato, San Rafael, Toll Plaza, & San Francisco. <i>Operates as express along HWY 101 with no stops between San Rafael Transit Center and Toll Plaza.</i>	<b>Weekdays:</b> AM Peak 4:42 AM - 9:21 AM PM Peak 2:32 PM - 8:29 PM	<b>Weekdays:</b> 6 to 25 min.
		56	Serves Novato, Toll Plaza, & San Francisco. <i>Operates as express along HWY 101 with no stops in Central &amp; Southern Marin study area.</i>	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 5 SB trips (AM Peak) 6 NB trips (PM Peak)
		58	Serves Novato, Ignacio, Hamilton Theatre Parking Lot, Toll Plaza, & San Francisco. <i>Operates as express along HWY 101 with no stops in Central &amp; Southern Marin study area.</i>	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 4 SB trips (AM Peak) 3 NB trips (PM Peak)
		60	Serves San Rafael, Manzanita PnR Lot, Marin City, Spencer Bus Pad, Sausalito, Toll Plaza, & San Francisco.	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 3 SB trips (AM Peak) 2 NB trips (PM Peak)
		72	Serves Santa Rosa, Toll Plaza & San Francisco. <i>Operates as express along HWY 101 with no stops in Central &amp; Southern Marin study area.</i>	<b>Weekdays:</b> AM Peak 3:59 AM - 8:51 AM PM Peak 2:32 PM - 8:29 PM	<b>Weekdays:</b> 1 to 44 min.
		73	Serves Santa Rosa, Petaluma, Toll Plaza, & San Francisco. <i>Operates as express along HWY 101 with no stops in Central &amp; Southern Marin study area.</i>	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 3 SB trips (AM Peak) 2 NB trips (PM Peak)
		74	Serves Petaluma, Toll Plaza, & San Francisco. <i>Operates as express along HWY 101 with no stops in Central &amp; Southern Marin study area.</i>	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 5 SB trips (AM Peak) 5 NB trips (PM Peak)
		Local Routes (MCTD)	17	Serves San Rafael, Lucky Bus Pad, Paradise Bus Pad, Strawberry Village, Mill Valley, Tam Junction, Manzanita PnR, Marin City.	<b>Weekdays:</b> 5:30 AM - 11:12 PM <b>Weekends/Holidays:</b> 7:30 AM - 11:12 PM
	19		Serves Tiburon, Strawberry Village, & Marin City	<b>Weekdays:</b> 7:20 AM - 10:18 PM <b>Weekends/Holidays:</b> 7:17 AM - 10:20 PM	<b>Weekdays:</b> 60 min. <b>Weekends/Holidays:</b> 60 min.
	22		Serves San Rafael, San Anselmo, Ross, Kentfield/College of Marin, Larkspur, Corte Madera, Strawberry, Marin City & Sausalito Ferry Terminal	<b>Weekdays:</b> 5:33 AM - 11:58 PM <b>Weekends/Holidays:</b> 7:30 AM - 10:55 PM	<b>Weekdays:</b> 8 to 60 min. <b>Weekends/Holidays:</b> 60 min.
	36		Serves San Rafael, Lucky Bus Pad, Paradise Bus Pad, Tiburon Wye Bus Pad, Seminary Bus Pad, & Marin City.	<b>Weekdays:</b> 5:49 AM - 6:12 PM <b>Saturdays:</b> 6:52 AM - 6:11 PM	<b>Weekdays:</b> 30 to 60 min. <b>Saturdays:</b> 30 min.
71	Serves Novato, San Rafael, & Marin City.		<b>Weekdays:</b> 6:34 AM - 8:27 PM <b>Weekends/Holidays:</b> 6:59 AM - 7:28 PM	<b>Weekdays:</b> 30 to 60 min. <b>Weekends/Holidays:</b> 3 SB trips & 5 NB trips.	

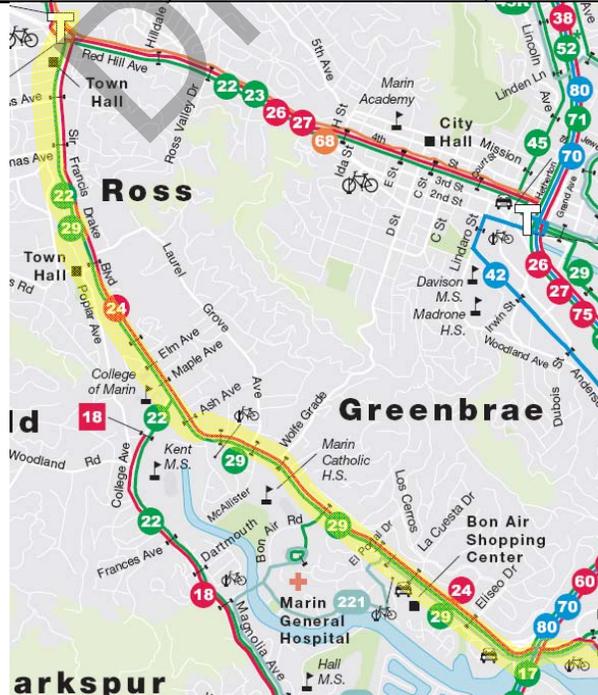
**Table 2.2: GGT and Marin Transit Routes Serving the San Rafael to San Anselmo Corridor (4<sup>th</sup> Street & Red Hill Avenue)**

Corridor	Route Type	Route	Major Destinations	Service Hour Span	Headways
San Rafael To San Anselmo	Commuter Routes	26	Serves Sleepy Hollow, San Anselmo, San Rafael, Toll Plaza, & San Francisco.	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 2 SB trips (AM Peak) 3 NB trips (PM Peak)
		27	Serves San Anselmo, San Rafael, Spencer Bus Pad, Toll Plaza, & San Francisco.	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 6 SB trips (AM Peak) 3 NB trips (PM Peak)
	MCTD Local Routes	22	Serves San Rafael, San Anselmo, Ross, Kentfield/College of Marin, Larkspur, Corte Madera, Strawberry, Marin City & Sausalito Ferry Terminal	<b>Weekdays:</b> 5:33:AM - 11:58 PM <b>Weekends/Holidays:</b> 7:30 AM - 10:55 PM	<b>Weekdays:</b> 8 to 60 min. <b>Weekends/Holidays:</b> 60 min.
		23	Serves San Rafael, San Anselmo, Fairfax, & Manor.	<b>Weekdays:</b> 5:30:AM - 11:56 PM <b>Weekends/Holidays:</b> No service east of San Anselmo.	<b>Weekdays:</b> 30 to 60 min.



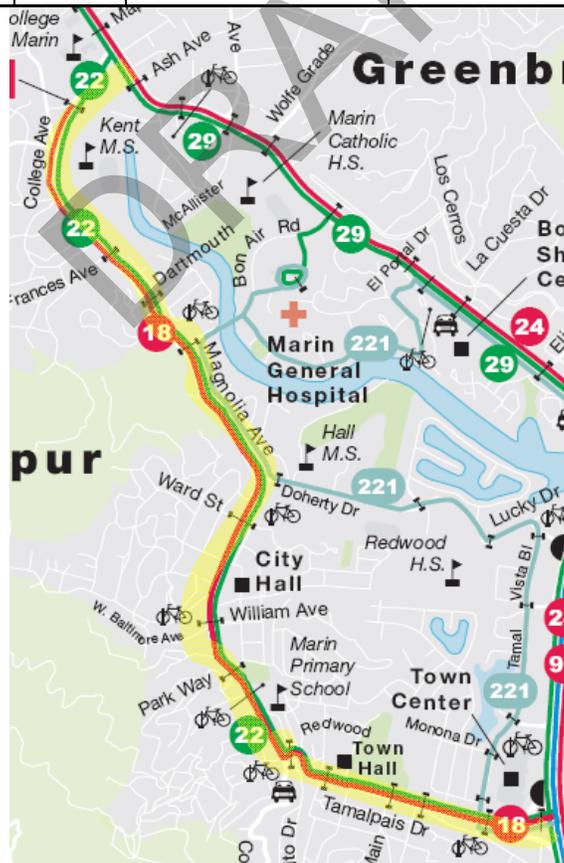
**Table 2.3: GGT and Marin Transit Routes Serving the San Anselmo to Larkspur Corridor (Sir Francis Drake)**

Corridor	Route Type	Route	Major Destinations	Service Hour Span	Headways
San Anselmo To Larkspur	Commuter Routes	24	Serves Lagunitas, Woodacre, Manor, Fairfax, San Anselmo, Ross, Kentfield/College of Marin, Greenbrae, Larkspur Ferry Terminal, Lucky Bus Pad, Paradise Bus Pad, Tiburon Wye Bus Pad, Seminary Bus Pad, Toll Plaza, & San Francisco.	<b>Weekdays:</b> AM Peak 4:29 AM - 9:45 AM PM Peak 3:06 PM - 8:19 PM	<b>Weekdays:</b> 8 to 20 min.
	MCTD Local Routes	22	Serves San Rafael, San Anselmo, Ross, Kentfield/College of Marin, Larkspur, Corte Madera, Strawberry, Marin City & Sausalito Ferry Terminal	<b>Weekdays:</b> 5:33:AM - 11:58 PM <b>Weekends/Holidays:</b> 7:30 AM - 10:55 PM	<b>Weekdays:</b> 8 to 60 min. <b>Weekends/Holidays:</b> 60 min.
		29	Serves San Rafael, Greenbrae, Kentfield/College of Marin, Ross, & San Anselmo.	<b>Weekdays:</b> 6:30:AM - 8:25 PM <b>Saturdays:</b> 7:30 AM - 7:25 PM	<b>Weekdays:</b> 60 min. <b>Saturdays:</b> 60 min.



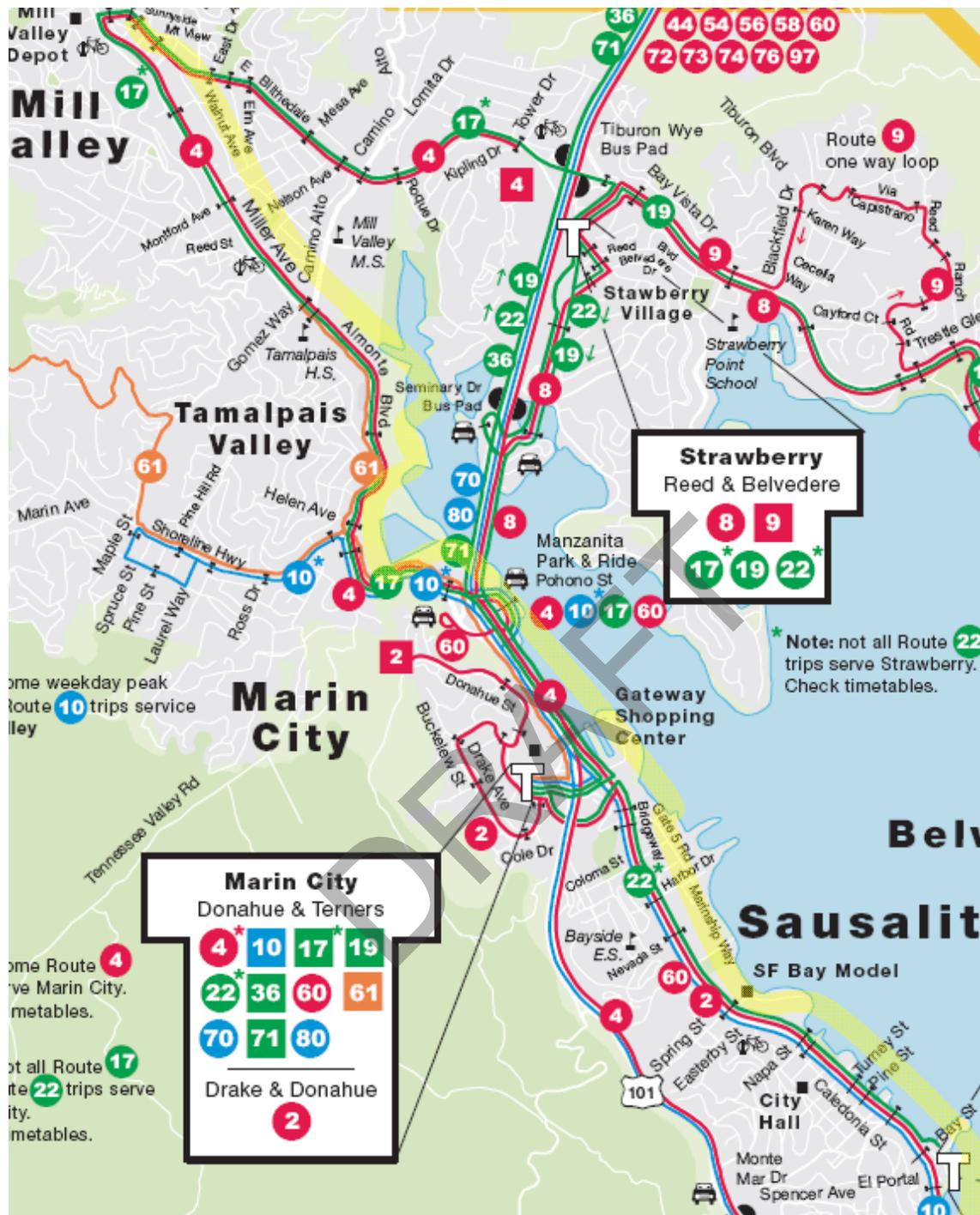
**Table 2.4: GGT and Marin Transit Routes Serving the Ross Valley to Corte Madera Corridor (College Avenue, Magnolia Avenue & Tamalpais Drive)**

Corridor	Route Type	Route	Major Destinations	Service Hour Span	Headways
Ross Valley To Corte Madera	Commuter Route	18	Serves College of Marin, Larkspur, Corte Madera, Seminary Bus Pad, Spencer Bus Pad, Toll Plaza, & San Francisco.	<u>Weekdays:</u> <u>AM Peak</u> 5:59 AM - 9:24 AM <u>PM Peak</u> 4:00 PM - 7:31 PM	<u>Weekdays:</u> 12 to 28 min.
	MCTD Local Route	22	Serves San Rafael, San Anselmo, Ross, Kentfield/College of Marin, Larkspur, Corte Madera, Strawberry, Marin City & Sausalito Ferry Terminal	<u>Weekdays:</u> 5:33:AM - 11:58 PM <u>Weekends/Holidays:</u> 7:30 AM - 10:55 PM	<u>Weekdays:</u> 8 to 60 min. <u>Weekends/Holidays:</u> 60 min.



