



Task 2: Existing Conditions Analysis Report

Central and Southern Marin Transit Study

December 19, 2008

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	1
CHAPTER 2: EXISTING TRANSIT SERVICES	3
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 GGT 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.....	19
CHAPTER 3: TRANSIT HUB AND CORRIDOR FACILITIES.....	20
3.1 Transit Hub and Corridor Facilities	20
CHAPTER 4: CORRIDOR TRAVEL CONDITIONS.....	25
4.1 Current Operating Environment on the Highway 101 Corridor	28
4.2 Current Operating Environment at Highway 101 Interchanges.....	33
4.3 Profiles of Current Operating Environment on Arterial Transit Corridors.....	33
CHAPTER 5: TRAVEL FORECASTS AND TRANSIT DEMAND PROJECTIONS.....	56
5.1 Background and Assumptions.....	56
5.2 Trip Patterns	57
5.3 Estimated Transit Trip Patterns and Mode Shares	77
CHAPTER 6: SUMMARY OF TRANSIT RIDER PROFILES.....	79
6.1 Survey Results	79
6.2 Marin County Transit Survey.....	79

6.3 Golden Gate Bus Transit Rider Survey.....	81
CHAPTER 7: KEY EXISTING CONDITIONS FINDINGS	83
7.1 Existing Transit Services.....	83
7.2 Transit Hub and Corridor Facilities	84
7.3 Travel Forecasts and Transit Demand Projections	84
7.4 Corridor Profiles.....	85
APPENDIX A: EXHIBITS AND TABLES.....	A-1

LIST OF TABLES

Table 2.1 GGT and Marin Transit Routes Serving the Highway 101 Trunk Corridor.....	6
Table 2.2 GGT and Marin Transit Routes Serving the San Rafael to San Anselmo.....	7
Table 2.3 GGT and Marin Transit Routes Serving the San Anselmo to Larkspur.....	8
Table 2.4 GGT and Marin Transit Routes Serving the Ross Valley to Corte Madera.....	9
Table 2.5 GGT and Marin Transit Routes Serving the Mill Valley to Sausalito Corridor (Miller Avenue, Almonte Boulevard, Highway 101, & Caledonia Street).....	10
Table 2.6 GGT and Marin Transit Routes Serving the Blithedale & Bay Vista Drive.....	12
Table 2.7 GGT Bus service: Annual Ridership for Selected Basic and Commute Routes Serving Central and Southern Marin (2004 – 2008).....	14
Table 2.8 GGT Bus Service Productivity and Farebox Recovery.....	14
Table 2.9 Productivity and Farebox Recovery for GGT Basic and Commute Routes Serving Central and Southern Marin (FY 2007).....	15
Table 2.10 Annual Revenue Hours and Ridership for Marin Transit Local Routes Serving Central and Southern Marin (FY 2007/08).....	17
Table 2.11 Productivity and Farebox Recovery for Marin Transit Local Routes Serving Central and Southern Marin (FYs 2006/07 and 2007/08).....	17
Table 3.1 Park & Ride / Bus Pad Facilities Summary.....	23
Table 4.1 Park & Ride Facilities and Demand Summary.....	32
Table 4.2 Typical Corridor Densities Supporting Fixed Route Transit Services.....	34
Table 4.3 Central and Southern Marin Transit Study Bus Stop Conditions.....	36
Table 4.4 Corte Madera—San Anselmo/Fairfax Corridor Bus Stop Conditions.....	39
Table 4.5 San Rafael—San Anselmo/Fairfax Corridor Bus Stop Conditions.....	42

Table 4.6 Mill Valley-Sausalito Corridor Bus Stop Conditions.....	45
Table 4.7 Larkspur—San Anselmo/ Fairfax Corridor Bus Stop Conditions.....	49
Table 4.8 Tiburon—E. Blithedale—Mill Valley Corridor Bus Stop Conditions.....	53
Table 4.9 Overview of Corridor Population Density and Change 2008-2018.....	54
Table 5.1 Work Trip Patterns of Richardson Bay Communities.....	A-3
Table 5.2 Aggregate Trip Patterns of Richardson Bay Communities.....	A-4
Table 5.3 Work Trip Patterns of Lower Ross Valley	A-5
Table 5.4 Aggregate Trip Patterns of Lower Ross Valley	A-6
Table 5.5 Work Trip Patterns of Upper Ross Valley.....	A-7
Table 5.6 Aggregate Trip Patterns of Upper Ross Valley.....	A-8
Table 5.7 Work Trip Patterns of San Rafael Basin.....	A-9
Table 5.8 Aggregate Trip Patterns of San Rafael Basin.....	A-10
Table 5.9 Means of Transportation to Work for Workers 16 Years and Over.....	78
Table 6.1 Marin Transit District Rider Survey.....	80
Table 6.2 Golden Gate Transit District Rider Survey.....	82

LIST OF FIGURES

Figure 2.1 GGT and Marin Transit Route Map for Central and Southern Marin Study Area 5	
Figure 4.1 Forecast of Total Population Growth.....	26
Figure 4.2 Total Employment Growth.....	27
Figure 4.3 Corte Madera-San Anselmo/Fairfax Transit Corridor: 2018 Population.....	40
Figure 4.4 San Rafael-San Anselmo/Fairfax Transit Corridor: 2018 Population.....	43
Figure 4.5 Mill Valley-Sausalito Transit Corridor: 2018 Population.....	47
Figure 4.6 Larkspur-San Anselm/Fairfax Transit Corridor: 2018 Population.....	51
Figure 4.7 Tiburon—E. Blithedale—Mill Valley Transit Corridor: 2018 Population.....	55
Figure 4.8 East-West Transit Corridors Population Density (2018).....	54
Figure 5.1 Richardson Bay Residents, 2008.....	58
Figure 5.2 Richardson Bay Residents, 2018.....	59
Figure 5.3 Richardson Bay Workers, 2008.....	60
Figure 5.4 Richardson Bay Workers, 2018.....	61

Figure 5.5 Lower Ross Valley Residents, 2008.....	63
Figure 5.6 Lower Ross Valley Residents, 2018.....	64
Figure 5.7 Lower Ross Valley Workers, 2008.....	65
Figure 5.8 Lower Ross Valley Workers, 2018.....	66
Figure 5.9 Upper Ross Valley Residents, 2008.....	68
Figure 5.10 Upper Ross Valley Residents, 2018.....	69
Figure 5.11 Upper Ross Valley Workers, 2008.....	70
Figure 5.12 Upper Ross Valley Workers, 2018.....	71
Figure 5.13 San Rafael Basin Residents, 2008.....	73
Figure 5.14 San Rafael Basin Residents, 2018.....	74
Figure 5.15 San Rafael Basin Workers, 2008.....	75
Figure 5.16 San Rafael Basin Workers, 2018.....	76
Figure A-1 Highway 101 Greenbrae/Twin Cities Corridor Improvements: Southbound Option C – Northbound Option E.....	A-2

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 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 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)¹ 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 commuter markets. Marin Transit's Local routes are designed to complement GGT longer-haul services, serving 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.

¹ 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 (4th 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