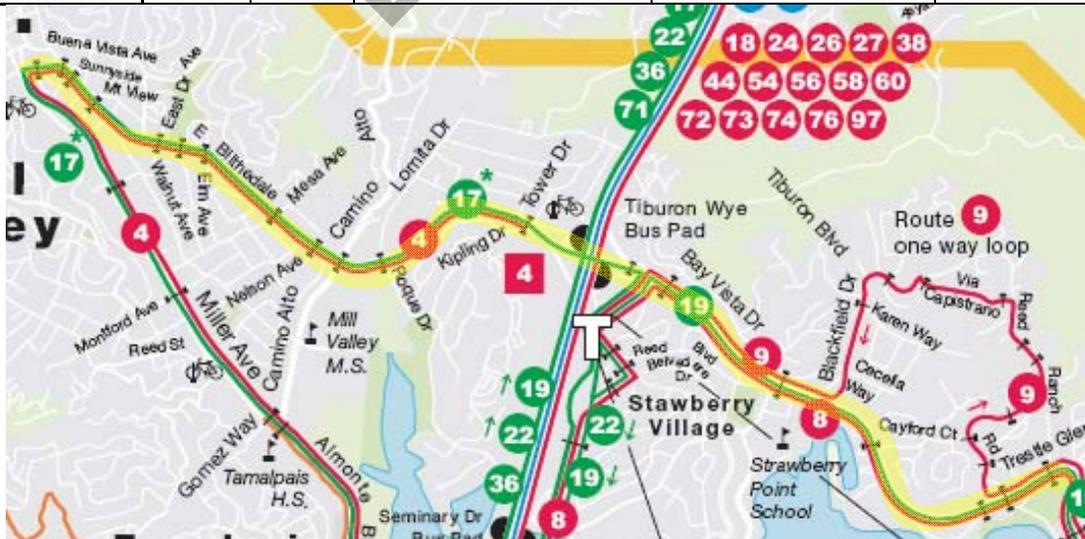
**Table 2.5: GGT and Marin Transit Routes Serving the Mill Valley to Sausalito Corridor  
(Miller Avenue, Almonte Boulevard, Highway 101, & Caledonia Street)**

Corridor	Route Type	Route	Major Destinations	Service Hour Span	Headways
Mill Valley To Sausalito	Basic Routes	10	Serves Tam Valley, Tam Junction, Manzanita PnR, Marin City, Sausalito, Toll Plaza, San Francisco	<u>Weekdays:</u> 6:38 AM - 8:33 PM <u>Weekends/Holidays:</u> 7:50 AM - 8:30 PM	<u>Weekdays:</u> 60 min. <u>Weekends/Holidays:</u> 60 min.
		70	Serves Novato, San Rafael, Marin City, Sausalito, Toll Plaza & San Francisco.	<u>Weekdays:</u> 5:16 AM - 1:55 AM <u>Weekends/Holidays:</u> 5:27 AM - 1:55 AM	<u>Weekdays:</u> 17 to 57 min. <u>Weekends/Holidays:</u> 60 min.
		80	Serves Santa Rosa, Novato, San Rafael, Marin City, Toll Plaza & San Francisco.	<u>Weekdays:</u> 4:01 AM - 2:32 AM <u>Weekends/Holidays:</u> 4:03 AM - 1:55 AM	<u>Weekdays:</u> 45 to 60 min. <u>Weekends/Holidays:</u> 56 to 60 min.
	Commuter Routes	2	Serves Marin Headlands, Marin City, Sausalito, Toll Plaza, & San Francisco	<u>Weekdays:</u> AM Peak & PM Peak	<u>Weekdays:</u> 4 SB trips (AM Peak) 4 NB trips (PM Peak)
		4	Serves Mill Valley, Tam Junction, Manzanita PnR, Marin City, Sausalito, Toll Plaza & San Francisco.	<u>Weekdays:</u> 4:57 AM - 9:56 PM	<u>Weekdays:</u> 4 to 30 min.
		60	Serves San Rafael, Manzanita PnR Lot, Marin City, Spencer Bus Pad, Sausalito, Toll Plaza, & San Francisco.	<u>Weekdays:</u> AM Peak & PM Peak	<u>Weekdays:</u> 3 SB trips (AM Peak) 2 NB trips (PM Peak)
	MCTD Local Route	17	Serves San Rafael, Lucky Bus Pad, Paradise Bus Pad, Strawberry Village, Mill Valley, Tam Junction, Manzanita PnR, Marin City.	<u>Weekdays:</u> 5:30 AM - 11:12 PM <u>Weekends/Holidays:</u> 7:30 AM - 11:12 PM	<u>Weekdays:</u> 30 to 60 min. <u>Weekends/Holidays:</u> 60 min.
		71	Serves Novato, San Rafael, & Marin City.	<u>Weekdays:</u> 6:34 AM - 8:27 PM <u>Weekends/Holidays:</u> 6:59 AM - 7:28 PM	<u>Weekdays:</u> 30 to 60 min. <u>Weekends/Holidays:</u> 3 SB trips & 5 NB trips.



**Table 2.6: GGT and Marin Transit Routes Serving the Blithedale & Bay Vista Drive Corridor**

Corridor	Route Type	Route	Major Destinations	Service Hour Span	Headways
Blithedale/ Bay Vista	Commuter Routes	4	Serves Mill Valley, Tam Junction, Manzanita PnR, Marin City, Sausalito, Toll Plaza & San Francisco.	<b>Weekdays:</b> 4:57 AM - 9:56 PM	<b>Weekdays:</b> 4 to 30 min.
		8	Serves Tiburon, Belvedere, Strawberry Village, Toll Plaza, & San Francisco	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 2 SB trips (AM Peak) 2 NB trips (PM Peak)
		9	Serves Tiburon, Belvedere, & Strawberry Village	<b>Weekdays:</b> AM Peak & PM Peak	<b>Weekdays:</b> 2 WB trips (AM Peak) 2 EB trips (PM Peak)
	MCTD Local Routes	17	Serves San Rafael, Lucky Bus Pad, Paradise Bus Pad, Strawberry Village, Mill Valley, Tam Junction, Manzanita PnR, Marin City.	<b>Weekdays:</b> 5:30 AM - 11:12 PM <b>Weekends/Holidays:</b> 7:30 AM - 11:12 PM	<b>Weekdays:</b> 30 to 60 min. <b>Weekends/Holidays:</b> 60 min.
		19	Serves Tiburon, Strawberry Village, & Marin City	<b>Weekdays:</b> 7:20:AM - 10:18 PM <b>Weekends/Holidays:</b> 7:17 AM - 10:20 PM	<b>Weekdays:</b> 60 min. <b>Weekends/Holidays:</b> 60 min.



## 2.3 Golden Gate Transit Service Performance by Route

### 2.3.1 GGT Revenue Hours and Ridership by Route

Annual GGT bus revenue hours are available by route category and not by individual route. Based on data provided in the GGBHTD Mini-Short Range Transit Plan (FYs 2007-2016):

- 96,070 revenue hours were projected for Basic Routes for each year for the period 2008 to 2016.
- 95,778 revenue hours were projected for Commute Routes for each year for the period 2008 to 2016.

Table 2.7 provides a summary of annual ridership for GGT routes serving the Central and Southern Marin corridors for the calendar years 2004 through 2008. Ridership data was not available for all GGT routes serving the study area. Ridership data is provided for Routes 2, 4, 8, 9, 10, 18, 24, 26, 27, 38, 44, 60, 70, and 80, and not provided for routes operating as express only through the Central and Southern Marin study area. With the exception of Routes 4, and 27 where there was an increase in ridership, the data indicates a decline in GGT bus ridership. This decline in bus ridership may be explained by a ridership switch to ferry service, (ridership in am peak has increased by 12 % between 2005 and 2007 and in the pm peak by 15% for the same period)<sup>2</sup>, by a general reduction in commute travel between Marin County and San Francisco, and a possible mode shift back to auto usage.

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<sup>2</sup> Findings from recent GGT Larkspur ferry passenger surveys suggest that over 30% of new ferry passengers in 2006 and 2007 were former bus riders.

**Table 2.7: GGT Bus service: Annual Ridership for Selected Basic and Commute Routes Serving Central and Southern Marin (2004 – 2008)**

Route	2004	2005	2006	2007	2008	% Change 2004-2008
2	79,377	69,864	69,201	65,827	67,304	-15.21%
4	329,669	321,007	334,062	328,904	366,173	11.07%
8	29046	25,228	22,965	21,618	22,087	-23.96%
9	16,725	14,179	11,929	8,925	9,208	-44.94%
10	313,473	238,627	226,634	207,890	216,172	-31.04%
18	110,296	102,725	100,892	99,187	110,145	-0.14%
24	262,065	244,996	228,989	212,021	227,648	-13.13%
26	56,970	49,461	51,478	47,514	44,493	-21.90%
27	50,501	48,047	56,326	50,962	64,593	27.91%
44	67,288	66,243	60,944	50,962	64,593	-4.00%
60	43,762	50,661	34,798	30,027	25,983	-40.63%
70	922,839	874,581	857,164	798,810	836,083	-9.40%
80	690,551	671,812	684,412	634,482	639,092	-7.45%

2008 ridership actuals provided for January through September. And projected to year end.

### 2.3.2 GGT Bus Productivity and Farebox Recovery

Table 2.8 provides a summary of productivity (passengers carried by revenue hour) and farebox recovery by GGT bus route category for the years 2005, 2006 and 2007. Although most GGT bus routes serving Central and Southern Marin have experienced a decline in ridership, overall system productivity and farebox recovery have remained fairly constant.

**Table 2.8: GGT Bus Service Productivity and Farebox Recovery**

Route Category	FY 2005		FY 2006		FY 2007	
	Productivity*	Farebox Recovery Ratio	Productivity	Farebox Recovery Ratio	Productivity	Farebox Recovery Ratio
Basic	20.9	28.60%	20.9	27.20%	20.3	27.00%
Commute	19.1	30.40%	18.8	28.50%	17.8	29.10%

\* Passengers carried per revenue hour.

Table 2.9 provides a summary of productivity (passengers carried by revenue hour) and farebox recovery by GGT Routes 2, 4, 8, 9, 10, 18, 24, 26, 27, 38, 44, 54, 56, 58, 60, 70, 72, 73, 74, and 80 for FY 2007.

**Table 2.9: Productivity and Farebox Recovery for GGT Basic and Commute Routes Serving Central and Southern Marin (FY 2007)**

Route	Passengers per Revenue Hour	Farebox Recovery Ratio
2	23.1	25.0%
4	23.7	27.0%
8	15.3	16.0%
9	13.5	No Data
10	16.7	19.0%
18	21.7	28.0%
24	18.8	25.0%
26	22.0	27.0%
27	18.8	24.0%
38	19.7	30.0%
44	14.4	19.0%
54	19.1	35.0%
56	15.8	27.0%
58	12.3	22.0%
60	12.1	15.0%
70	24.1	29.0%
72	13.5	40.0%
73	11.7	30.0%
74	14.9	37.0%
80	18.2	28.0%

## 2.4 Proposed Near Term GGT Service Changes

GGT has proposed a series of bus service changes to improve customer service and redeploy underutilized bus to routes and times where additional capacity is needed. The proposed service changes affecting service in the Central and Southern Marin study area include:

- *Route 8:* Discontinue one trip
- *Route 60:* Eliminate three midday service trips
- *Routes 80 and 101:* Modify Route 80 service during weekday daytime periods (approximately 6 a.m. to 7 p.m.) to eliminate stops between San Rafael and the Spencer Avenue pad stop. New express service would be referred to as Route 101. Replacement service would be provided by other GGT routes.
- *Routes 10 and 92:* Modify Route 10 service to operate on Van Ness Avenue and Lombard Street instead of along Geary Boulevard within San Francisco and extend this route to Manzanita Park-and-Ride Lot and Strawberry in Marin County. Create new Route 92 to provide weekday peak period service from Marin City and Sausalito to points along the Geary Blvd. corridor.