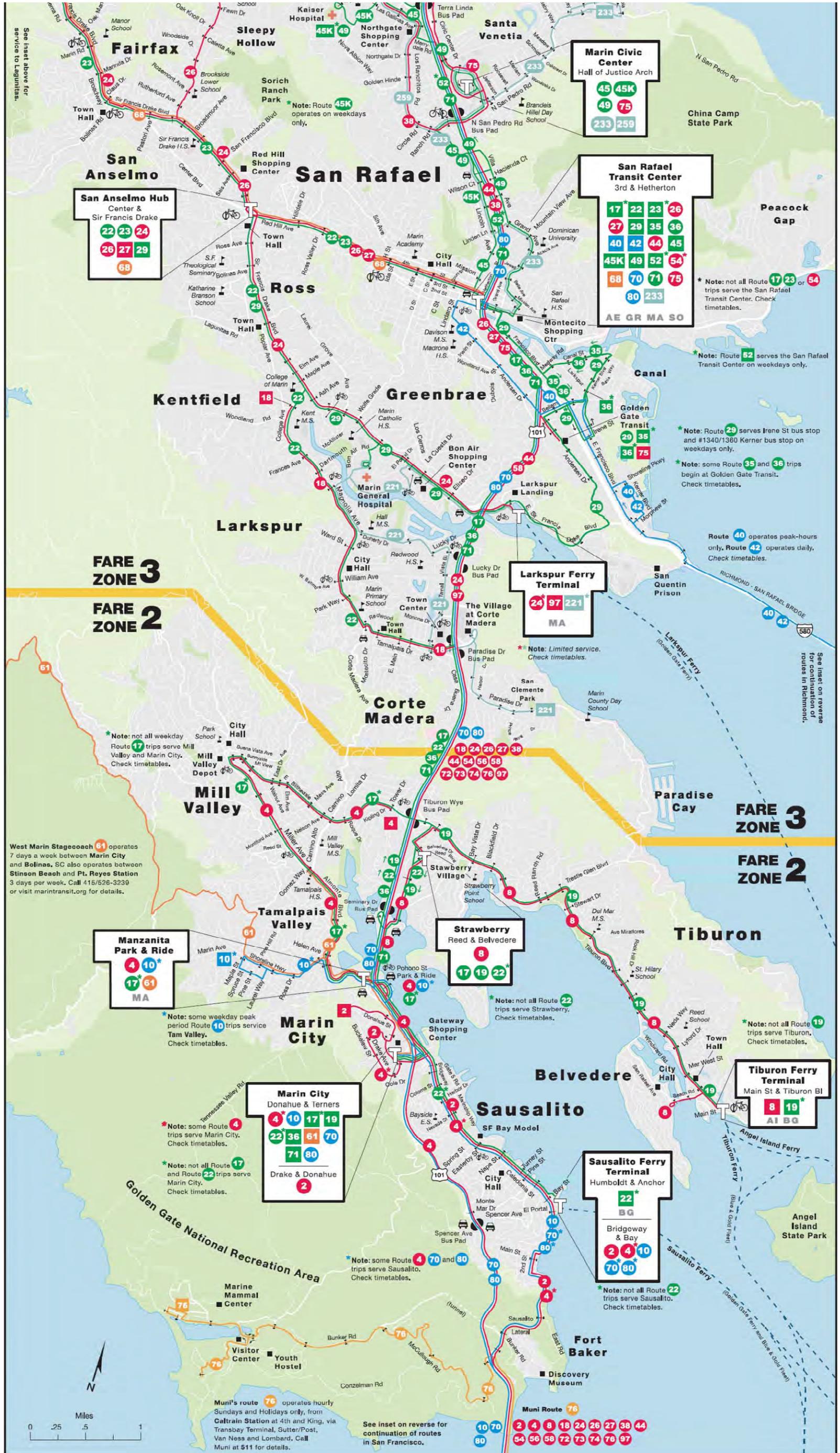


Table 2.1 GGT and Marin Transit Routes Serving the Highway 101 Trunk Corridor

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.	Weekdays: 5:16 AM - 1:55 AM Weekends/Holidays: 5:27 AM - 1:55 AM	Weekdays: 17 to 57 min. Weekends/Holidays: 60 min.
		80/101	Serves Santa Rosa, Novato, San Rafael, Marin City, Toll Plaza & San Francisco.	Weekdays: 4:01 AM - 2:32 AM Weekends/Holidays: 4:03 AM - 2:28 AM	Weekdays: 45 to 60 min. Weekends/Holidays: 56 to 60 min.
	Commuter Routes (GGT)	4	Serves Mill Valley, Tam Junction, Manzanita PnR, Marin City, Sausalito, Toll Plaza & San Francisco.	Weekdays: 4:57 AM - 9:56 PM	Weekdays: 4 to 30 min.
		8	Serves Tiburon, Belvedere, Strawberry Village, Toll Plaza, & San Francisco	Weekdays: AM Peak & PM Peak	Weekdays: 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.	Weekdays: AM Peak 5:59 AM - 9:24 AM PM Peak 4:00 PM - 7:31 PM	Weekdays: 12 to 28 min.
		24	Serves Lagunitas, Woodacre, Manor, Fairfax, San Anselmo, Ross, Kentfield/College of Marin, Greenbrae, Larkspur Ferry Terminal, Lucky Bus Pad, Tamalpais Drive Bus Pad, Tiburon Wye Bus Pad, Seminary Bus Pad, Toll Plaza, & San Francisco.	Weekdays: AM Peak 4:29 AM - 9:45 AM PM Peak 3:06 PM - 8:19 PM	Weekdays: 8 to 20 min.
		26	Serves Sleepy Hollow, San Anselmo, San Rafael, Toll Plaza, & San Francisco.	Weekdays: AM Peak & PM Peak	Weekdays: 2 SB trips (AM Peak) 3 NB trips (PM Peak)
		27	Serves San Anselmo, San Rafael, Spencer Bus Pad, Toll Plaza, & San Francisco.	Weekdays: AM Peak & PM Peak	Weekdays: 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>	Weekdays: AM Peak & PM Peak	Weekdays: 5 SB trips (AM Peak) 4 NB trips (PM Peak)
		44	Serves Marinwood, Lucas Valley, San Rafael, Toll Plaza, & San Francisco.	Weekdays: AM Peak & PM Peak	Weekdays: 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>	Weekdays: AM Peak 4:42 AM - 9:21 AM PM Peak 2:32 PM - 8:29 PM	Weekdays: 6 to 25 min.
		56	Serves Novato, Toll Plaza, & San Francisco. <i>Operates as express along HWY 101 with no stops in Central & Southern Marin study area.</i>	Weekdays: AM Peak & PM Peak	Weekdays: 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 & Southern Marin study area.</i>	Weekdays: AM Peak & PM Peak	Weekdays: 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.	Weekdays: AM Peak & PM Peak	Weekdays: 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 & Southern Marin study area.</i>	Weekdays: AM Peak 3:59 AM - 8:51 AM PM Peak 2:32 PM - 8:29 PM	Weekdays: 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 & Southern Marin study area.</i>	Weekdays: AM Peak & PM Peak	Weekdays: 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 & Southern Marin study area.</i>	Weekdays: AM Peak & PM Peak	Weekdays: 5 SB trips (AM Peak) 5 NB trips (PM Peak)
	Local Routes (MCTD)	17	Serves San Rafael, Lucky Bus Pad, Tamalpais Drive Bus Pad, Strawberry Village, Mill Valley, Tam Junction, Manzanita PnR, Marin City.	Weekdays: 5:30 AM - 11:12 PM Weekends/Holidays: 7:30 AM - 11:12 PM	Weekdays: 30 to 60 min. Weekends/Holidays: 60 min.
		19	Serves Tiburon, Strawberry Village, & Mar in City	Weekdays: 7:20:AM - 10:18 PM Weekends/Holidays: 7:17 AM - 10:20 PM	Weekdays: 60 min. Weekends/Holidays: 60 min.
		22	Serves San Rafael, San Anselmo, Ross, Kentfield/College of Marin, Larkspur, Corte Madera, Strawberry, Marin City & Sausalito Ferry Terminal	Weekdays: 5:33:AM - 11:58 PM Weekends/Holidays: 7:30 AM - 10:55 PM	Weekdays: 8 to 60 min. Weekends/Holidays: 60 min.
		36	Serves San Rafael, Lucky Bus Pad, Tamalpais Drive Bus Pad, Tiburon Wye Bus Pad, Seminary Bus Pad, & Marin City.	Weekdays: 5:49:AM - 6:12 PM Saturdays: 6:52 AM - 6:11 PM	Weekdays: 30 to 60 min. Saturdays: 30 min.
		71	Serves Novato, San Rafael, & Marin City.	Weekdays: 6:34 AM - 8:27 PM Weekends/Holidays: 6:59 AM - 7:28 PM	Weekdays: 30 to 60 min. Weekends/Holidays: 3 SB trips & 5 NB trips.

Table 2.2 GGT and Marin Transit Routes Serving the San Rafael to San Anselmo

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.	Weekdays: AM Peak & PM Peak	Weekdays: 2 SB trips (AM Peak) 3 NB trips (PM Peak)
		27	Serves San Anselmo, San Rafael, Spencer Bus Pad, Toll Plaza, & San Francisco.	Weekdays: AM Peak & PM Peak	Weekdays: 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	Weekdays: 5:33:AM - 11:58 PM Weekends/Holidays: 7:30 AM - 10:55 PM	Weekdays: 8 to 60 min. Weekends/Holidays: 60 min.
		23	Serves San Rafael, San Anselmo, Fairfax, & Manor.	Weekdays: 5:30:AM - 11:56 PM Weekends/Holidays: No service east of San Anselmo.	Weekdays: 30 to 60 min.

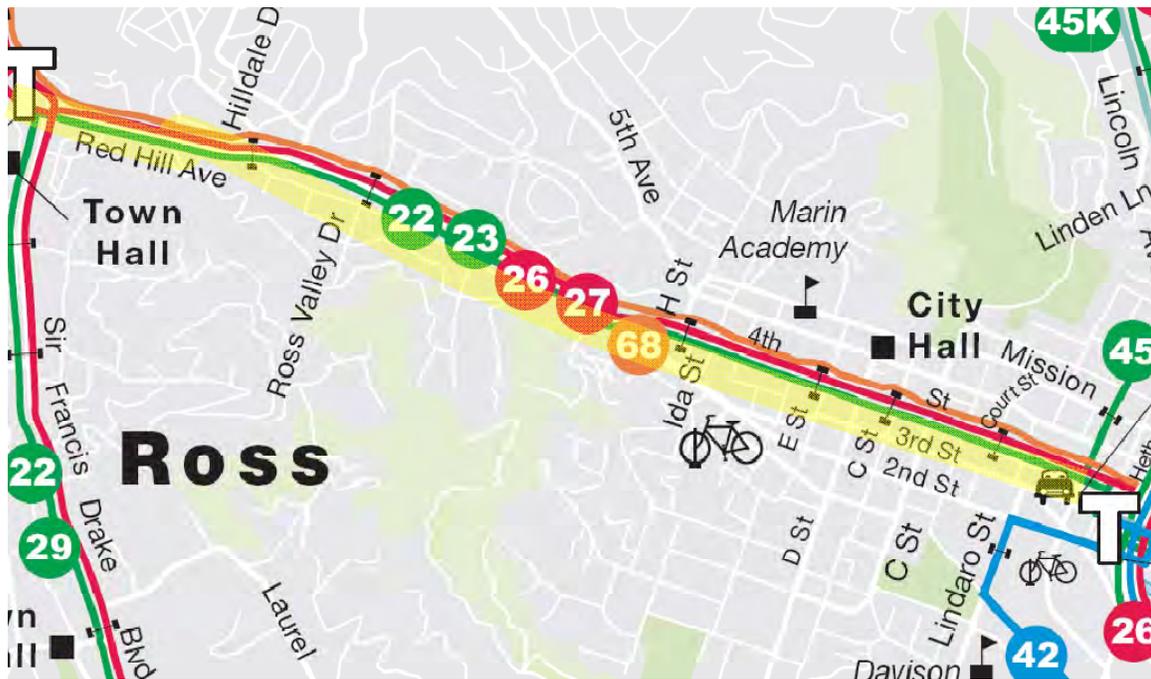


Table 2.3 GGT and Marin Transit Routes Serving the San Anselmo to Larkspur

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, Tamalpais Drive Bus Pad, Tiburon Wye Bus Pad, Seminary Bus Pad, Toll Plaza, & San Francisco.	Weekdays: AM Peak 4:29 AM - 9:45 AM PM Peak 3:06 PM - 8:19 PM	Weekdays: 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	Weekdays: 5:33:AM - 11:58 PM Weekends/Holidays: 7:30 AM - 10:55 PM	Weekdays: 8 to 60 min. Weekends/Holidays: 60 min.
		29	Serves San Rafael, Greenbrae, Kentfield/College of Marin, Ross, & San Anselmo.	Weekdays: 6:30:AM - 8:25 PM Saturdays: 7:30 AM - 7:25 PM	Weekdays: 60 min. Saturdays: 60 min.