Although some of the proposed changes affect routing beyond the service area, they may make the routes more attractive to potential riders originating within or transferring from bus stops within the Central and Southern Marin study area. If approved, the changes will be implemented March 8, 2009.

## 2.5 Marin Transit Service Performance by Route

### 2.5.1 Marin Transit Revenue Hours and Ridership by Route

Table 2.10 provides a summary of FY 2007/08 annual revenue hours and ridership for Marin Transit Routes 17, 19, 22, 23, 29 and 36, serving Central and Southern Marin. Although five year revenue hour and ridership data are not available for individual Marin Transit routes serving Central and Southern Marin, Marin Transit fixed routes have experienced a 53% increase in annual revenue hours operated (from 54,033 to 82,803) and a 31% increase in annual ridership (from 1,711,798 to 2,248,744) between FYs 2000/01 and 2004/05<sup>3</sup>.

**Table 2.10: Annual Revenue Hours and Ridership for Marin Transit Local Routes Serving Central and Southern Marin (FY 2007/08)**

FY 2007/08	Marin Transit Route							TOTAL
	17	19	22	23	29	36	71	
Annual Ridership	225,957	71,245	334,800	223,562	185,578	161,584	226,351	1,429,077
Annual Revenue Hours	9,271	6,407	18,377	11,206	8,204	4,805	7,200	65,470

Route totals based on 11 months actuals and annualized for full year.

<sup>3</sup> [2006 Marin Transit Short Range Transit Plan.](#)

## 2.5.2 Marin Transit Bus Productivity and Farebox Recovery

Productivity and farebox recovery data, depicted below, show Marin Transit local routes serving Central and Southern Marin for FYs 2006/07 and 2007/08<sup>4</sup> (Table 2.11).

**Table 2.11: Productivity and Farebox Recovery for Marin Transit Local Routes Serving Central and Southern Marin (FYs 2006/07 and 2007/08)**

	Productivity			Farebox Recovery		
	FY 2006/07	FY 2007/08	% Change	FY 2006/07	FY 2007/08	% Change
Route 17	24.1	27.0	12.0%	20.1%	22.3%	10.9%
Route 19	11.0	12.0	9.1%	9.7%	12.0%	23.7%
Route 22	20.1	21.0	4.5%	16.9%	17.9%	5.9%
Route 23	22.9	20.5	-10.5%	17.7%	17.7%	0.0%
Route 29	23.7	24.0	1.3%	23.6%	24.2%	2.5%
Route 36	41.4	33.9	-18.1%	39.6%	33.9%	-14.4%
Route 71	33.0	27.8	-15.8%	29.7%	25.1%	-15.5%

## 2.6 Proposed Near Term Marin Transit Service Changes

Marin Transit has continued to implement service recommendations developed through its Short Range Transit Plan process. As well, Marin Transit's future service improvement plans are guided by Measure A transit priorities. Measure A transit priorities are intended to improve the attractiveness of transit service to "choice" transit markets within Marin County and include:

- **Provide transit service every 15 minutes in the following corridors:**
  - Highway 101 corridor connecting all communities in the corridor and San Francisco
  - San Rafael to College of Marin via Andersen Drive/Sir Francis Drake
  - San Rafael to San Anselmo via Red Hill/4th Street
  - San Rafael Transit Center to Civic Center and Northgate Mall
  
- **Provide transit service at least every 30 minutes in the following corridors:**
  - Sausalito to Marin City and the Toll Plaza via Bridgeway
  - Mill Valley on Miller Avenue and East Blithedale
  - Corte Madera and Larkspur via Tamalpais/Magnolia and Sir Francis Drake
  - San Anselmo to Fairfax via Sir Francis Drake and Red Hill Road
  - San Rafael via Lincoln to Civic Center, Merrydale and on to Kaiser Hospital
  - Novato service in the Hamilton area, in the Ignacio area east of Palmer and South Novato Boulevard.
  - Novato service from neighborhoods to Vintage Oaks Shopping Center
  - Corridor service from Novato to San Rafael transit center with connections to College of Marin.

<sup>4</sup> FY 2006/07 data is based on YTD September 2006 to June 2007. FY 2007/08 data is based on YTD July 2007 to June 2008.

Marin Transit implemented a number of service enhancements on December 3, 2008. Changes affecting routes serving the Central and Southern Marin study area included:

- *Routes 17 and 29*: Peak hour frequency was increased from 60 to 30 minutes.
- *Route 36*: Saturday service discontinued.
- *Route 71*: Additional trips added on weekends to increase service between San Rafael and Marin City.

## 2.7 GGT and Marin Transit Performance Standards

### 2.7.1 GGT Performance Standards

Key GGT service performance standards that could be affected by transit service enhancements in Central and Southern Marin include:

#### Passengers per Revenue Hour

- **Desired minimum productivity standard**: At least 20 passengers per revenue hour during peak periods and 15 during the off peak.
- Data provided in Table 2.9 reflects a blended average productivity and does not distinguish between peak and off peak productivity. Five of the 20 routes included in Table 2.9 exceed the desired 20 passengers carried per revenue benchmark.

#### Bus On-time Performance

- **Desired on-time performance standard**: Operate on-schedule 90% of the time.
- Bus on-time performance has improved from 81.1% in FY 2005 to 90.8% in FY 2007

### 2.7.2 Marin Transit Performance Standards

Key Marin transit service performance standards<sup>5</sup> that could be affected by transit service enhancements in Central and Southern Marin include:

#### Passengers per Revenue Hour

- **Desired minimum productivity standard**: At least 20 passengers carried per revenue hour for all fixed routes after one year of operation.
- In FY 2007/08 Local Routes 17, 22, 23, 29, 36, and 71 exceeded the minimum productivity standard. Route 19 performance fell below the minimum of 20 passengers carried per revenue hour (refer to Table 2.11).

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<sup>5</sup> Performance standards documented in [2006 Marin Transit Short Range Transit Plan](#)

## Connectivity

- **Desired standard:** Complete 95% of all local and regional service connections as scheduled.
- Data necessary to evaluate connectivity is not available.

## On Time Performance

- **Desired standard:** Operate on-schedule at time points 85% of the time.
- Marin Transit local bus service exceeds the desired on time performance standard. Average on time performance for Marin Transit local service is 95.3%, ranging from 92.7% on weekends to 96.2% during midday weekday service hours. Peak hour on time performance is 95.5%.

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## **CHAPTER 3: TRANSIT HUB AND CORRIDOR FACILITIES**

In this chapter, existing transit hub and corridor facilities are summarized. These facilities serve Hwy 101 trunk line services operated by Golden Gate Transit, and their interface with local Marin Transit services at transfer facilities, together with park and ride lots, which serve all transit operators.

### **3.1 Transit Hub and Corridor Facilities**

#### **Program/Approved Transit Improvements**

The full list of improvements will be included in the final draft of the Task 2 report. These will include a summary of planned developments relevant to transit in Central and Southern Marin, drawn from the RTP, Countywide Plan, San Rafael, Larkspur, Mill Valley & Sausalito General Plans, Freeway Performance Initiative (FPI) for Hwy 101, Greenbrae Interchange/Larkspur Ferry Access Improvement Plans, SRTPs, and the Sonoma-Marin Area Rail Transit (SMART) planning process. A plan of the *Highway 101 Greenbrae/Twin Cities Corridor Improvements: Southbound Option C – Northbound Option E* can be found in Appendix A.

There are several existing transit “hubs” in Central and Southern Marin County. These can be generally categorized as transfer facilities and other key facilities.

#### **San Rafael Transit Center**

The San Rafael Transit Center (also known as the C. Paul Bettini Transit Center) is located at the eastern edge of downtown adjacent to Hwy 101. The Transit Center is a bus-only facility providing bus and shuttle service at four passenger platforms (platforms A-D) with 18 bus bays. Golden Gate Transit (GGT), the primary operator at the Transit Center, provides local service within Marin County under contract to Marin County Transit District (MCTD), and regional service to Sonoma, Contra Costa and San Francisco Counties. GGT operates twenty routes through the Transit Center with many of these providing weekday commuter service only. Limited service is available during off-peak hours and weekends. GGT buses are scheduled to depart the Transit Center at 30-minute intervals on the hour and half hour. The outer edge of Platform A along Heatherton Street serves southbound GGT buses with the inner edge serving GGT buses to the East Bay and to the Canal District in San Rafael. Platform B serves local GGT buses. Platform C serves northbound GGT buses and Platform D serves all the non Golden Gate Transit service buses and shuttles as well as a few GGT bus routes. Other transit service on Platform D is provided by Greyhound (3 buses a day), Sonoma County Transit, County Shuttle Connection, West Marin Stagecoach and two airport shuttle services.

Sonoma County Transit operates one commuter route to San Rafael Transit Center each weekday from locations in Sonoma County with a timed connection to San Francisco-bound GGT routes. The County Shuttle Connection, which loads on the Tamalpais Avenue side of Platform D is operated by the Marin County Health and Human Services Department and provides service to the County Social Services Building. Marin Airporter provides service to

San Francisco International Airport while the Sonoma County Airport Express shuttle serves Oakland Airport.

The facility has a security booth staffed by a security guard (located on Platform B), public restrooms, dry cleaner and coffee shop. GGT ticket books can be purchased at the ticket booth and tickets for the Oakland Airport shuttle are available at the dry cleaner shop. The Sonoma Marin Rail service (SMART) between Cloverdale and Larkspur includes a station adjacent to the San Rafael Transit Center in the future.

Golden Gate Transit Routes which serve this area include the basic routes – Routes 40, 60, 70 and 80, as well as Commuter Routes 22, 26, 36, 42, 44, 52, 54, and 68. Local Routes 17, 23, 27, 29, 35, 45, 45K, 49, 75 and 233 are also served by this center.

The San Rafael Transit Center has the following amenities for its passengers:

- Salut  Cafe, a coffee shop which also carries Golden Gate Transit value tickets;
- a ticketing office for Greyhound Bus Lines; a small restaurant serving snacks and refreshments; and
- several TransLink ticketing machines.

### **Larkspur Ferry Terminal**

Larkspur Ferry Terminal has 1,498 parking spaces available to the public, including 18 carpool spaces. In addition, the lot has 23 disabled spaces and 2 spaces for electric vehicles (reserved for electric vehicles only until 11am daily). Parking is reserved for ferry customers only. The lot is monitored and use of this lot by non-ferry riders is strictly prohibited. Violators are ticketed and/or towed.

Ferry customers can park their cars for free in the Larkspur lot for the first 24 hours. Vehicles will be ticketed on a daily basis until seventh day after the first 24 hours, when they are towed. Ticket amount is \$12 per day after the first 24 hours for ferry riders. For long term parking, customers can use the Marin Airporter Lot across the street and pay \$4 a day. An overflow lot west of the Marin Airporter site is also available.

The Larkspur Ferry Terminal also has a loading area for buses to meet ferries. In addition, there are three bus bays designated outside of the terminal area. Golden Gate Transit Route 97 runs to this terminal, and Route 29 runs by the terminal on Sir Francis Drake Boulevard.

### **Tiburon Ferry Terminal**

The ferry terminal in Tiburon is operated by the Blue and Gold ferry. Two off-site paid parking lots serve ferry patrons. The lots combined appear to offer parking for about 400 vehicles, but this parking is shared with other activities in Tiburon. Golden Gate Transit operates routes 8, 9 and 19 to the terminal area.

## **Marin City Transit Center**

This is a curbside transit hub located on Donahue. The stops in this area appear to hold up to five buses. Many Golden Gate Transit Routes pass by this location, with basic Routes 10, 60/61, 70 and 80 stopping there, and commuter Routes 2, 22, and 36, as well as Local routes 17 and 19.

## **Sausalito Ferry Terminal**

The Sausalito Ferry Terminal, located in Downtown Sausalito, has GGF and Blue and Gold ferries which travel to San Francisco. Ferry patrons use one of the approximately 200 long-term paid parking spaces maintained by the City of Sausalito. Golden Gate Transit Routes 2, 10, 22, 60, 70 and 80 serves ferry passengers.

## **Strawberry Village**

There is a small transfer point at Reed and Belvedere behind the Strawberry Village shopping center. Golden Gate Transit Routes 8, 9, 17, 18 and 22 stop at this location. There is curb space for up to three buses to load/unload at the same time. The location is about three blocks from the US Highway 101 bus pads at East Blithedale Avenue (Tiburon Wye). There is no designated park-and-ride lot associated with this facility.