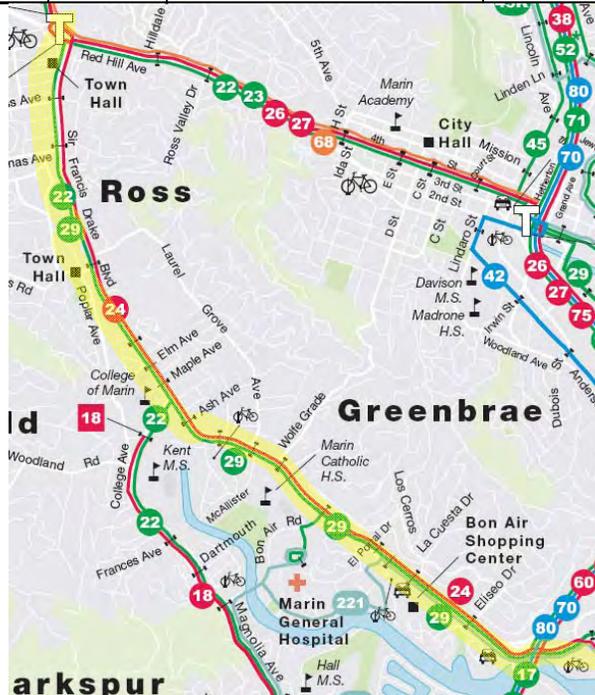


Table 2.4 GGT and Marin Transit Routes Serving the Ross Valley to Corte Madera

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.	Weekdays: AM Peak 5:59 AM - 9:24 AM PM Peak 4:00 PM - 7:31 PM	Weekdays: 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	Weekdays: 5:33:AM - 11:58 PM Weekends/Holidays: 7:30 AM - 10:55 PM	Weekdays: 8 to 60 min. Weekends/Holidays: 60 min.

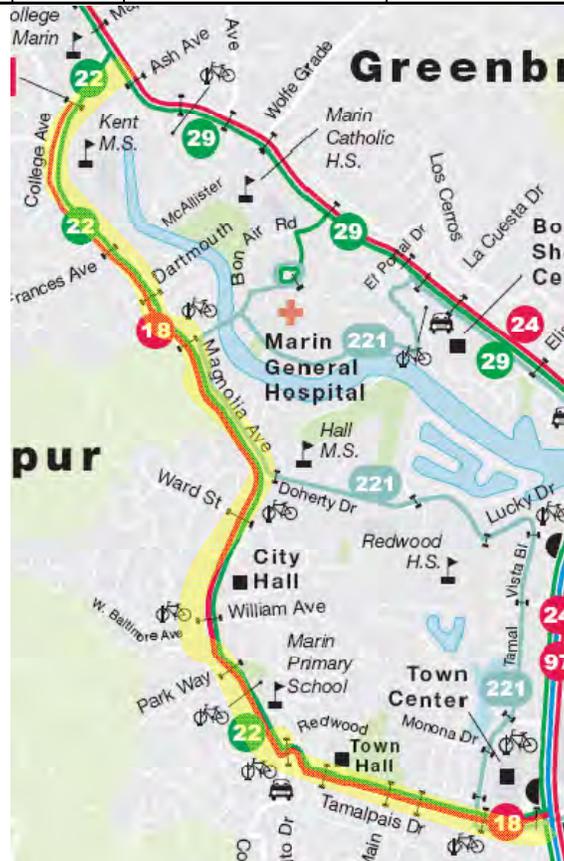


Table 2.5 GGT and Marin Transit Routes Serving the Mill Valley to Sausalito Corridor (Miller Avenue, Almonte Boulevard, Highway 101, & Caledonia Street)

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

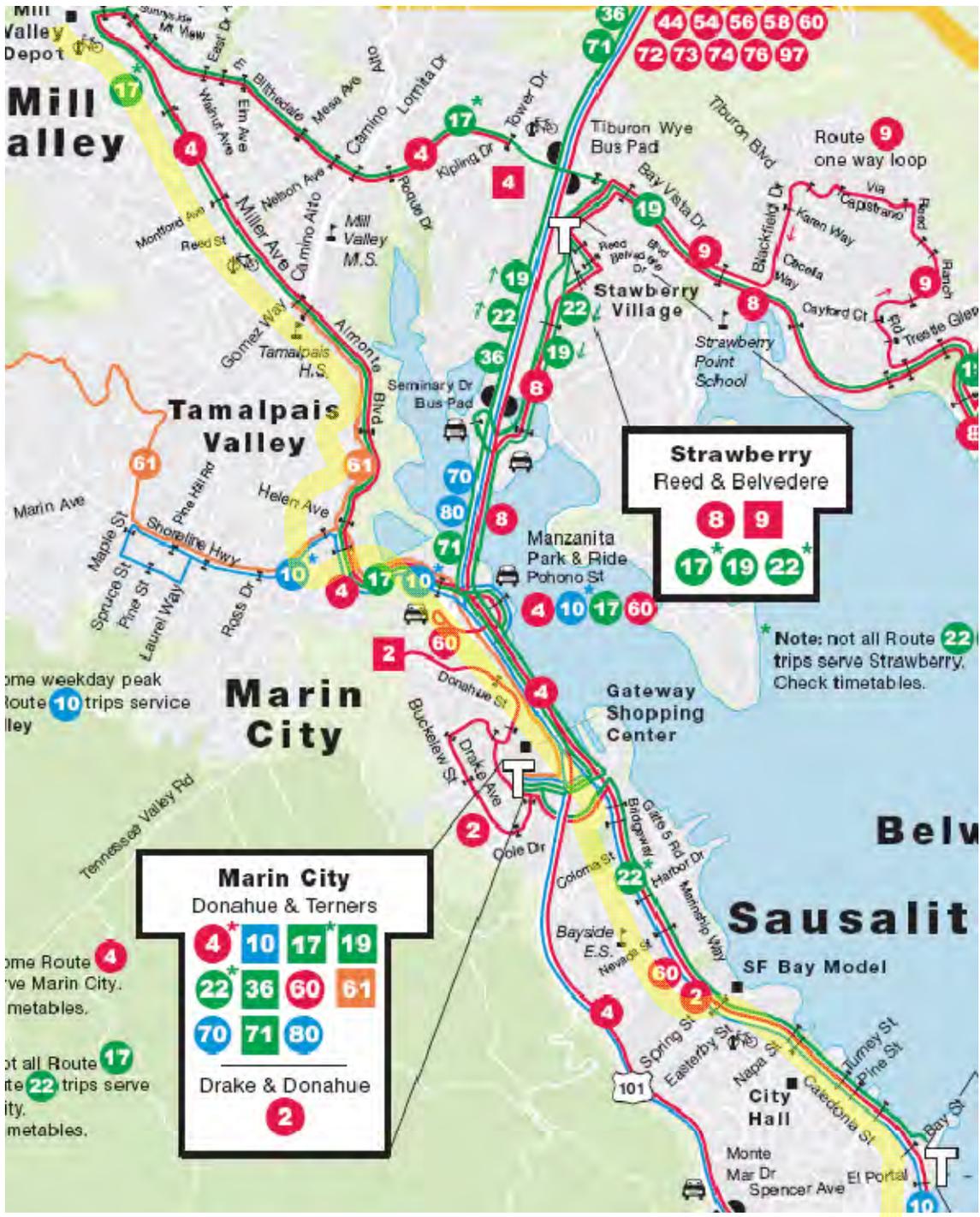
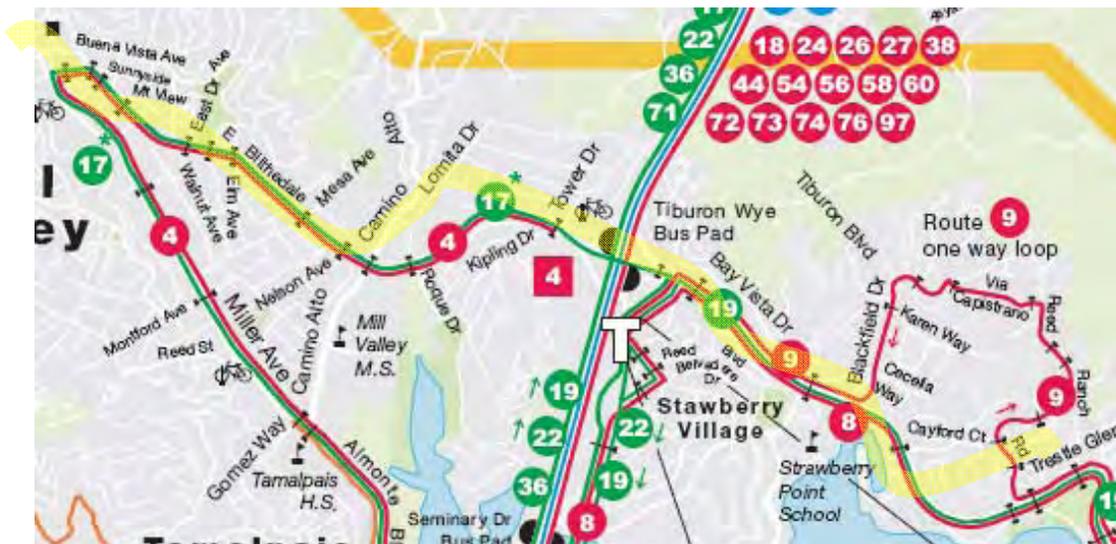


Table 2.6 GGT and Marin Transit Routes Serving the Blithedale & Bay Vista Drive

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.	Weekdays: 4:57 AM - 9:56 PM	Weekdays: 4 to 30 min.
		8	Serves Tiburon, Belvedere, Strawberry Village, Toll Plaza, & San Francisco	Weekdays: AM Peak & PM Peak	Weekdays: 2 SB trips (AM Peak) 2 NB trips (PM Peak)
		9	Serves Tiburon, Belvedere, & Strawberry Village	Weekdays: AM Peak & PM Peak	Weekdays: 2 WB trips (AM Peak) 2 EB trips (PM Peak)
	MCTD Local Routes	17	Serves San Rafael, Lucky Bus Pad, Tamalpais Drive Bus Pad, Strawberry Village, Mill Valley, Tam Junction, Manzanita PnR, Marin City.	Weekdays: 5:30 AM - 11:12 PM Weekends/Holidays: 7:30 AM - 11:12 PM	Weekdays: 30 to 60 min. Weekends/Holidays: 60 min.
		19	Serves Tiburon, Strawberry Village, & Marin City	Weekdays: 7:20:AM - 10:18 PM Weekends/Holidays: 7:17 AM - 10:20 PM	Weekdays: 60 min. Weekends/Holidays: 60 min.



2.3 Golden Gate Transit Service Performance by Route

2.3.1 GGT Revenue Hours and Ridership by 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 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)² and local bus service, by a general reduction in commute travel between Marin County and San Francisco, and a possible mode shift back to auto usage.

² 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%
Commuter	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	0.0%
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 2004/05³.

³ 2006 Marin Transit Short Range Transit Plan.

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.

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 2007/08⁴ (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

⁴ 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.

- 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.

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 standards⁵ 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).

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%.

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

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 Heatherston 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:

- Saluté 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 Route 2, as well as Local routes 17 and 19, 22, and 36.

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, and 60 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
Tamalpais 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 Airpporter 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	Tamalpais Dr.	Hwy 101	Corte Madera	Bus Pad	NB	0
16	Tamalpais 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
	TOTAL					1,083

Key Arterial Roadway Bus Stops

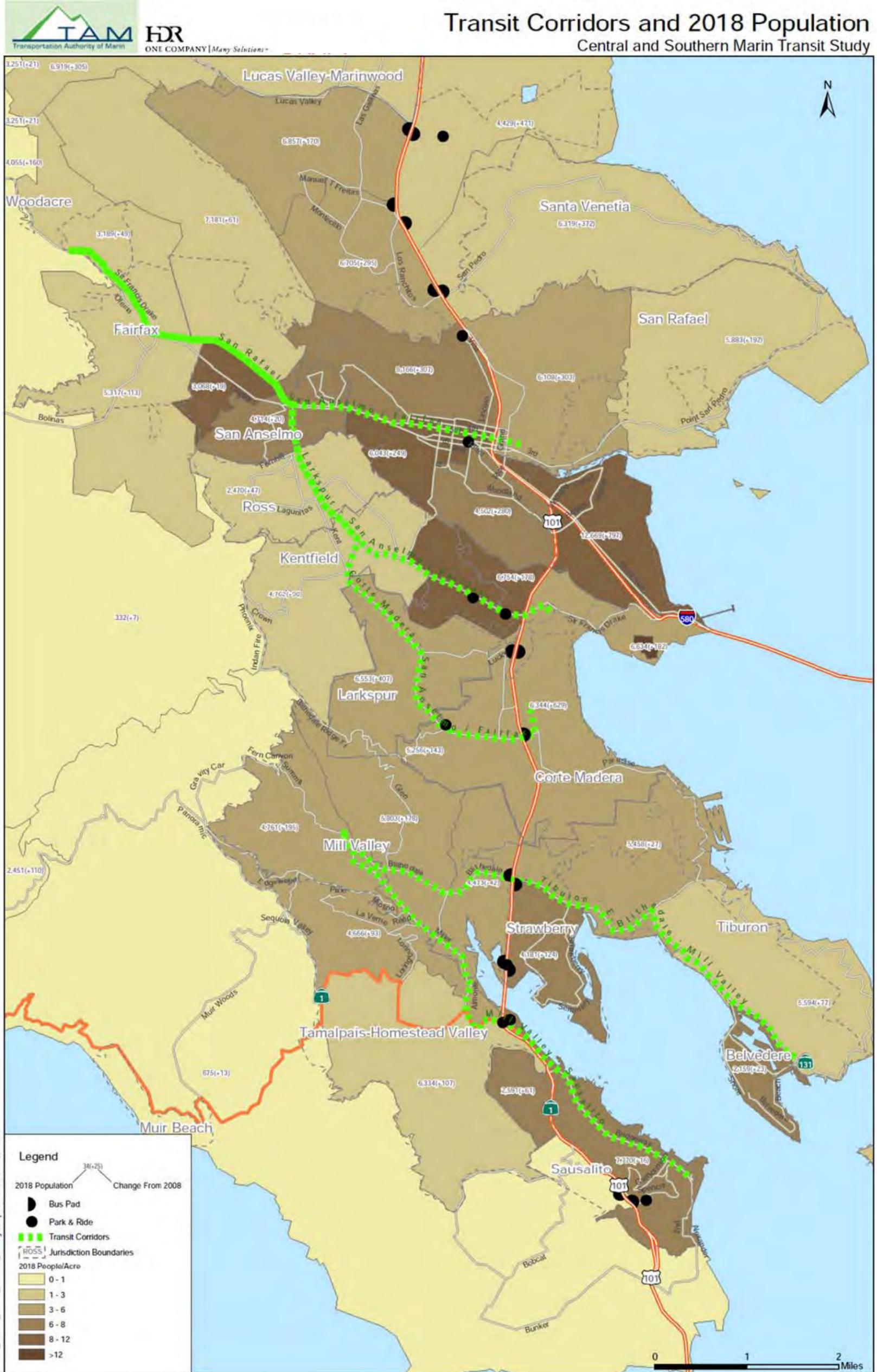
In addition to the Highway 101 bus pads and transit centers discussed above, there are additional key bus stops on several of the local arterial roadways. These stops are recognized as places where transfers occur, or places with a significant amount of activity. A total of 398 key bus stops on the East West arterial street corridors were surveyed as part of the inventory and can be found in more detail in Chapter 4.

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.

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.

Figure 4.1 Forecast of Total Population Growth



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.

There are ten bus pads in the Highway 101 corridor in the study area. There are two bus pads (one in each direction) at five interchanges. These are (from north to south) Spencer Avenue, Seminary Drive, East Blithedale Avenue/Tiburon Boulevard, Tamalpais Drive and Lucky Drive. The general environment at each pad is summarized below.

Spencer Avenue: The Spencer Avenue bus pads are located north and south of Spencer Avenue, with Monte Mar Drive (a street which serves as a two-way frontage road just east of Highway 101) being the major access road. The northbound bus stop is located at the northeast corner of Monte Mar Road at its intersection with Spencer Avenue; the southbound stop is located between the exit and entrance ramps of southbound US Highway 101. These stops are located about 1,000 feet from each other so that anyone who uses the stop in one direction will have to walk at least one-fifth of a mile in total; this is a distance of about four typical city blocks.

The loading area of the northbound stop does not leave sufficient room for two buses. There is a small shelter for passengers and a limited number of off-street parking spaces (estimated at 10). The loading area in the southbound direction (the predominant location where people wait for buses) has a smaller but newer bus shelter. There is a parking area for 45 vehicles just north of the stop. There is extensive overflow parking occurring near these stops, particular on Monte Mar Road, a street with a narrow cross-section and no sidewalk or pedestrian path for most of its length.

Seminary Drive: The Seminary Drive bus pads are generally located across Highway 101 from each other, along a frontage road which operates on either side of Highway 101. Because there is no road overpass or underpass directly at this location, the stops are connected by a pedestrian over-crossing so that passengers who board at one location can disembark at the other and still be within close proximity of their vehicle or destination; the over-crossing was built before the adoption of Americans with Disability Act standards and would require significant modification or replacement to meet those standards today. There are crosswalks striped to reach each bus pad, and the waiting areas each feature a shelter. The bus pad lengths are short, so that two or more buses at a single pad would extend into the off-ramp area. Both bus pads have shelters that face the highway; which provides protection but also results in high freeway noise levels endured by waiting bus passengers. There is only limited off-street parking on either side of the highway at this location (estimated total of 62 spaces) with extensive on-street parking occurring on nearby local streets, where allowed.

East Blithedale Avenue/Tiburon Boulevard: The two bus pads at this interchange are both located between the off-ramp and the loop on-ramp. Both bus pads have sidewalks to reach the pads, but the circuitous nature of the path of travel leads to riders crossing the ramp traffic to reach their destinations. Both bus pads have shelters that face the highway; which provides protection but also results in high freeway noise levels endured by waiting bus passengers. There is bicycle parking offered, but it is not protected. The lighting is substandard for a safe pedestrian path of travel to reach the pads. There is room for two buses to easily stop at the pad at the same time and board/disembark passengers. There are no designated park-and-ride facilities near these pads, and some nearby streets are being used for rider parking, where allowed.

Tamalpais Drive: The two bus pads at this interchange are both located between the off-ramp and the loop on-ramp. Both bus pads have sidewalks to reach the pads, but the circuitous nature of the path of travel leads to riders crossing the ramp traffic to reach their destinations. Both bus pads have shelters that face the highway; which provides protection but also results in high freeway noise levels endured by waiting bus passengers. There is bicycle parking offered, but it is not protected. The lighting is substandard for a safe pedestrian path of travel to reach the pads. There is room for two buses to easily stop at the pad at the same time and board/disembark passengers. There are no designated park-and-ride facilities near these pads, and some nearby streets are being used for rider parking, where allowed.

Lucky Drive: The Lucky Drive bus pads are generally located across Highway 101 from each other about 300 feet apart. The northbound bus pad is located off of Redwood Highway, while the southbound bus pad is located off of Nellen Avenue. Because there is no road

overpass or underpass directly at this location, the stops are connected by a pedestrian over-crossing (located about 200 feet north of the northbound pad, and 500 feet north of the southbound pad) so that passengers who board at one location can disembark at the other and still be within close proximity of their vehicle or destination; the over-crossing was built before the adoption of Americans with Disability Act standards and would require significant modification or replacement to meet those standards today. There are crosswalks striped to reach each bus pad, and the waiting areas each feature a shelter. The bus pad lengths are short, so that two or more buses at a single pad would extend into the off-ramp area. Both bus pads have shelters that face the highway; which provides protection but also results in high freeway noise levels endured by waiting bus passengers. There is only limited off-street parking on either side of the highway at this location (7 spaces) with extensive on-street parking occurring on nearby local streets, where allowed.

Because there is 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/Tamalpais Drive 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	Tamalpais Dr.	Hwy 101	Corte Madera	Bus Pad	NB								25	38	38	
16	Tamalpais 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%
TOTALS						1,083	569	514		878	205		207	426	1,304	

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

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. One project, to reduce congestion at the Southbound Highway 101 intersection at East Blithedale Avenue 101, was recently completed, which has eased the congestion but not eliminated it.

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.

Table 4.2 Typical Corridor Densities Supporting Fixed Route Transit Services⁶

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)

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 are 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.

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

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.