## **San Anselmo Hub**

The San Anselmo Hub, located just west of Sir Francis Drake Boulevard and Center Street, contains bus parking for up to four buses. There are no park-and-ride lots adjacent to this location. Routes 22, 23, 24, 26, 27, 29 and 68 stop at the hub.

## **Bus Pad Transit Capacity**

Several bus pads are located adjacent to the Highway 101 corridor. Each bus pad has room to load/unload one Golden Gate Transit bus in each direction, although more than one 40ft coach has been observed loading at the following sites:

Lucky Drive  
Paradise Drive  
East Blithedale Avenue  
Seminary Drive (surface bus stop also available)  
Spencer Avenue

## **Parking Capacity at Bus Pad and Park and Ride Lots**

### **Manzanita Park and Ride/Tamalpais Junction**

This park-and-ride lot contains parking for Golden Gate Transit and Marin Airporter riders. There are four Golden Gate Transit Routes which stop at the location: Basic Routes 10 and 60, commuter Route 4, and local Route 17. There are an estimated 378 spaces at this location , with another 50 on-street spaces often taken as the lot becomes fully occupied.

Parking lot capacity for each bus pad and park and ride facility is depicted in Table 3.1, based on data collected by the Study team in November 2008 and on published lot capacities.

**Table 3.1: PARK & RIDE / BUS PAD FACILITIES SUMMARY**

	Name	Hwy/Arterial Location	Jurisdiction	Bus Pad / Park & Ride	Direction	Parking Lot Capacity
1	Lucas Valley Rd	Hwy 101	San Rafael	Bus Pad	NB	0
2	Lucas Valley Rd	Hwy 101	San Rafael	Bus Pad	SB	0
3	Smith Ranch Road	Hwy 101	San Rafael	Park & Ride	NB	186
4	Terra Linda	Hwy 101	San Rafael	Bus Pad	NB	0
5	Terra Linda	Hwy 101	San Rafael	Bus Pad	SB	0
6	N. San Pedro Rd (Civic Center)	Hwy 101	San Rafael	Bus Pad	NB	0
7	N. San Pedro Rd (Civic Center)	Hwy 101	San Rafael	Bus Pad	SB	0
8	Wilson Ct	Lincoln Ave	San Rafael	Park & Ride	SB	42
9	Dtn San Rafael Transit Center/SMART	3rd Street	San Rafael	Park & Ride	SB	184
10	La Cuesta Dr (Bon Air Shopping Center)	Sir Francis Drake Blvd	Greenbrae	Park & Ride	SB	71
11	Drakes Landing Office Park	Sir Francis Drake Blvd	Greenbrae	Park & Ride	SB	50
12	Lucky Drive	Hwy 101	Corte Madera	Bus Pad	NB	7
13	Lucky Drive	Hwy 101	Corte Madera	Bus Pad	SB	0
14	Redwood Ave & Montecito Dr	Tamalpais Dr	Corte Madera	Park & Ride	SB	48
15	Paradise Dr.	Hwy 101	Corte Madera	Bus Pad	NB	0
16	Paradise Dr.	Hwy 101	Corte Madera	Bus Pad	SB	0
17	Tiburon Wye	Hwy 101	Mill Valley	Bus Pad	NB	0
18	Tiburon Wye	Hwy 101	Mill Valley	Bus Pad	SB	0
19	Seminary Dr.	Hwy 101	Mill Valley	Bus Pad	NB	0
20	Seminary Dr.	Hwy 101	Mill Valley	Bus Pad	SB	0
21	Seminary Dr.	Hwy 101	Mill Valley	Park & Ride	NB/SB	62
22	Manzanita at Pohono St	Hwy 101	Mill Valley	Park & Ride	NB	75
23	Manzanita at Shoreline Hwy 1	Hwy 101	Mill Valley	Park & Ride	SB	303
24	Spencer Ave	Hwy 101	Sausalito	Park & Ride	SB	45
25	Spencer Ave	Hwy 101	Sausalito	Bus Pad	NB	0
26	Spencer Ave	Hwy 101	Sausalito	Bus Pad	SB	10
	<b>TOTAL</b>					<b>1,083</b>

### Key Arterial Roadway Bus Stops

In addition to the Highway 101 bus pads and transit centers discussed above, there are additional key bus stops on several of the local arterial roadways. These stops are recognized as places where transfers occur, or places with a significant amount of activity.

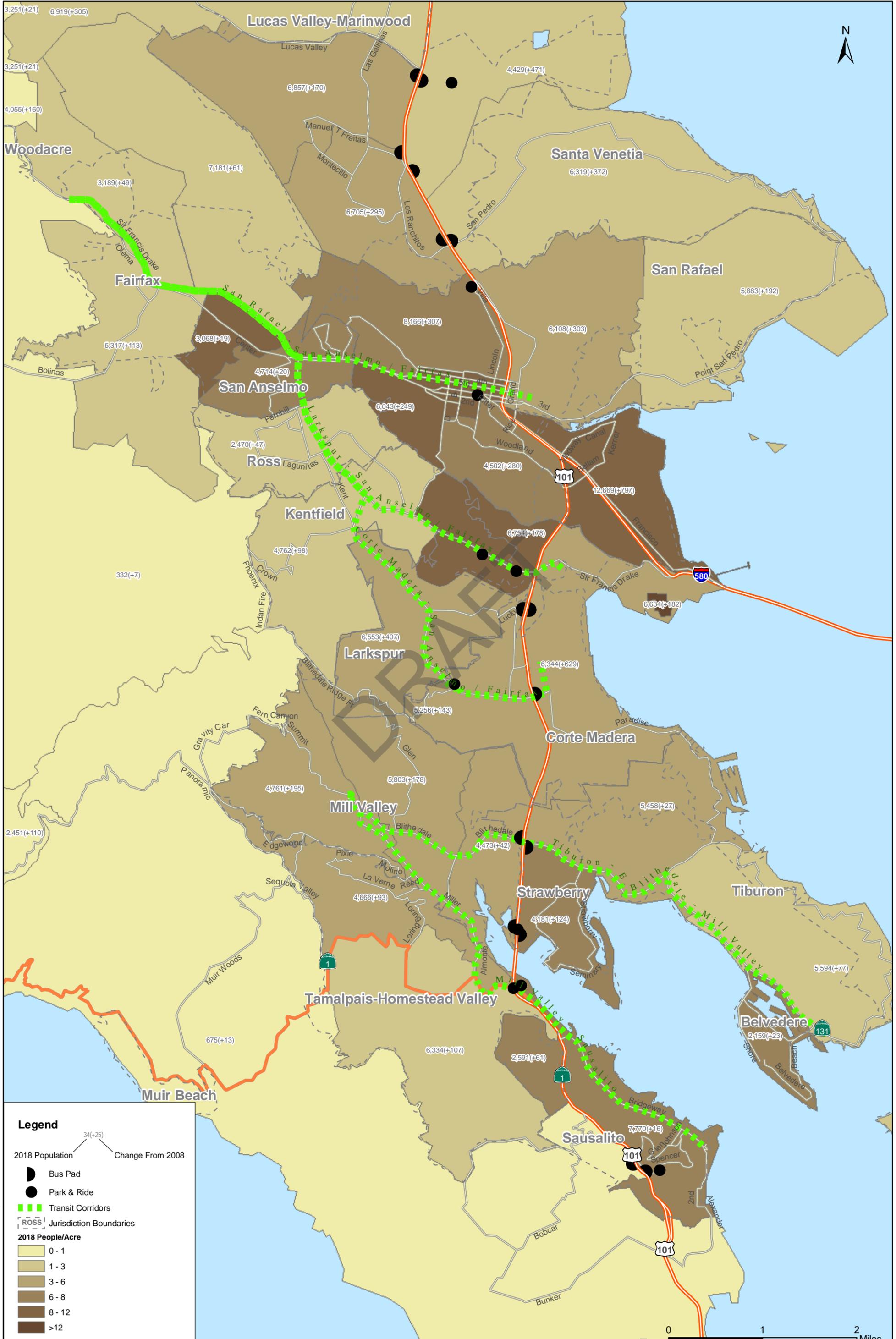
Key bus stops on the East West arterial street corridors will be included in the final draft of the Task 2 report.

## **CHAPTER 4: CORRIDOR TRAVEL CONDITIONS**

This Chapter explores current capacity, planned transit improvements, current travel speeds on the Hwy 101 and key locations on the East West Corridors, anticipated travel speeds (during the next ten years, based on confirmed improvements), and concludes with current congestion locations and generators. Due to data limitations at the date of this draft, some of these remain to be finalized for the final report draft.

To provide a backdrop to travel conditions and demand, the Study team undertook a local breakdown of the current (ABAG/MTC 2007) regional forecasts of population and employment growth. These are detailed in Figures 4.1 and 4.2 on the following pages. They show modest growth on both indicators for the Study area. Demographically, and in terms of the transit market, Central and Southern Marin is one of the most stable (i.e. slowest growing) parts of the nine-county Bay Area.

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**Legend**

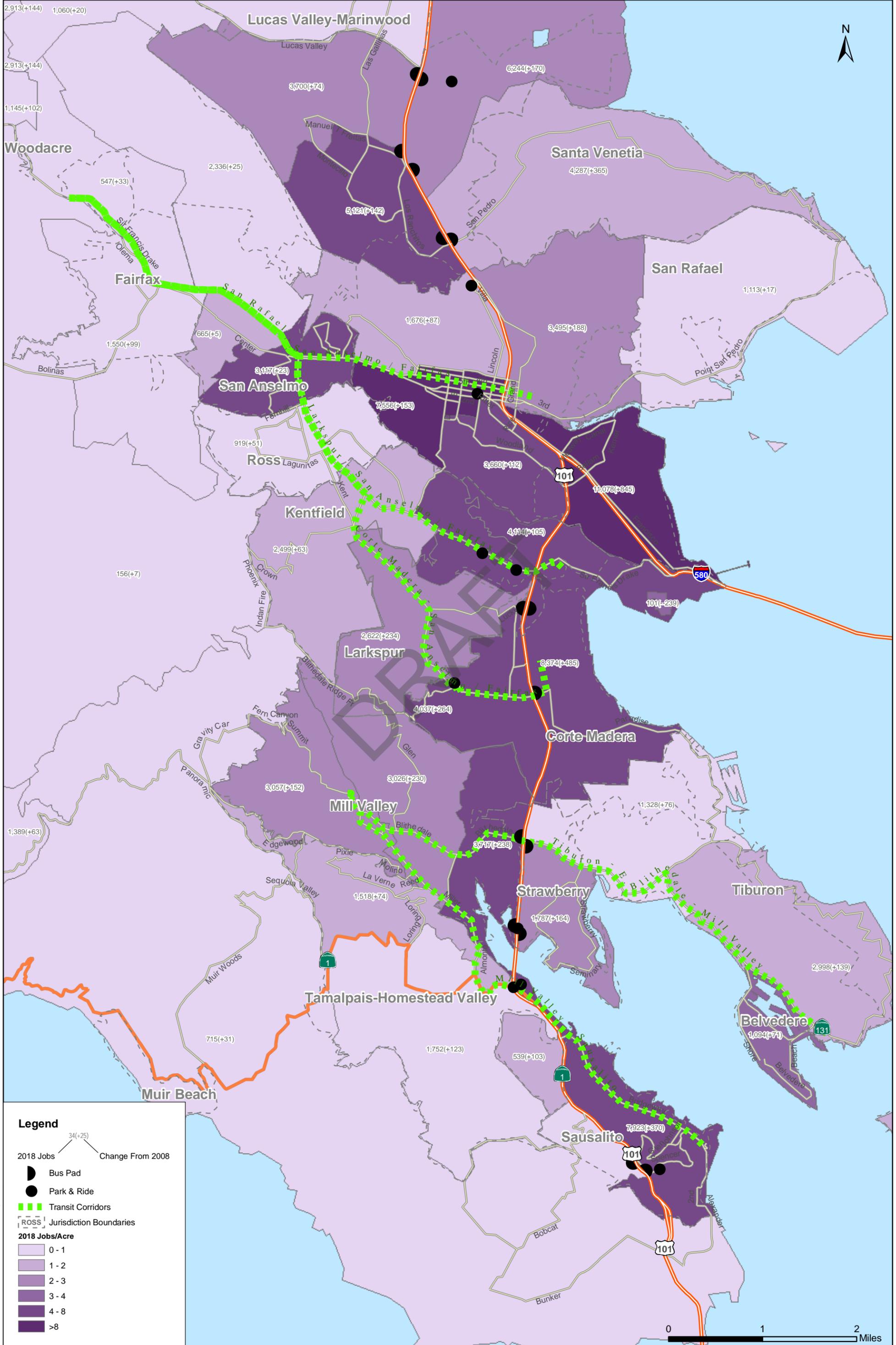
2018 Population      34(+25)      Change From 2008

- Bus Pad
- Park & Ride
- Transit Corridors
- Jurisdiction Boundaries

**2018 People/Acre**

- 0 - 1
- 1 - 3
- 3 - 6
- 6 - 8
- 8 - 12
- >12

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**Legend**

2018 Jobs Change From 2008

● Bus Pad

● Park & Ride

--- Transit Corridors

--- Jurisdiction Boundaries

**2018 Jobs/Acre**

0 - 1
1 - 2
2 - 3
3 - 4
4 - 8
>8

34(+25)



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#### **4.1 Current Operating Environment on the Highway 101 Corridor**

The major north-south roadway is US Highway 101. This is a freeway facility (although many portions are designed with exceptions to current freeway standards, such as lane and shoulder widths) with four lanes in each direction. The configuration south of the Richardson Bay Bridge is four-mixed flow lanes in each direction. The segments north of this point are configured as three mixed-flow and one single-occupancy vehicle lane to the vicinity of the Interstate 580 interchange. Currently, the lanes stop at this point, and there are currently four-general purpose lanes in this area with the right-most lane serving as an auxiliary lane. At the Central San Rafael Interchange, the roadway contains three lanes in each direction, with a fourth auxiliary lane existing north of the merge/diverge points to the interchange currently in place. This configuration continues to the Civic Center area, where the three-mixed-flow lane/single high occupancy-vehicle lane configuration resumes.

The high-occupancy vehicle lane is designated for vehicles with 2 or more persons. The hours of operation are 6:30 to 8:30 AM for the southbound direction, and 4:30 to 7:00 PM for the northbound direction. Any vehicle may use the lane at all other times. Surveys conducted in 2007 (2007 HOV Lane Report, Caltrans) show that the peak hour AM volumes were 696, and the peak hour PM volumes were 793. This is an estimated 13 percent of the total AM traffic, and 15 percent of the total PM traffic on this segment of roadway. The HOV lane violation rate (single-occupant vehicles in HOV lane) is 1.5 percent in the AM direction and 1.1 percent in the PM direction – much lower than Bay Area HOV lanes as a whole. The net benefit to travel is shown to be one minute (6 HOV lanes to 7 in mixed flow), in the AM peak direction. The benefit in the PM direction is 7 minutes, with 12 minutes in the HOV lane compared to 19 minutes in mixed-flow lanes. The average southbound speed is 45 mph for mixed-flow operations and 55mph for the HOV lane in the morning, with 14 miles per hour for the mixed-flow lanes and 22 miles per hour for the HOV lanes in the PM northbound direction. It should be noted that the PM northbound congestion is significantly greater for both HOV and mixed-flow lanes, as a result of capacity limitations in Central San Rafael.

To address this significant northbound delay, a major project was begun in 2006, known as the “gap closure” project. This project is designed to provide a continuous high-occupancy vehicle lane in each direction through Marin County. This project also includes modifications to and from Interstate 580. The project has also involved the relocation of Francisco Boulevard West and making associated utility and drainage improvements. The project is approaching completion, with the additional capacity being enabled in early 2009. Currently, the completion is resulting in different roadway changes occurring from one week to the next.

Traffic congestion and slower speeds have been frequently observed as a result of the traffic flow restrictions that result from the reduction of a lane in Central San Rafael. While this can occur during several peak periods, it has been mostly noted in the southbound direction in the AM peak period, and the northbound direction in the PM peak period. The monitoring performed for TAM on Highway 101 shows speeds that drop

Traffic congestion and slower speeds have been frequently observed as a result of the traffic flow restrictions that result from the reduction of a lane in Central San Rafael. While this can occur during several peak periods, it has been mostly noted in the southbound direction in the AM peak period, and the northbound direction in the PM peak period. The monitoring performed for TAM on Highway 101 shows speeds that drop in the AM peak hour to as slow (with actual stop-and-go conditions) to an average of 15 miles per hour significantly upstream from the congestion point (measured between Lucas Valley Road and Freitas Parkway) for southbound traffic. This continues to the weaving area between the Central San Rafael and the Interstate 580 exits when traffic returns to more normal congested freeway speeds.

In the PM peak hour, northbound traffic has been measured with the CMP monitoring program to be as slow (with actual stop-and-go conditions) to an average of 7 to 8 miles per hour between the East Blithedale/Tiburon Boulevard interchange and the weaving area between the Interstate 580 and the Central San Rafael exits. These slow speeds (as well as field observations) indicate that the slowing begins well south of the East Blithedale/ Tiburon Boulevard interchange and may often extend to the Richardson Bay Bridge. Traffic begins to return to more normal congested freeway speeds once past the congested area of Central San Rafael.

In 2009, significant improvements in travel time are anticipated as a result of the completion of the gap closure project. The travel speeds should improve significantly, although queuing from the weaving bottleneck is still expected to occur. Studies have suggested that the northbound queue should improve at first, but gradually deteriorate to begin at a point about a half of a mile north of the East Blithedale/Tiburon Boulevard interchange.

### **Hwy 101 Corridor Bus Pad Capacity and Utilization**

Park and ride and the unique bus pad facilities are a crucial part of Marin's transit infrastructure on the Hwy 101 corridor. Understanding their utility is important to developing strategies for improvements in capacity and the location of new facilities. However, with no published data available, the Study team undertook an inventory of bus pad/park and ride lot utilization in the morning peak and, midday, on several weekdays in November 2008. The counts were extended to several park and ride/bus pad locations upstream of the study area, as far as Lucas Valley, in order to capture any southbound morning commute activity relevant to the study area north of San Rafael. The collected information is shown in Table 4.1, and the accompanying map.

The counts reveal a consistent excess demand at several locations on the Hwy 101 corridor, in the order of 30 percent or approximately 400 spaces daily. Significantly, several bus pad locations with no formal parking provision, and poor auto access, show 30-60 regular "overflow" demand spaces on adjacent surface streets daily. These are especially apparent in the Lucky Drive/Paradise area, where future plans for bus pads in the Greenbrae/Twin Cities Hwy 101 improvements may reconfigure adjacent frontage roads and the pad locations themselves.

**Table 4.1: PARK & RIDE FACILITIES AND DEMAND SUMMARY**

	Name	Hwy/Arterial Location	Jurisdiction	Bus Pad / Park & Ride	Direction	Parking Lot Capacity	Occupied Spaces	Available Spaces	Lot Utilization (%)	Occupied Spaces	Available Spaces	Lot Utilization (%)	Overflow Observed	Overflow Observed	Est. Demand (No. of Occupied Spaces+ Overflow)	Est. Demand Utilization
							7am-8am	7am-8am	7am-8am	12pm-1pm	12pm-1pm	12pm-1pm	7am-8am	12pm-1pm		
1	Lucas Valley Rd	Hwy 101	San Rafael	Bus Pad	NB											
2	Lucas Valley Rd	Hwy 101	San Rafael	Bus Pad	SB								10	5	5	
3	Smith Ranch Road	Hwy 101	San Rafael	Park & Ride	NB	186	50	136	26.9%	74	112	39.8%			74	80%
4	Terra Linda	Hwy 101	San Rafael	Bus Pad	NB											
5	Terra Linda	Hwy 101	San Rafael	Bus Pad	SB											
6	N. San Pedro Rd (Civic Center)	Hwy 101	San Rafael	Bus Pad	NB											
7	N. San Pedro Rd (Civic Center)	Hwy 101	San Rafael	Bus Pad	SB								30	31	31	
8	Wilson Ct	Lincoln Ave	San Rafael	Park & Ride	SB	42	22	20	52.4%	27	15	64.3%			27	129%
9	Dtn San Rafael Transit Center/SMART	3rd Street	San Rafael	Park & Ride	SB	184	184		100.0%	181	3	98.4%			181	197%
10	La Cuesta Dr (Bon Air Shopping Center)	Sir Francis Drake Blvd	Greenbrae	Park & Ride	SB	71	62	9	87.3%	62	9	87.3%			62	175%
11	Drakes Landing Office Park	Sir Francis Drake Blvd	Greenbrae	Park & Ride	SB	50	38	12	76.0%	40	10	80.0%			40	160%
12	Lucky Drive	Hwy 101	Corte Madera	Bus Pad	NB	7	5	2	71.4%	7		100.0%	12	30	37	629%
13	Lucky Drive	Hwy 101	Corte Madera	Bus Pad	SB								55	65	65	
14	Redwood Ave & Montecito Dr (Village Square)	Tamalpais Dr	Corte Madera	Park & Ride	SB	48	26	22	54.2%	29	19	60.4%			29	121%
15	Paradise Dr.	Hwy 101	Corte Madera	Bus Pad	NB								25	38	38	
16	Paradise Dr.	Hwy 101	Corte Madera	Bus Pad	SB								32	22	22	
17	Tiburon Wye	Hwy 101	Mill Valley	Bus Pad	NB								6	8	8	
18	Tiburon Wye	Hwy 101	Mill Valley	Bus Pad	SB											
19	Seminary Dr.	Hwy 101	Mill Valley	Bus Pad	NB								14	36	36	
20	Seminary Dr.	Hwy 101	Mill Valley	Bus Pad	SB								7	30	30	
21	Seminary Dr.	Hwy 101	Mill Valley	Park & Ride	NB/SB	62	54	8	87.1%	61	1	98.4%		4	65	203%
22	Manzanita at Pohono St	Hwy 101	Mill Valley	Park & Ride	NB	75	5	70	6.7%	46	29	61.3%		3	49	127%
23	Manzanita at Shoreline Hwy 1	Hwy 101	Mill Valley	Park & Ride	SB	303	76	227	25.1%	298	5	98.3%		44	342	211%
24	Spencer Ave	Hwy 101	Sausalito	Park & Ride	SB	45	38	7	84.4%	44	1	97.8%		85	129	384%
25	Spencer Ave	Hwy 101	Sausalito	Bus Pad	NB								10	18	18	
26	Spencer Ave	Hwy 101	Sausalito	Bus Pad	SB	10	9	1	90.0%	9	1	90.0%	6	7	16	250%
<b>TOTALS</b>						<b>1,083</b>	<b>569</b>	<b>514</b>		<b>878</b>	<b>205</b>		<b>207</b>	<b>426</b>	<b>1,304</b>	



## 4.2 Current Operating Environment at Highway 101 Interchanges

Traffic congestion and slower speeds also occur at key intersections where the Highway 101 ramps interface with the local street system in Central and Southern Marin County. These congestion points are relevant to the transit network as there are no bypass lanes for buses to use at these locations.

- Key on-ramps and off-ramps used by local buses include: Sausalito Road – Routes 2, 10, 60, 70 and 80
- Marin City – Routes 4, 10, 17, 19, 22 36, 60, 61, 70, 71, 80
- State Route 1 (Manzanita) – Routes 4, 10, 17, 60
- Seminary Drive – Routes 8, 19, 22
- East Blithedale Avenue/Tiburon Boulevard (State Route 131) – Routes 17, 19 and 22
- Tamalpais Drive – Routes 18 and 22
- Sir Francis Drake – Routes 24 and 97
- Central San Rafael – Route 17, 26, 27, 29, 36, 40, 44, 52, 54, 60, 70, 71, 75 and 80

One project, to reduce congestion at the Southbound Highway 101 intersection at East Blithedale Avenue 101, was recently completed. The intersection at the end of this ramp often experiences high volumes and queuing at peak hours. Not only is the intersection used by Routes 17, 19 and 22, the buses that stop at the southbound bus pad must use the exit lane to reach the bus pad, and thus also experience slower speeds as a result of the exit ramp congestion at this location.

## 4.3 Profiles of Current Operating Environment on Arterial Transit Corridors

Each of the five study corridors were analyzed for current and future population, employment, general traffic congestion and activity center growth between 2008 and 2018, the horizon year. The purpose of this analysis was threefold:

- First, to understand how well current transit service provision matches typical densities, current and future, since density is the primary (but not sole) factor in determining transit level of service.
- Second, to complement the Travel Forecasts and Transit Demand Projections in Chapter 5 by providing localized analysis within each corridor.
- Third, to establish the underlying demand foundation for future investment in transit services and facilities, to be explored in the next stage of the Study, *Task 3 Define Applicable Improvements*.

## Methodology:

For each corridor, population and employment were plotted using GIS tools, using two buffers: 1) at a quarter of a mile, representing typical walk to transit distances, and 2) out to half a mile, to capture a theoretical maximum catchments for transit. In practice, given the steep terrain in parts of most of the corridors, a ½ mile uphill walk from transit stop may be somewhat generous. Nevertheless, the ½ mile buffer was used for all corridors to provide a consistent set of assumptions for corridor comparison purposes, and to capture other modes of access to transit such as bike. In order to provide consistency with County and Bay Area region-wide growth assumptions, the data was sourced from the current ABAG/MTC projections 2007. The densities for each corridor were analyzed at census block level, broken out by the density thresholds which would typically support a given transit service level. These thresholds are well-established in transit and land use planning, and are often described in a range, rather than an absolute number of people/dwellings per acre or square mile. The lower ends of ranges were used, in order to provide a consistent framework for the analysis of the Marin corridors, and to reflect local topography (easy downhill access to transit and often steep uphill egress on the return trip). These thresholds are summarized in Table 4.2.