A comprehensive survey of local bus stops in Marin County was completed as part of the preparation of the first Short Range Transit Plan and Capital Improvement Program for the Marin County Transit District. All local bus stops (excluding those solely used by the Marin County Stagecoach) were inventoried using the survey form included in Appendix A. The survey was designed to evaluate MCTD's bus stops in a number of key areas:

- Accessibility – the bus stop inventory utilized the latest methodologies for assessing accessibility of bus stops, as recently outlined in Easter Seals Project ACTION's Toolkit for the Assessment of Bus Stop Accessibility and Safety.
- Information – Passenger information is key to encouraging new riders. Currently there is little or no passenger information at bus stops, and stops are not uniformly marked or identified.
- Amenities – The Short Range Transit Plan outlined a program of amenities for local bus stops which would concentrate more substantial investments in amenities such as bus shelters at stops with the highest ridership.

Bus stops in Marin are often served by both MCTD and Golden Gate Transit's regional service. A total of 398 stops in the study area were surveyed as part of the inventory.

A summary of the bus stop conditions is provided as Table 4.3. The table shows various summary characteristics available from the inventory; more detailed information is available for each stop.

Among the key findings are these observations:

- Many bus stops do not have passenger information provided, with only 7 percent of the stops reporting a case containing information. The rider must have advance knowledge of the bus schedule or access to the information using a cell phone.
- More stops do not have shelters (72 percent) than those that do. This is not surprising given that most people board at a smaller number of stops.
- About half of the stops (55 percent) have an inadequate landing size for passengers to board and alight the bus. This creates challenges for the bus riders using those stops.
- A sizeable percentage (20 percent) of the stops has inadequate pedestrian access. Again, this is not surprising given that these are likely stops that are not on streets that have sidewalks already.
- Almost 60 percent of the stops do not allow parking at the stop. The parking prohibition may be related to a general restriction on parking at some streets,

while on others it may be related to the bus stop specifically. Still, about 40 percent of the stops are located in areas where on-street parking is allowed in front of the stop, which poses a sight distance concern and a potentially significant inconvenience for riders getting on and off the bus.

Table 4.3 Central and Southern Marin Transit Study Bus Stop Conditions

Attribute	Count	Percentage
Total Stops in Study Area	398	
Bus Route Information Case	27	7%
No Bus Route Information Case	371	93%
Shelter Available	122	31%
No Shelter Available	286	72%
Adequate Landing Size	181	45%
Inadequate Landing Size	217	55%
Pedestrian Connectivity	320	80%
Inadequate Pedestrian Connectivity	78	20%
Parking Not Allowed at Stop	237	60%
Parking Allowed at Stop	161	40%

Source: Marin County Transit District bus stop file

The bus stop situation varies in key arterial corridors. It is noted that not all stops are on arterial streets, and that three corridors have portions of the same segment of Sir Francis Drake Boulevard on them.

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 Tamalpais/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. There is currently no off-street parking at the bus turnaround where the commute begins.

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 Drive and Tamalpais Drive bus pad facilities and freeway access will be reconfigured and potentially relocated through this segment of Hwy 101 if full funding of the Greenbrae/Twin Cities reconstruction project is achieved, 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 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.

The bus stops in the corridor vary from enhanced stops with shelters, to unimproved stops near driveways with narrow sidewalks. Most stops do not have shelters (62 percent), and a sizeable proportion have an inadequate landing size (44 percent). Most stops are connected with good sidewalks (84 percent), and parking is not allowed at most of the stops (68 percent). Only 5 stops on this corridor have bus route information cases.

Table 4.4 Corte Madera—San Anselmo/Fairfax Corridor Bus Stop Conditions

Attribute	Count	Percentage
Total Stops in Corridor	81	
Bus Route Information Case	5	6%
No Bus Route Information Case	76	94%
Shelter Available	31	38%
No Shelter Available	50	62%
Adequate Landing Size	45	56%
Inadequate Landing Size	36	44%
Pedestrian Connectivity	68	84%
Inadequate Pedestrian Connectivity	13	16%
Parking Not Allowed at Stop	55	68%
Parking Allowed at Stop	26	32%

Source: Marin County Transit District bus stop file

Initial Conclusions:

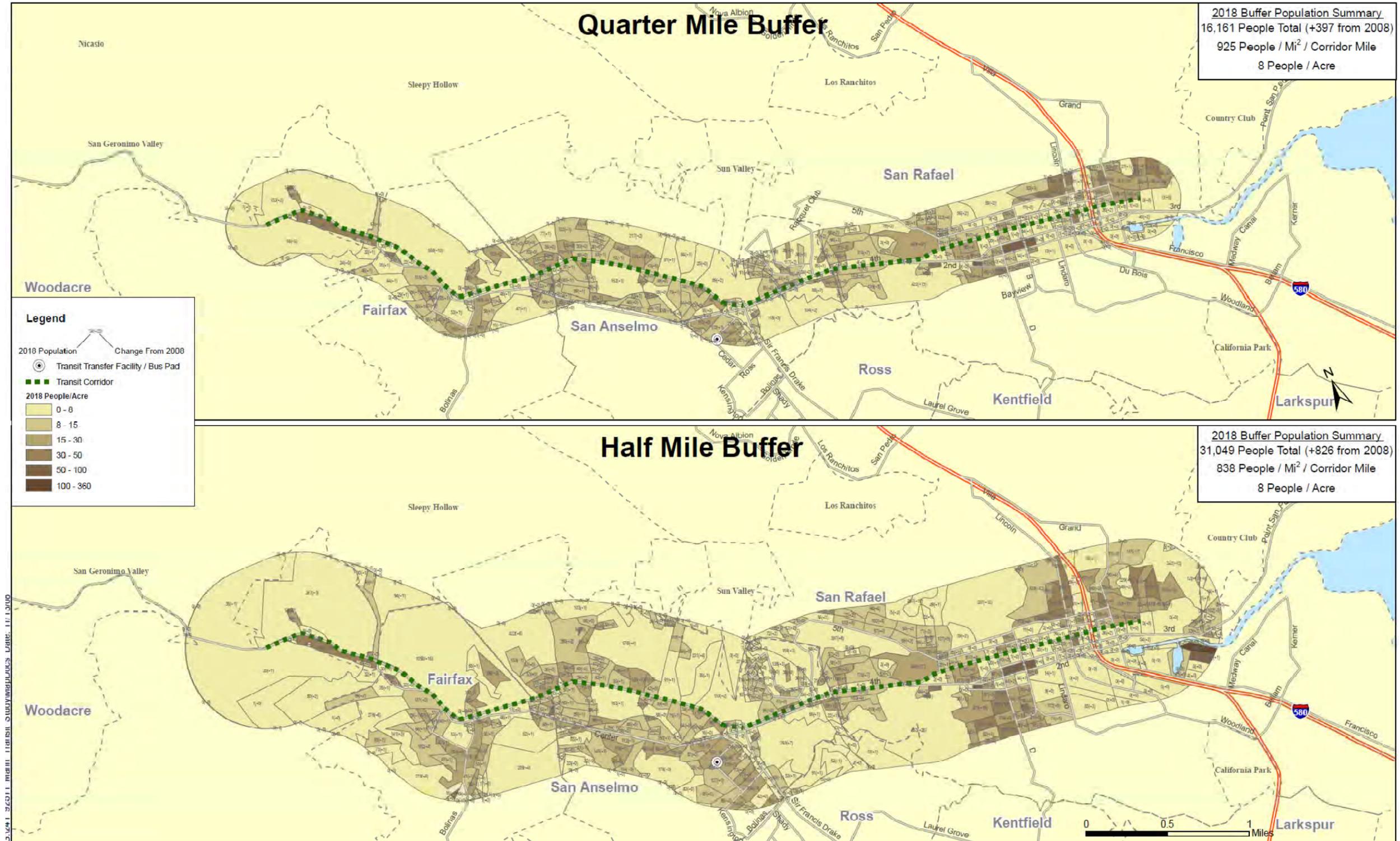
1. This long, relatively low density corridor will remain largely stable in land use and population growth, and as such, will generate little change in originating transit trip demand.
2. The corridor’s stability suggests that current and proposed near term service enhancements are sufficient to improve 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.

Figure 4.3 Corte Madera-San Anselmo / Fairfax Transit Corridor: 2018 Population



San Rafael-San Anselmo / Fairfax Transit Corridor: 2018 Population

Central and Southern Marin Transit Study



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.

The bus stops in the corridor vary from enhanced stops with shelters, to unimproved stops near driveways with narrow sidewalks. Most stops do not have shelters (60 percent), and a sizeable proportion have an inadequate landing size (45 percent). Most stops are connected with good sidewalks (92 percent), and parking is not allowed at most of the stops (80 percent). Only 9 stops on this corridor have bus route information cases.

Table 4.5 San Rafael—San Anselmo/Fairfax Corridor Bus Stop Conditions

Attribute	Count	Percentage
Total Stops in Corridor	83	
Bus Route Information Case	9	11%
No Bus Route Information Case	74	89%
Shelter Available	33	40%
No Shelter Available	50	60%
Adequate Landing Size	46	55%
Inadequate Landing Size	37	45%
Pedestrian Connectivity	76	92%
Inadequate Pedestrian Connectivity	7	8%
Parking Not Allowed at Stop	66	80%
Parking Allowed at Stop	17	20%

Source: Marin County Transit District bus stop file

Initial Conclusions:

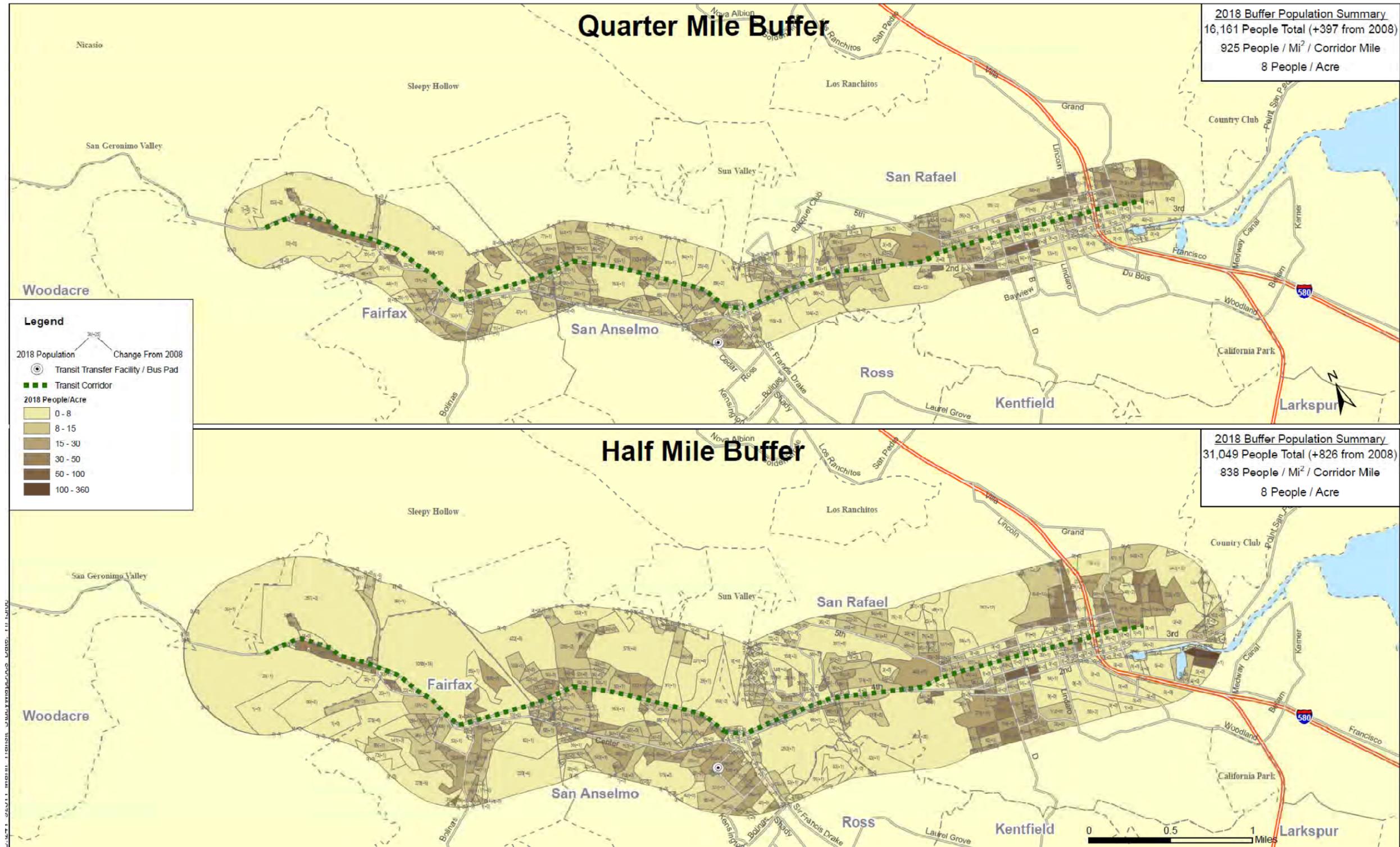
1. This short corridor has the highest density of all of the corridors but is likely to have stable land use and low population growth, and as such will generate little change in originating transit trip demand.
2. The corridor has demand characteristics (length, density, activity center distribution) 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.

Figure 4.4 San Rafael-San Anselmo / Fairfax Transit Corridor: 2018 Population



San Rafael-San Anselmo / Fairfax Transit Corridor: 2018 Population

Central and Southern Marin Transit Study



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 not a significant amount of traffic congestion reported on this roadway for long 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.

The bus stops in the corridor vary from enhanced stops with shelters, to unimproved stops near driveways with narrow sidewalks. This corridor has few bus route information cases (only 2 locations). It has only about 36 percent of the stops with shelters, and just under half of the stops have an inadequate landing size. Most stops are connected with good sidewalks, and parking is not allowed at most stops (70 percent).

Table 4.6 Mill Valley-Sausalito Corridor Bus Stop Conditions

Attribute	Count	Percentage
Total Stops in Corridor	56	
Bus Route Information Case	2	4%
No Bus Route Information Case	54	96%
Shelter Available	20	36%
No Shelter Available	36	64%
Adequate Landing Size	29	52%
Inadequate Landing Size	27	48%
Pedestrian Connectivity	45	80%
Inadequate Pedestrian Connectivity	11	20%
Parking Not Allowed at Stop	39	70%
Parking Allowed at Stop	17	30%

Source: Marin County Transit District bus stop file

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:

- At approximately 6 miles in length, the corridor is longer than most starter streetcar lines.
- Corridor density is considerably below the kind of thresholds which support streetcars.
- Little likely residential or commercial densification on the corridor is expected.
- Streetcar is not typically deployed as a transit solution to purely suburban travel needs.
- The potential extension of the tourism activity beyond downtown Sausalito to Miller Avenue may be an issue of concern in Mill Valley
- Impact of electrification on Bridgeway and Miller Avenue will require consideration.
- Costs may be high considering environmental impacts and possible structural costs in the 101 Interchange Area if the existing trail was to be expanded to accommodate a streetcar line or if the streetcar was placed on the congested existing road rights-of-way in this area.
- Development of bicycle lanes will be impacted by the location of a streetcar line.
- Impacts on parking on Miller Avenue will need to be carefully reviewed.

Issues for Further Consideration

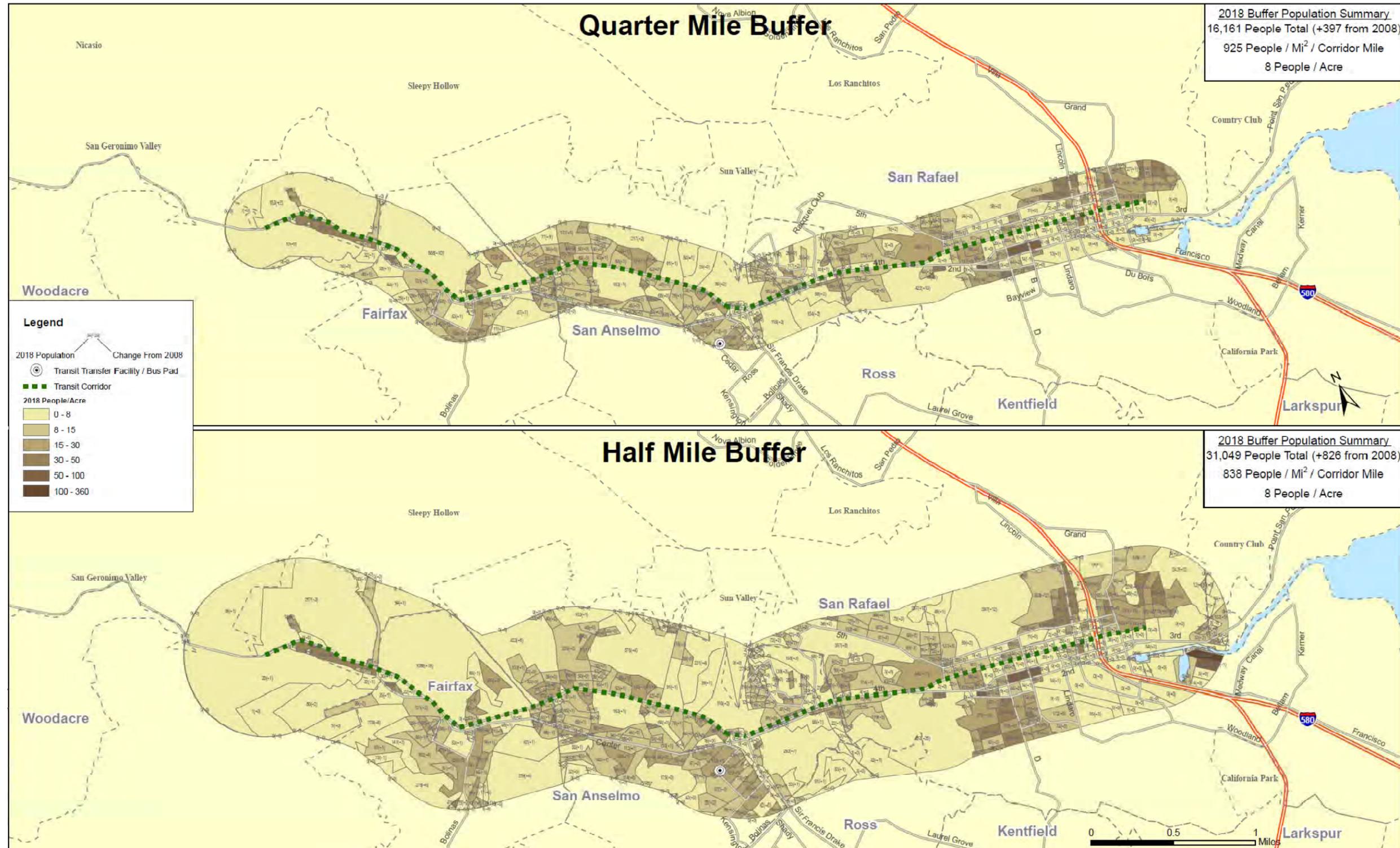
- Alignment costs would need to be studied in detail.
- The cost of technical solutions to project challenges could be further researched (bike conflicts, non-electrified propulsion, etc.)
- Consideration could be given to two unlinked lines serving Mill Valley and Sausalito individually.
- Financing options would need to be considered including the use of sales tax, benefit districts, tax increment, and other locally generated resources.
- There are difficult choices to be made in meeting the obligations of SB 375.
- The project may be too costly given the current transit situation between the two communities.
- If desired, a more frequent, well merchandised bus or rubber-tired trolley service to downtown Mill Valley from Sausalito could be considered at a much reduced project cost as a step towards future consideration of a streetcar link.
- The existing service could be modified by making it a direct link and marketing it as a Mill Valley-Sausalito link.
- There may be other corridors that warrant consideration as Streetcar corridors which could be tied into a SMART station to reinforce existing Marin County activity Centers.
- The impact of the recreational trips attracted to the Muir Woods Shuttle needs to be examined and considered in service planning.

Figure 4.5 Mill Valley-Sausalito Transit Corridor: 2018 Population



San Rafael-San Anselmo / Fairfax Transit Corridor: 2018 Population

Central and Southern Marin Transit Study



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 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.

The bus stops in the corridor vary from enhanced stops with shelters, to unimproved stops near driveways with narrow sidewalks. Only 9 stops on this corridor have bus route information cases. Most stops do not have shelters (57 percent), and a sizeable proportion have an inadequate landing size (41 percent). Most stops are connected with good sidewalks (88 percent), and parking is not allowed at most of the stops (68 percent).