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**Table 4.2: Typical Corridor Densities Supporting Fixed Route Transit Services<sup>6</sup>**

Population Density/acre in corridor analysis	Dwelling units/acre equivalent	Typical dwelling type	Typically supports fixed route transit service frequency peak/off peak of:
0 - 8	0 - 4	Single family	Limited stop/none
8 -15	4 -7	Single family/Duplex	60 min
15 -30	7 -14	Quad/Townhouses	15-30min/60 min
30 -50	14 -24	Low rise (2- story) apartments	15 min/30 min
50 - 100	24 - 48	Medium rise (3-4 story) apartments	10 min/15-30 min (Rapid Bus)
100 - 360	48 - 170	Medium-High rise apartments (5 story+)	6-8 min/15 min (BRT)

A detailed description of the methodology and data sources is provided in Appendix A (to be inserted in final draft).

Major transit trip generators/destinations were identified from approved General Plans and discussions with staff of the individual cities. These discussions also sought to confirm any significant developments within the ten-year Study planning horizon.

Travel speeds on each arterial corridor is periodically sampled by TAM , performed every two years as part of the Congestion Management Program. The sampling done for these delays is at a level to provide an indication of the qualitative emergence of generalized roadway congestion. This monitoring is not comprehensive enough to identify all other potential congestion points (such as operational problems with some movements at intersections) but does provide an overall perspective on the general congestion levels that buses must negotiate. Sampling has been examined for both fall of 2006 and 2008; the 2008 data is not released for general discussion and is presented here qualitatively.

<sup>6</sup> Based on a review of transit industry practice used for both near term service planning and longer range strategic planning.

## **CORRIDOR PROFILE FINDINGS**

Maps of each of the corridors profiled are contained on the following pages as Figure 4.3 through 4.7.

### **Corte Madera-San Anselmo / Fairfax Transit Corridor**

#### **Coverage:**

The corridor connects Hwy 101 at Paradise/Lucky Drive, Corte Madera Town Center along the main arterial Tamalpais corridor through downtown Larkspur, onward through the Ross Valley to Sir Francis Drake Blvd, to downtown San Anselmo and Fairfax, extending beyond downtown Fairfax to the start of the main transit commute service corridor at Olema Rd.

This corridor serves (by its ½ mile definition) several of Southern Marin’s key transit trip generating activity centers including Marin General Hospital, several high schools and the most significant retail employment center at Corte Madera Town Center.

#### **Population and Activity Center Growth:**

The corridor serves approximately 19,000 people at ¼ mile and 33,000 at ½ mile, at an average density of 5-6 per acre overall. This makes it one of the least dense of the five corridors, and with only 2.5% growth 2008-2018, one of the slowest growing in the Study area. The corridor does have some more dense segments in downtown Larkspur, San Anselmo and Fairfax which is approximate to a density threshold supporting 30 minute peak/60 minute off-peak fixed route transit.

Other significant developments include the Greenbrae/Twin Cities phased reconstruction of Hwy 101 and adjacent access roads, as outlined in *Chapter 3: Transit Hub and Corridor Facilities*. Both Lucky and Paradise bus pad facilities and freeway access will be reconfigured and relocated through this segment of Hwy 101, with the changes to some of the direct freeway express access opportunities currently available for regional express service. A new southbound transit access facility will also be provided at the Sir Francis Drake SB ramp for the first time, fulfilling a longstanding need at this interchange.

Additional park and ride facilities could be identified during the environmental review process for the Greenbrae/Twin Cities improvements, and in later stages of this study.

#### **Roadway Operating Conditions:**

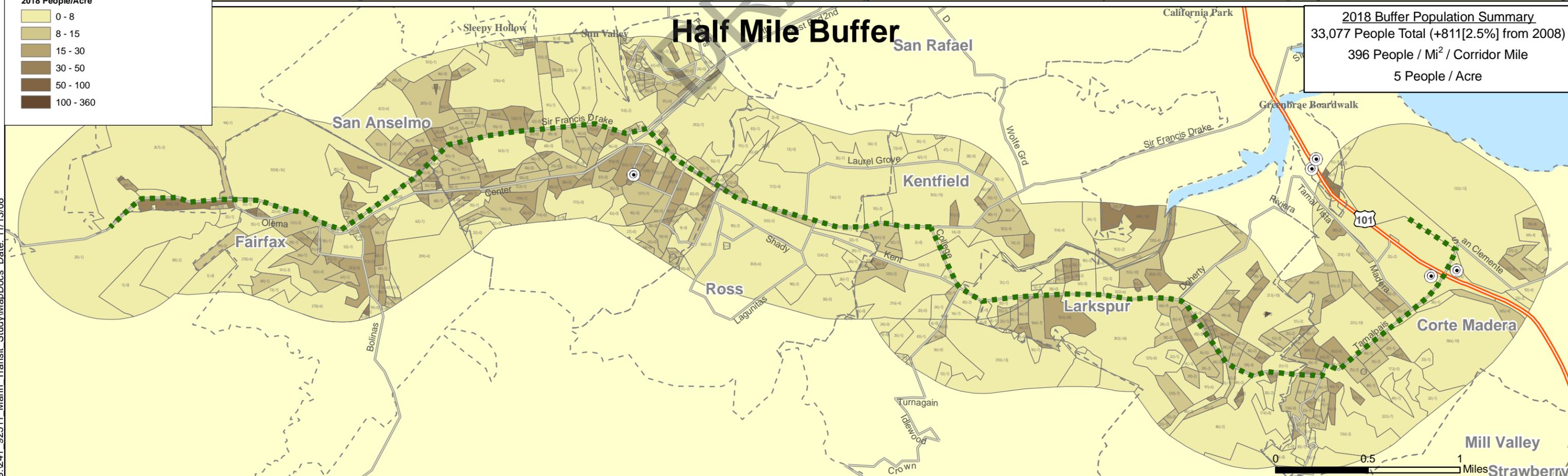
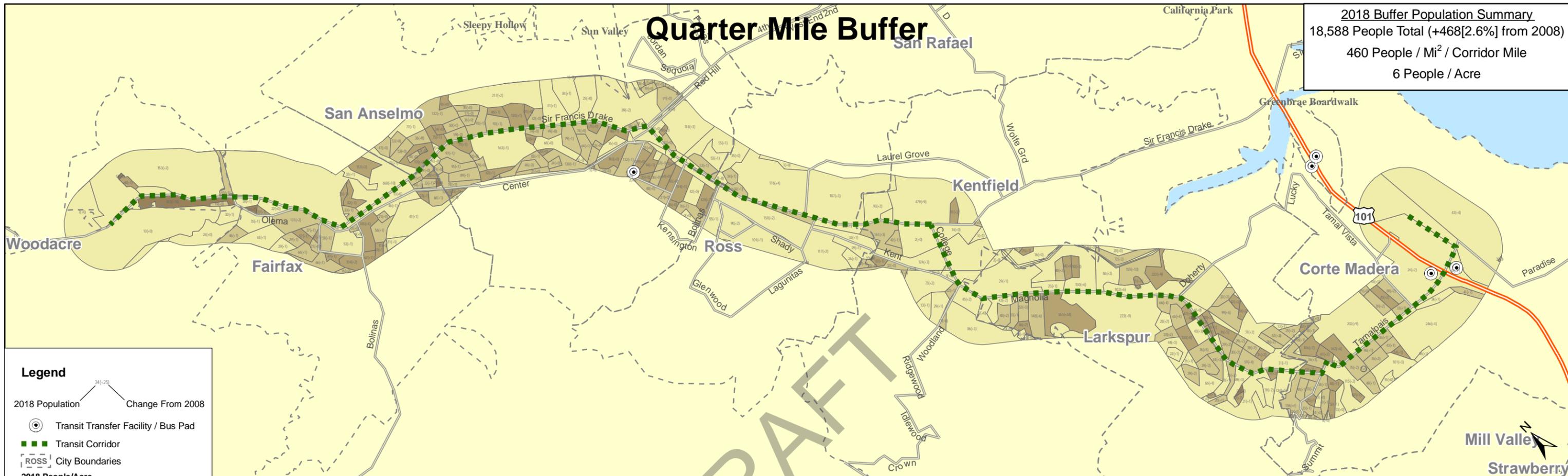
The primary arterial roadway used by buses in this corridor is Sir Francis Drake Boulevard. This facility varies between one and two lanes in each direction, including a number of signalized intersections. Other roadways include Magnolia Avenue and Paradise Drive – both which serve mostly local traffic. Except for a portion of Paradise Drive between Highway 101 and Pixley Avenue (with two lanes in each direction), this portion of the corridor is served by one lane in each direction. Traffic on Magnolia Avenue or Paradise Drive is monitored in the Congestion Management Program, as these are not designated CMP roadways.

There is a significant amount of traffic congestion reported on Sir Francis Drake Boulevard. During the AM peak period, the greatest congestion is generally eastbound. The segment between San Anselmo Avenue and Red Hill Road has reported travel speeds of under 10 miles per hour for traffic in both 2006 and 2008 eastbound (while westbound speeds have been over 22 miles per hour).

Congestion is also reported in the PM peak period all along this corridor. The most congested segment in the PM peak period is between Butterfield Road to Willow Avenue, which is shown to have speeds below 10 miles an hour westbound in the PM peak period. Other congestion points occur, but the locations are not as pronounced (only one additional minute of congestion measured). It should be noted that the roadway segment south of Red Hill Avenue in San Anselmo and Ross is not monitored, but has been observed to experience significant congestion during the PM peak hour.

### **Initial Conclusions:**

1. This long, relatively low density corridor will remain largely stable in land use and population growth, and as such, will generate little change in originating transit trip demand.
2. The corridor's stability suggests that current and proposed near term service enhancements are sufficient to improve service attractiveness to "choice" transit markets.
3. Any changes in transit provision are likely to be driven by Measure A priorities, local commute needs, and connections to Hwy 101 regional express service.
4. The reconfiguration of Hwy 101 direct transit access and relocation of current bus pad facilities and related parking will require further consideration to achieve effective transit access and utility in the future on this segment of the freeway.
5. This corridor experiences significant traffic congestion, so that any actions to relieve this congestion will benefit bus travel times. This corridor is a candidate corridor for some transit signal priority, as well as strategies to encourage residents to use transit rather than contribute to area wide congestion problems.



## **San Rafael-San Anselmo / Fairfax Transit Corridor**

### **Coverage:**

The corridor connects the Canal district of San Rafael East of downtown, the Downtown Transit Center/future SMART station along 3rd St/Miracle Mile to Sir Francis Drake Blvd, to downtown San Anselmo and Fairfax, extending to Olema Rd.

### **Population and Activity Center Growth:**

The corridor serves approximately 16,000 people at ¼ mile and 31,000 at ½ mile, at an average density of 8-9 per acre overall. This is the densest of the five corridors, but with relatively slow growth of less than 3% in the 2008-2018 period, one of the slowest growing in the Study area. In the Canal district, the corridor has some of the most concentrated residential neighborhoods. Currently and in the 10-year forecast, the density threshold supports 15- 30 minute peak/30 minute off-peak fixed route transit service. This suggests that the corridor is relatively well served by current routes' frequencies, but future transit connecting service to the downtown regional hub/SMART may be an additional layer of service needed to meet regional trips.

This corridor connects several downtowns with one of Southern Marin's key regional transit centers at the Downtown/SMART station, where regional connecting trips will grow. The corridor is likely to see some modest residential intensification in downtown San Anselmo and San Rafael, on the order of 100-150 units.

### **Roadway Operating Conditions:**

The primary arterial roadways used by buses in this corridor are Sir Francis Drake Boulevard (west of San Anselmo), and Red Hill Avenue. Sir Francis Drake Boulevard varies between one and two lanes in each direction, with a number of signalized intersections located on it. Red Hill Avenue operates as a divided arterial with two lanes in each direction. Finally, buses are routed onto Fourth Street through Central San Rafael, which is a commercial street not monitored as part of the Congestion Management Program; slower speeds may also occur on this commercial street, although not identified here.

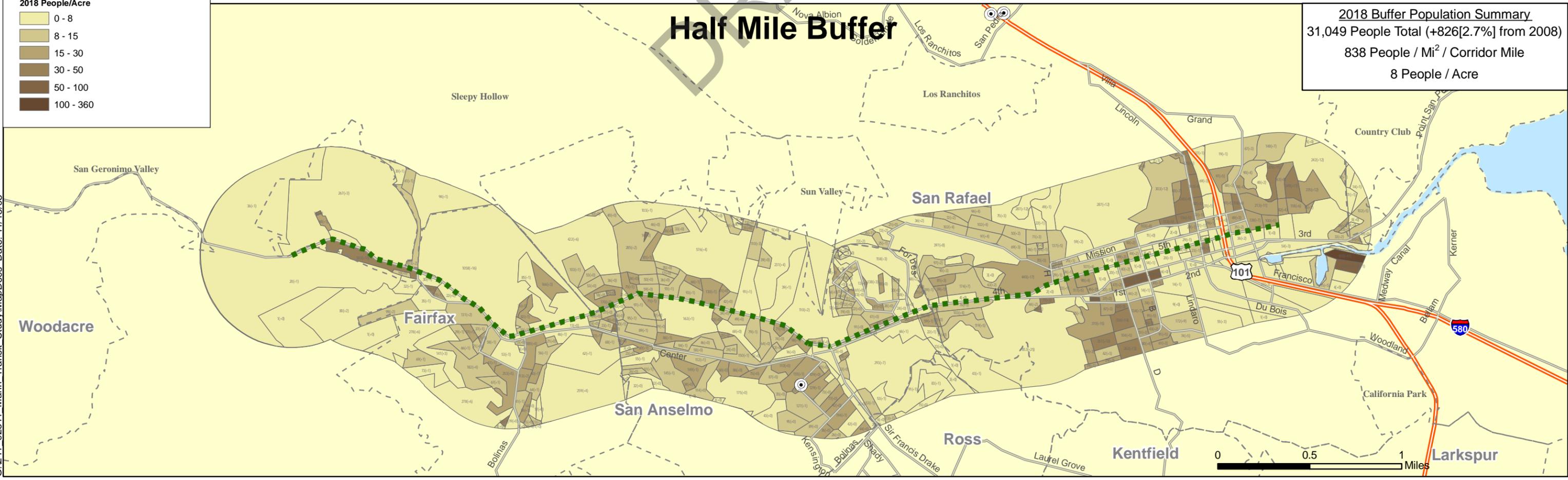
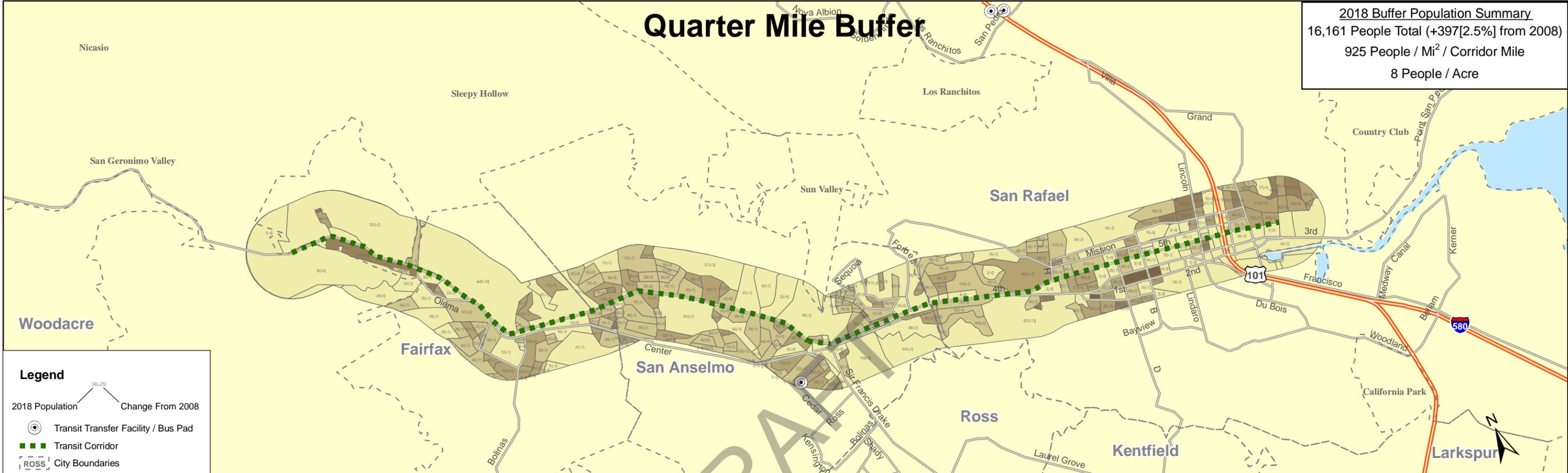
There is a significant amount of traffic congestion reported on this portion of Sir Francis Drake Boulevard. During the AM peak period, the greatest congestion is generally eastbound. The segment between San Anselmo Avenue and Red Hill Road has reported travel speeds of under 10 miles per hour for traffic in both 2006 and 2008 eastbound (while westbound speeds have been over 22 miles per hour). Red Hill Avenue has not been reported to experience significant congestion during the AM peak hour.

Congestion is also reported in the PM peak period all along this corridor, primarily on Sir Francis Drake Boulevard. The most congested segment in the PM peak period is between Butterfield Road to Willow Avenue, which is shown to have speeds below 10 miles an hour westbound in the PM peak period. Congestion is also reported on Red Hill Avenue westbound during the same time period, with speeds reducing to levels as low as 12 miles per hour.

**Initial Conclusions:**

1. This short corridor has the highest density of all of the corridors but is likely to have stable land use and low population growth, and as such will generate little change in originating transit trip demand.
2. The corridor has demand characteristics (length, density, activity center distribution) to support relatively frequent local service.
3. The corridor could potentially support frequent (15 minute peak/30 min off-peak), higher capacity dedicated short corridor service as an alternative to the current multiple overlapping services.
4. Regional commute connections to northbound SMART rail service and southbound Hwy 101 express bus service are corridor needs which may need to be considered in the future. This corridor experiences significant traffic congestion, so that any actions to relieve this congestion will benefit bus travel times. This corridor is a candidate corridor for some transit signal priority, as well as strategies to encourage residents to use transit rather than contribute to area wide congestion problems.

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## **Mill Valley-Sausalito Transit Corridor**

### **Coverage:**

The corridor connects the Sausalito's main downtown with Mill Valley, via Bridgeway, Shoreline and Miller Avenue. The southern end of the corridor makes a regional transit connection at the Sausalito ferry terminal to San Francisco. This transit corridor is also the subject of a specific streetcar feasibility effort concurrent with this South and Central Marin Transit Study. As part of the streetcar assessment, an alternate segment following the former railroad right of way parallel to Bridgeway has been included in the analysis.

### **Population and Activity Center Growth:**

With approximately 13,000 people in the ¼ mile and 23,000 in the ½ mile wide corridor, at 7 people per acre, this corridor ranks in the middle for density in comparison to the four other corridors in the study area. The corridor shows the least anticipated change, with growth forecasts of slightly less than 2% over 10 years. Feedback from the cities suggests that new residential development may be of the order of 150 units over ten years, including some multifamily, but not of the scale which is likely to take the corridor to a new threshold of density in locally-generated transit trips.

Major activity centers include the tourist businesses of downtown Sausalito, TAM High and the commercial district of upper Miller Avenue and downtown Mill Valley.

The railroad right of way alternate alignment includes a several block commercial area within the former Marin Shipyard, which has been the subject of discussion for redevelopment, but at this stage no definitive proposals for major commercial or residential development are being considered, nor is a formal redevelopment area designated. This alternate alignment is considered further in the Streetcar Working Paper document.

### **Roadway Operating Conditions:**

The primary arterial roadways used by buses in this corridor are Bridgeway Boulevard in Sausalito, Shoreline Highway, and Miller Avenue in Mill Valley. Bridgeway Boulevard varies between one and two lanes in each direction, with a number of signalized intersections located on it. Shoreline Highway has one lane in each direction. Miller Avenue varies between one and two lanes in each direction.

There is a not a significant amount of traffic congestion reported on this roadway for long periods of time in the AM peak period. Some localized congestion has been observed around school zones and in the vicinity of Tam Junction (Shoreline Highway/Alamonte Boulevard intersection), but otherwise, AM peak hour congestion has not been recognized in the CMP monitoring.

During the PM peak hour, some slow speeds have not been readily identified in the CMP monitoring. Some congestion has been recognized in the vicinity of Tam Junction (Shoreline Highway/Alamonte Boulevard intersection), but otherwise, PM peak hour congestion has not been recognized in the CMP monitoring.

Congestion is not monitored for non-commute hours. Considerable congestion has often been observed with recreational traffic with the Shoreline Highway (Highway 1) corridor between Highway 101 and West Marin.

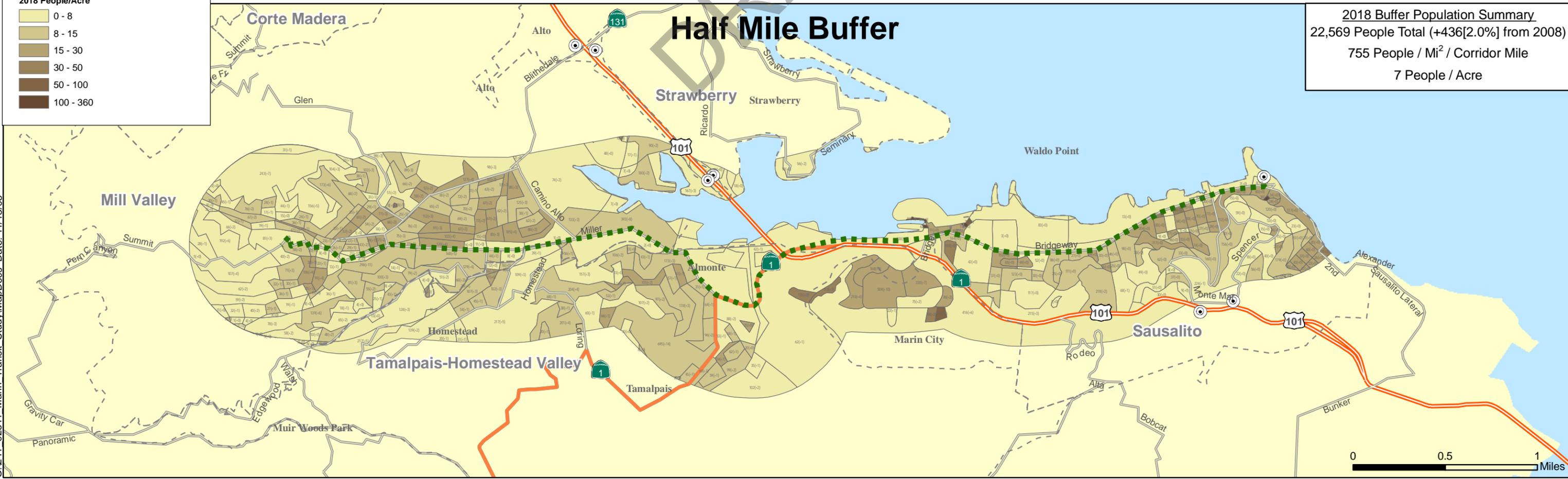
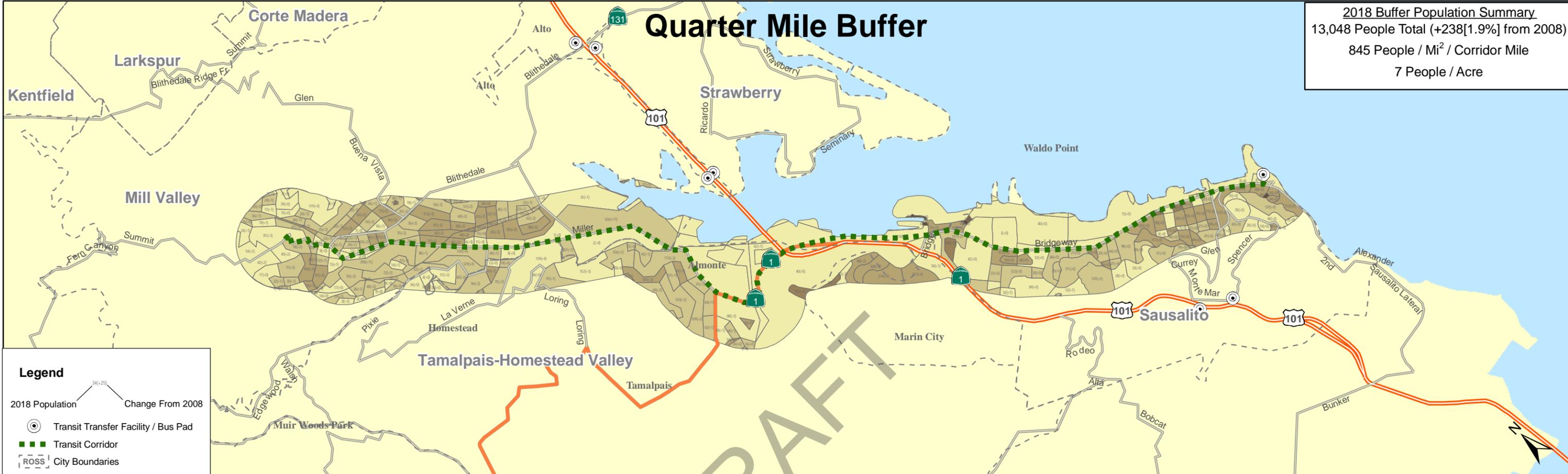
**Initial Conclusions:**

1. This corridor is the most stable in land use and population growth of those in the Study area, and likely to generate little change in originating transit trip demand.
2. The current local transit service, at 30 minute headways, matches or is slightly greater than the corridor would typically support.
3. Little change in the activity centers generating transit trips is expected, unless discussions regarding the possible redevelopment of the area in the former shipyard in Sausalito are taken further.
4. Traffic congestion levels are not severe here. Although transit signal priority could be helpful in saving travel times at specific intersections, the need for a coordinate transit signal priority system does not exist.