Table 4.7 Larkspur—San Anselmo/ Fairfax Corridor Bus Stop Conditions

Attribute	Count	Percentage
Total Stops in Corridor	69	
Bus Route Information Case	9	13%
No Bus Route Information Case	60	87%
Shelter Available	30	43%
No Shelter Available	39	57%
Adequate Landing Size	41	59%
Inadequate Landing Size	28	41%
Pedestrian Connectivity	61	88%
Inadequate Pedestrian Connectivity	8	12%
Parking Not Allowed at Stop	47	68%
Parking Allowed at Stop	22	32%

Source: Marin County Transit District bus stop file

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.

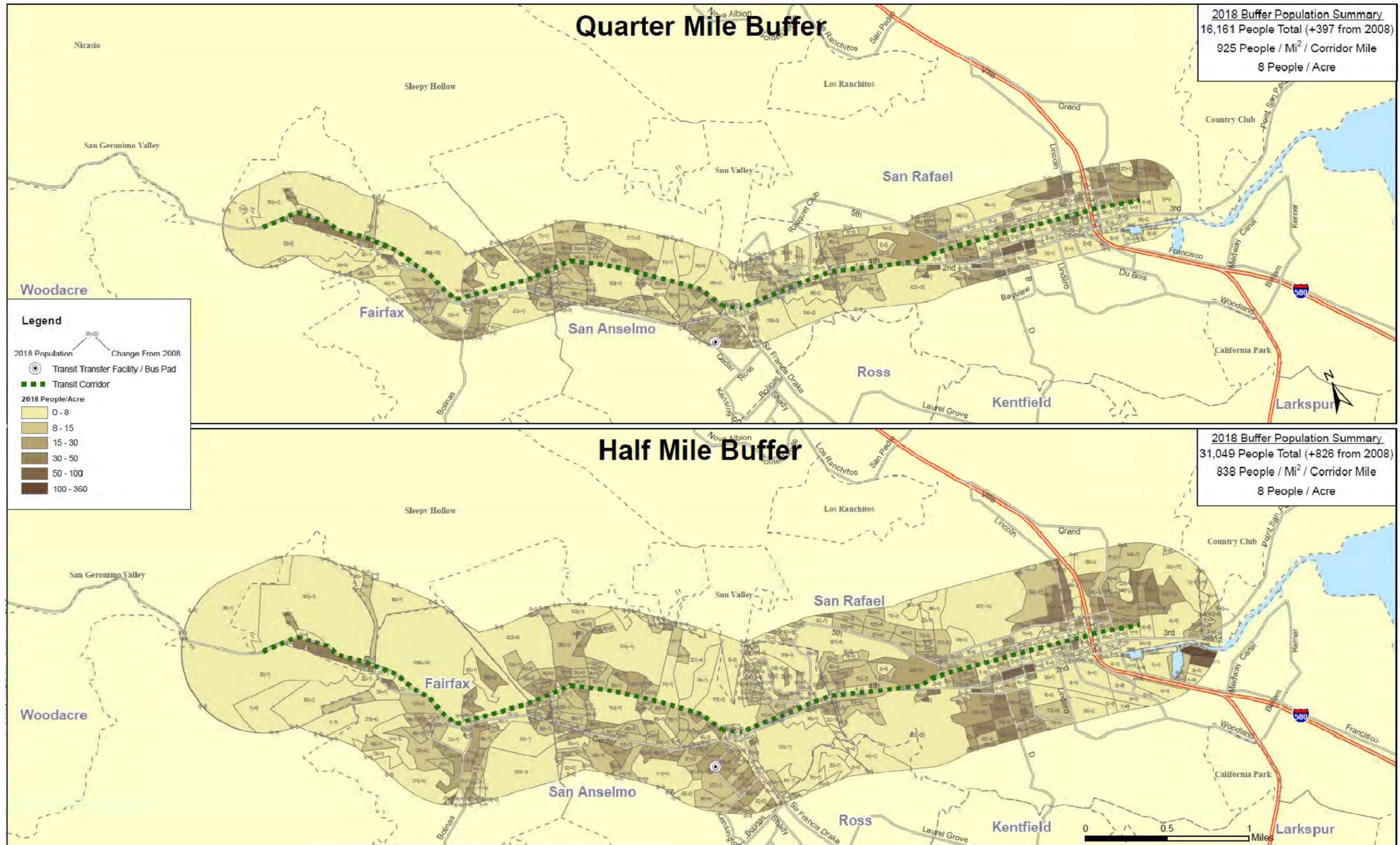
3. The need for park and ride facilities to serve the northbound Larkspur-originating commute suggests that a location which can meet this need should at least be considered: this need could be met by:
 - a. Providing parking at the currently proposed Larkspur station (if even feasible – the issue has 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/Tamalpais Drive 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.

Figure 4.6 Larkspur-San Anselmo / Fairfax Transit Corridor: 2018 Population



San Rafael-San Anselmo / Fairfax Transit Corridor: 2018 Population

Central and Southern Marin Transit Study



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 two arterial roadways, which are 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.

The bus stops in the corridor vary from enhanced stops with shelters, to unimproved stops near driveways with narrow sidewalks. No stops on this corridor have bus route information cases. Most stops do not have shelters (83 percent), and most have an inadequate landing size (62 percent). Most stops are connected with good sidewalks (77 percent), and parking is not allowed at only 36 percent of the stops.

Table 4.8 Tiburon—E. Blithedale—Mill Valley Corridor Bus Stop Conditions

Attribute	Count	Percentage
Total Stops in Corridor	61	
Bus Route Information Case	0	0%
No Bus Route Information Case	61	100%
Shelter Available	8	13%
No Shelter Available	53	87%
Adequate Landing Size	23	38%
Inadequate Landing Size	38	62%
Pedestrian Connectivity	47	77%
Inadequate Pedestrian Connectivity	14	23%
Parking Not Allowed at Stop	22	36%
Parking Allowed at Stop	39	64%

Source: Marin County Transit District bus stop file

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 in the vicinity of the Hwy 101 interchange..
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 4.9.

Table 4.9 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)

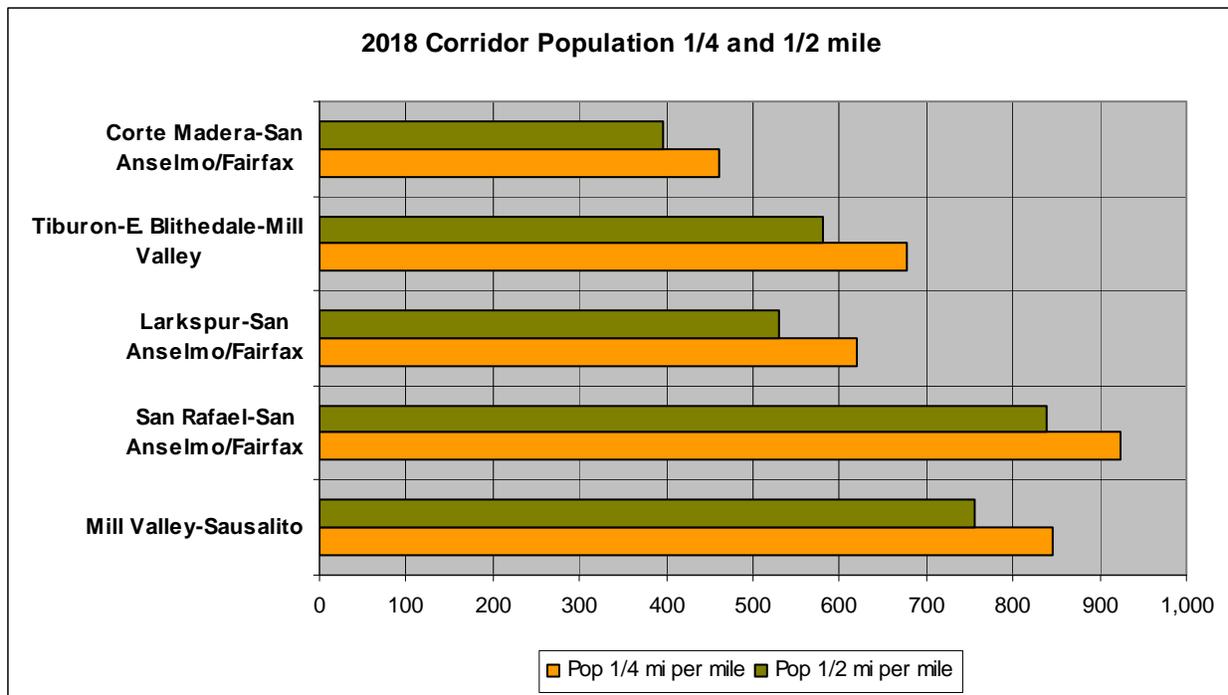
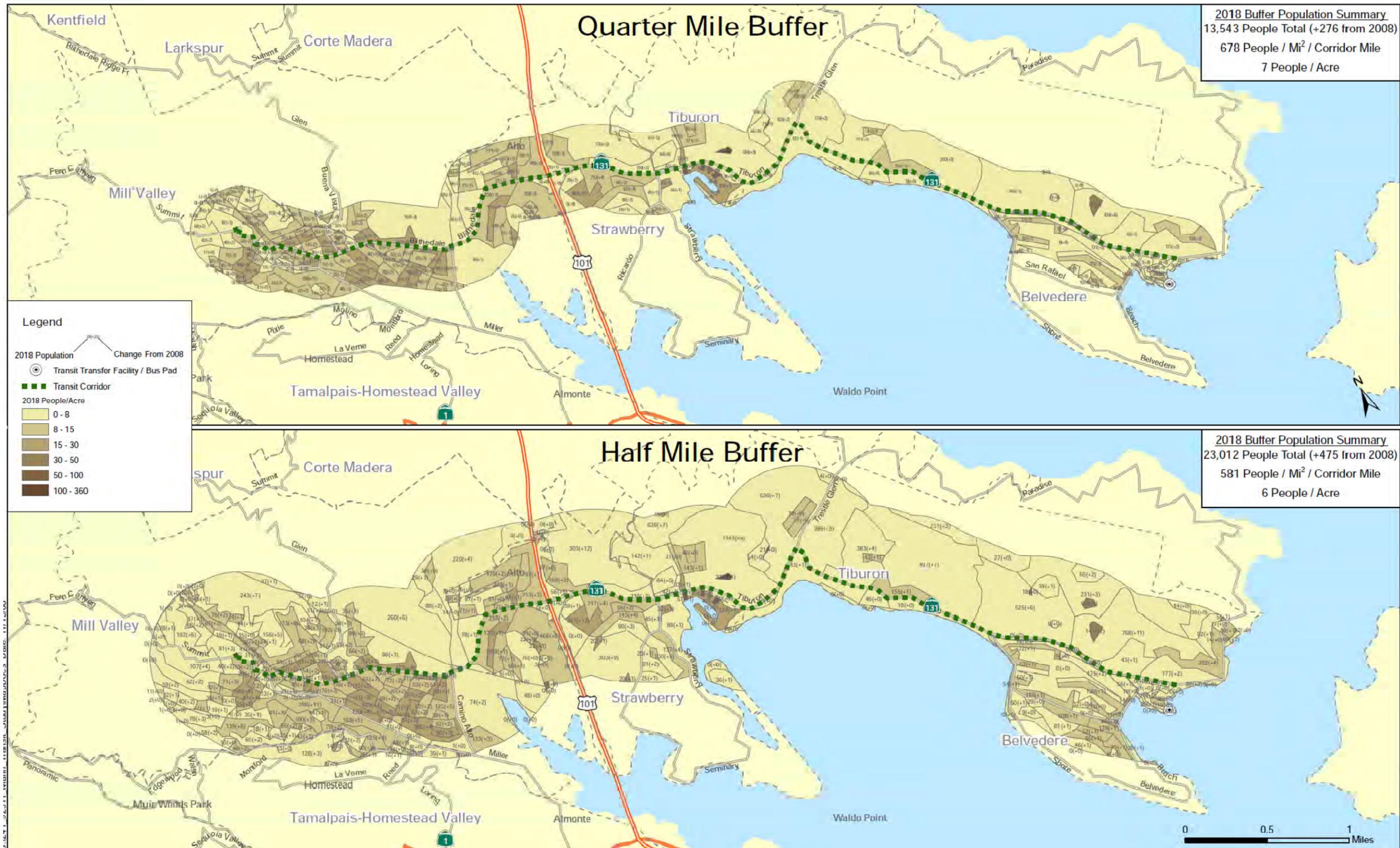