**Streetcar-specific Implications:**

To be inserted upon completion of the Streetcar Feasibility discussion task.

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## **Larkspur-San Anselmo / Fairfax Transit Corridor**

### **Coverage:**

This is effectively the Sir Francis Drake Corridor, connecting the regional transit hubs of the Golden Gate Ferries Larkspur Terminal/future Larkspur SMART station, Sir Francis Drake Blvd, to downtown San Anselmo and Fairfax, extending to Olema Rd. Future transit connections to Hwy 101 are planned at the Sir Francis Drake Southbound ramp (with a new bus pad) and at the Northbound ramp adjacent to the future SMART station site.

### **Population and Activity Center Growth:**

With approximately 16,000 people in the ¼ mile buffer/30,000 in the ½ mile buffer, this long corridor has a relatively low average density of approximately 7 people per acre. Growth at a little over 2% in ten years is relatively low, with a couple of notable multifamily residential developments at the east end of Sir Francis Drake adjacent to the Larkspur Landing shopping center. The most significant developments on this corridor are likely to be in the form of the regional hub infrastructure, with the opening of the SMART station, and possible enhancements to the Larkspur ferry terminal, including a possible parking garage to replace the current surface lot.

### **Roadway Operating Conditions:**

The primary arterial roadway used by buses in this corridor is Sir Francis Drake Boulevard. This facility varies between one and two lanes in each direction, with a number of signalized intersections located on it.

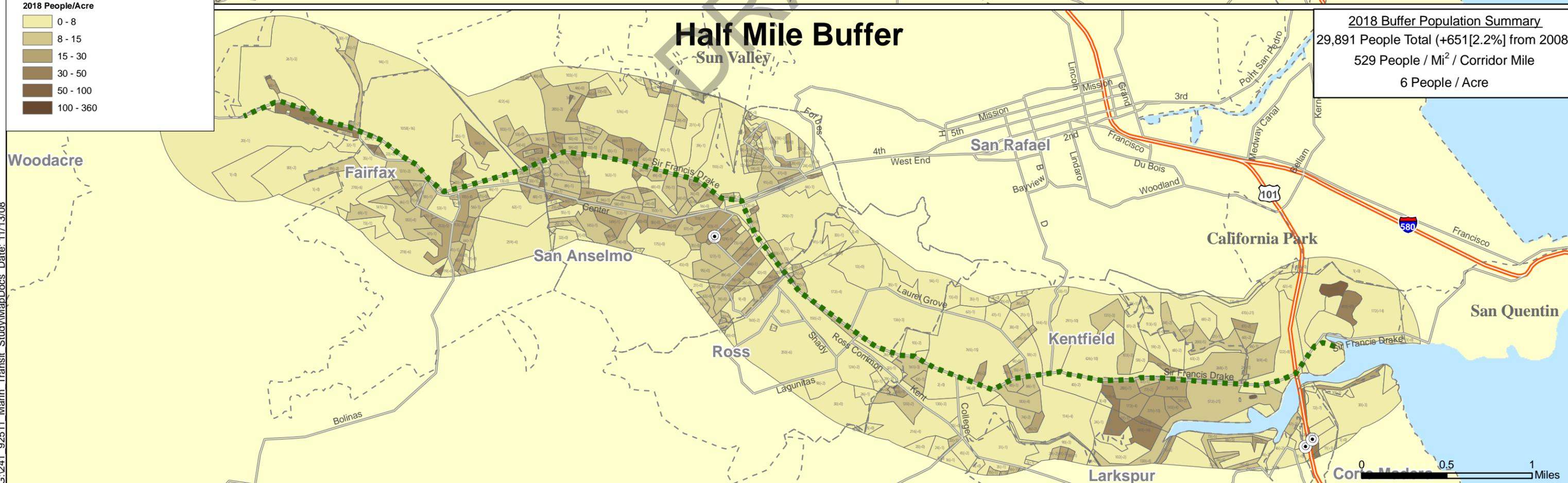
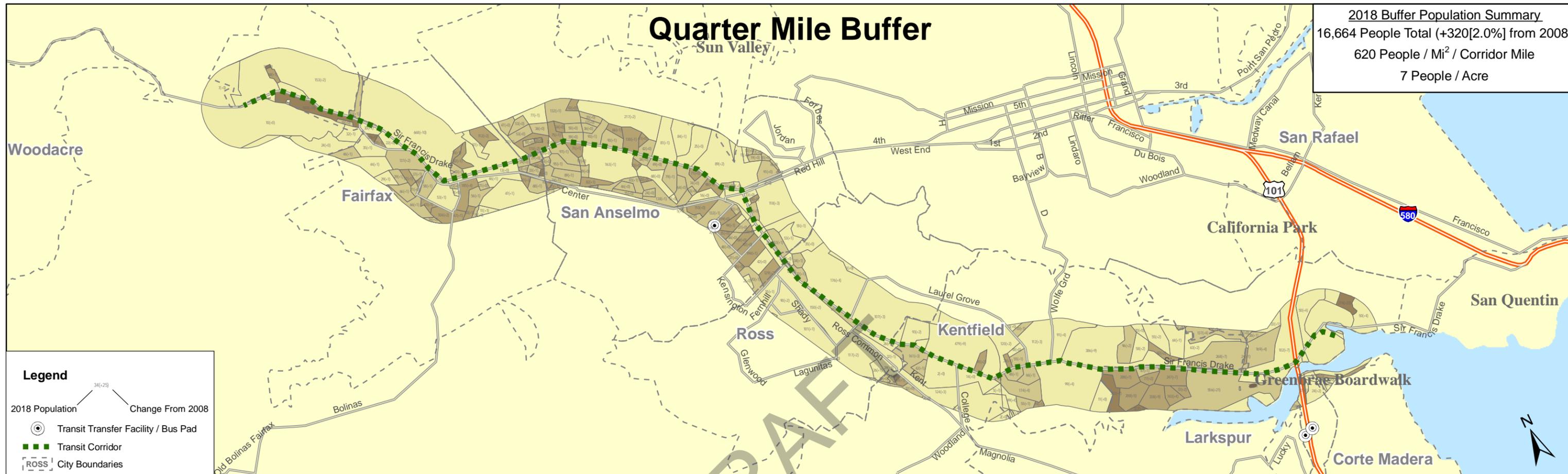
There is a significant amount of traffic congestion reported on Sir Francis Drake Boulevard. During the AM peak period, the greatest congestion is generally eastbound. The segment between San Anselmo Avenue and Red Hill Road has reported travel speeds of under 10 miles per hour for traffic in both 2006 and 2008 eastbound (while westbound speeds have been over 22 miles per hour). Further east on Sir Francisco Drake, another monitored segment between Wolfe Grade and College Avenue, shows average travel speeds in the eastbound at 24 miles per hour, with the travel speeds in the westbound variable between 18 miles per hour in 2006 to 36 miles per hour in 2008. A final congestion point is eastbound on Sir Francis Drake between the Larkspur Ferry Terminal and Highway 101, where delays have been reported in 2008 of up to two minutes. Other segments of Sir Francis Drake have reported some congestion, which have added a minute to travel times, but not to the levels of the locations presented above.

Congestion is also reported in the PM peak period all along this corridor. These same segments report significantly slower travel speeds in two locations. The first is East Sir Francis Drake Boulevard between the Larkspur Ferry Terminal and Highway 101, with speeds found to be as low as 6 miles per hour in 2006 to 5 miles per hour in 2008. The second congested segment in the PM peak period is between Butterfield Road to Willow Avenue, which is shown to have speeds below 10 miles an hour westbound in the PM peak period. Other congestion points occurs, but the locations are not as pronounced (only one additional minute of congestion measured). It should be noted that the roadway segment south of Red

Hill Avenue in San Anselmo and Ross is not monitored, but has been observed to experience significant congestion during the PM peak hour.

**Initial Conclusions:**

1. Local service levels are broadly in line, or slightly better than, the corridor density and activity centers demand would typically generate.
2. The future regional transit connection at Larkspur SMART station merits further consideration, especially its role serving northbound trips originating in southern Marin, since:
  - a. The northbound AM commute to Novato and other Sonoma Co. destinations on the SMART corridor is one which shows appreciable growth in the Study area (as described in *Chapter 5: Travel Forecasts and Transit Demand Projections*).
  - b. SMART service is currently envisaged (and future Larkspur facilities configured) for a primarily southbound AM commute.
  - c. No parking is planned for the Larkspur SMART station, yet a northbound Larkspur-originating demand is being identified, not all of which will be satisfied by transit.
3. The need for park and ride facilities to serve the northbound Larkspur-originating commute suggests that a location which can meet this need should at least be considered: this need could be met by:
  - a. Providing parking at the currently proposed Larkspur station (if even feasible – the issue has been considered extensively already by SMART and City of Larkspur).
  - b. Providing an additional park and ride facility at an additional SMART station (most likely on an extension south of Sir Francis Drake Blvd, on the SMART right of way, where more generous station capacity may be available in the Lucky Drive/Paradise area; this area has the added advantage of a future enhanced regional bike/pedestrian routes and Hwy 101 access as part of the Greenbrae/Twin cities realignment project.
4. The Larkspur ferry terminal facility reconfiguration merits further study for regional transit connections: as part of a future parking garage, enhanced transit transfer facilities should be explored.
5. This corridor experiences significant traffic congestion, so that any actions to relieve this congestion will benefit bus travel times. This corridor is a candidate corridor for some transit signal priority, as well as strategies to encourage residents to use transit rather than contribute to area wide congestion problems.



## **Tiburon—E. Blithedale—Mill Valley Transit Corridor**

### **Coverage:**

The corridor connects the Tiburon ferry terminal, downtown Tiburon, the Strawberry retail and commercial area and Mill Valley, via E. Blithedale. Regional transit connections are made at northbound and southbound bus pads at the E. Blithedale intersection.

### **Population and Activity Center Growth:**

The corridor has an approximate population of 14,000 in the ¼ mile buffer and only 23,000 in the half mile buffer. The concentration of residents is much narrower than the other Study area corridors. Density falls off sharply beyond the ¼ mile buffer, and on East Blithedale beyond Trestle Glen, even though the corridor extends beyond to the Tiburon ferry terminal. The major concentration of transit-threshold density is West of Strawberry and Hwy 101 on E. Blithedale to downtown Mill Valley. Growth is very modest, at just over 2% over ten years.

### **Roadway Operating Conditions:**

This corridor is served by one arterial roadway, which is Blithedale Avenue in Mill Valley and Tiburon Boulevard in Tiburon. This corridor is generally two lanes in each direction on the central segment (between Camino Alto and Reed Ranch Road), with the outer edges of the corridor being one lane in each direction.

During both the AM and PM peak hours, the sole monitored location on this roadway corridor (between Redwood Highway Frontage Road and Strawberry Drive), has not shown an extra minute of delay in any of the 2006 or 2008 monitoring, except for one sample taken in 2008 in the AM peak hour westbound. Some congestion has been reported on Blithedale Avenue in Mill Valley, although this roadway has not been monitored as part of the Congestion Management Program network.

### **Initial Conclusions:**

1. The trip-generating corridor is narrow and relatively short, East of Hwy 101.
2. Local transit level of service is somewhat higher than the typical level of a corridor of this character.
3. Growth is limited, but current transit usage may be also be a reflection of transit delays on the congested signalized sections of E. Blithedale.
4. The focus of future transit development on this corridor is likely to be on:
  - a. Improved regional connections at Hwy 101
  - b. Enhanced transit speeds in the peak period on E. Blithedale
5. The travel speeds in this corridor are generally satisfactory for transit operations, although some localized congestion has been reported on East Blithedale Avenue between Camino Alto and Highway 101. The need for a system-wide transit signal priority system is not great here, although some treatments at or near the Highway 101 interchange may be appropriate.

A comparative summary of the corridors using the density and transit service thresholds described in this chapter is shown in Table 4.6.

**Table 4.3: Overview of Corridor Population Density and Change 2008-2018**

Transit Corridor	Total Pop 1/4 mi	Pop 1/4 mi (2008-18 change)	Pop 1/4 mi per mile	Pop 1/4 mi per acre	Total Pop 1/2 mi	Pop 1/2 mi (2008-18 change)	Pop 1/2 mi per mile	Pop 1/2 mi per acre
Mill Valley-Sausalito	13,048	238	845	7	22,569	436	755	7
San Rafael-San Anselmo/Fairfax	16,161	397	925	8	31,049	826	838	8
Larkspur-San Anselmo/Fairfax	16,664	320	620	7	29,891	651	529	6
Tiburon-E. Blithedale-Mill Valley	13,543	276	678	7	23,012	475	581	6
Corte Madera-San Anselmo/Fairfax	18,558	468	460	6	33,077	811	396	5

**Figure 4.8: East-West Transit Corridors Population Density (2018)**