Figure 4.7 Tiburon—E. Blithedale—Mill Valley Transit Corridor: 2018 Population



Tiburon-E. Blithedale-Mill Valley Transit Corridor: 2018 Population

Central and Southern Marin Transit Study



CHAPTER 5: TRAVEL FORECASTS AND TRANSIT DEMAND PROJECTIONS

This chapter describes estimated trip patterns and ridership forecasts for the Central and Southern Marin Transit Study. The methodology is based upon the Marin County Travel Model, data on transit ridership provided by Golden Gate Bridge, Highway and Transit District, and analyses from it.

5.1 Background and Assumptions

Travel projections should be sensitive to the relevant issues for studying local transit service in Marin County. The methodology is designed to address two questions:

- What are the overall trip pattern trends in Marin County?
- What are the transit shares for different system alternatives?

Two sources were used for this analysis: the Census and the Marin County Model. The Year 2000 Census data is now eight years out of date, so that it was determined to be less useable for an existing conditions report. Thus, the travel model chosen for the analysis is the Marin County travel model. This travel model is widely used for studies in Marin County, and it is calibrated to trip lengths for each type of trip, mode shares for each type of mode, and traffic volumes according to field data.

The majority of the development this model has focused on peak hour travel behavior and home-based work trips. For local transit service in Marin County, work trips are a major component of ridership, but they do not represent the only reason that local transit service is taken in Marin County. Using these travel model results directly poses a problem in determining non-peak hour trip probabilities, and it does not provide for non-congestion-related sensitivity in ridership forecasts during these time periods.

The first portion of this study examines overall travel demands between four key areas within Central and Southern Marin. These are:

- Richardson Bay Communities – Sausalito, Tiburon, Mill Valley, Belvedere and surrounding areas such as Marin City
- Lower Ross Valley – Corte Madera, Larkspur and adjacent unincorporated areas
- Upper Ross Valley – San Anselmo, Woodside, and adjacent unincorporated areas such as Kentfield
- San Rafael Basin – the Central San Rafael general area, as well as the Canal District and related areas within the City such as Anderson Drive

In order to fully describe travel patterns, locations beyond these four areas were also examined. This includes three additional areas in Marin County – Las Gallinas Valley (Terra Linda and Lucas Valley areas), Novato, and West Marin. Three areas were identified in Sonoma County – Petaluma, the Sonoma Highway 101 Corridor north of Petaluma (Santa Rosa, Cotati and Rohnert Park) and the remainder of Sonoma County. In San Francisco, the city was divided up into four areas -- the Financial District, the Marina District and Van Ness Corridor, the Richmond and Sunset Districts, and the Excelsior/Mission/Bayview Districts. All other counties are presented as countywide areas.

5.2 Trip Patterns

The first analysis was made for travel patterns and trends for each of the four subareas. These are presented as Tables 5.1 through 5.8 in Appendix A. For each of the four areas discussed, there is a table summarizing work trips, and then one summarizing all trips. As work trips are most important for transit riders, these are also diagrammed with maps as Figures 5.1 through 5.16.

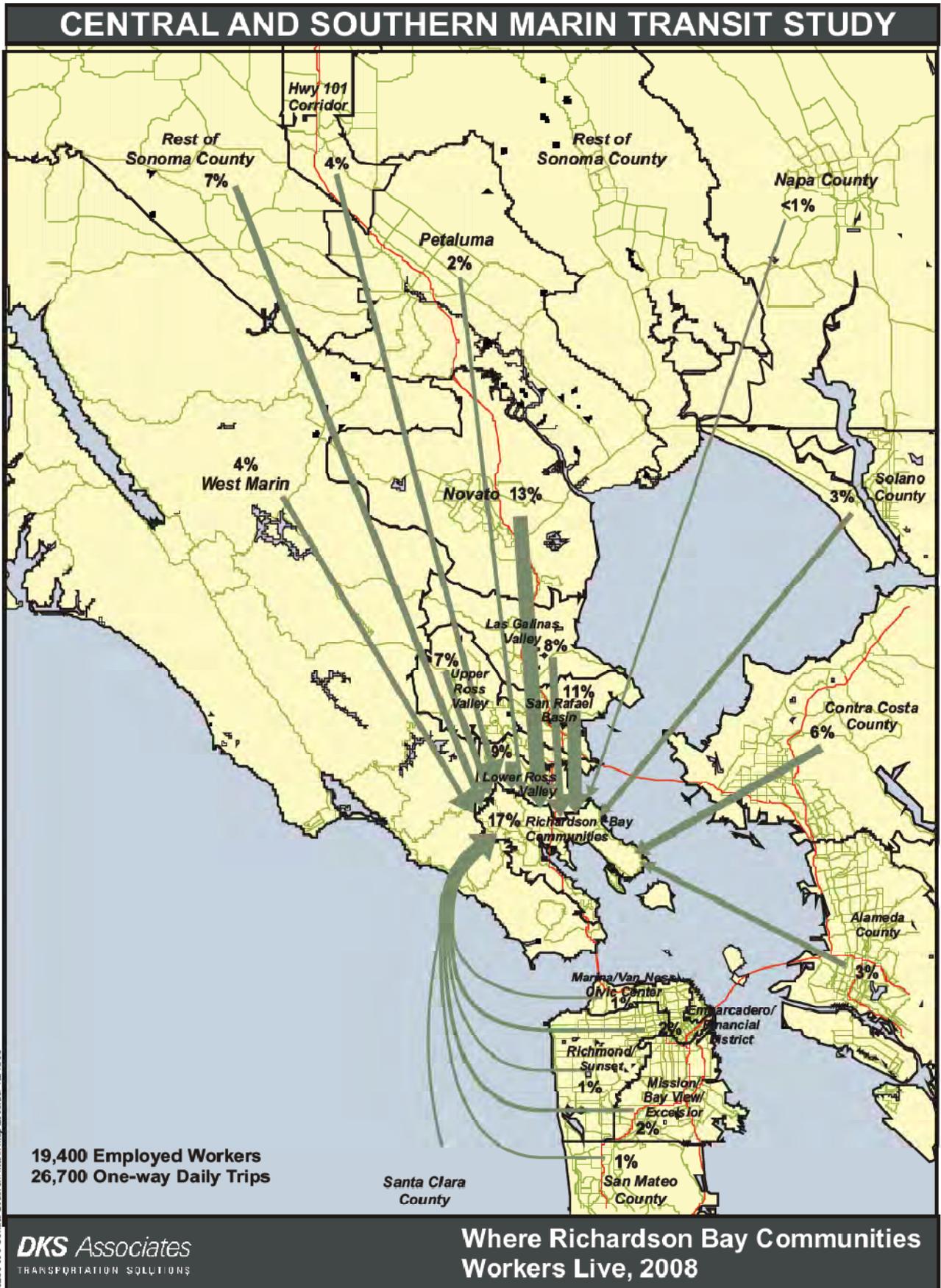
Richardson Bay Communities

The communities of Sausalito, Marin City, Mill Valley, Tiburon and Belvedere (and surrounding areas) are generally oriented to San Francisco for work trips. As shown in Table 5.1 and Figure 5.1 Around 37 percent of the residents are estimated to work in San Francisco or further south. This is quite significant, in that home-based work trips incorporate all trip patterns rather than the primary wage earner; secondary wage earner trips (such as student part-time workers at nearby grocery stores or restaurants) are counted equivalently to the primary wage earner. Another 23 percent are projected to work in northern Marin County (Las Gallinas Valley or Novato), with other many workers remaining local in Central and Southern Marin (38 percent). These patterns are generally constant between 2000 and 2018, and only 8 percent more work trips are projected in the 10-year period.

There are slightly less than two jobs for every worker in this area. For those people working in these communities, most come locally. An estimated 17 percent are from this immediate area, with another 27 percent from other parts of Central and Southern Marin and approximately 21 percent come from northern Marin Communities. As with the residents, the travel patterns in this area are expected to remain stable by 2018, with about a 10 percent growth in jobs projected.

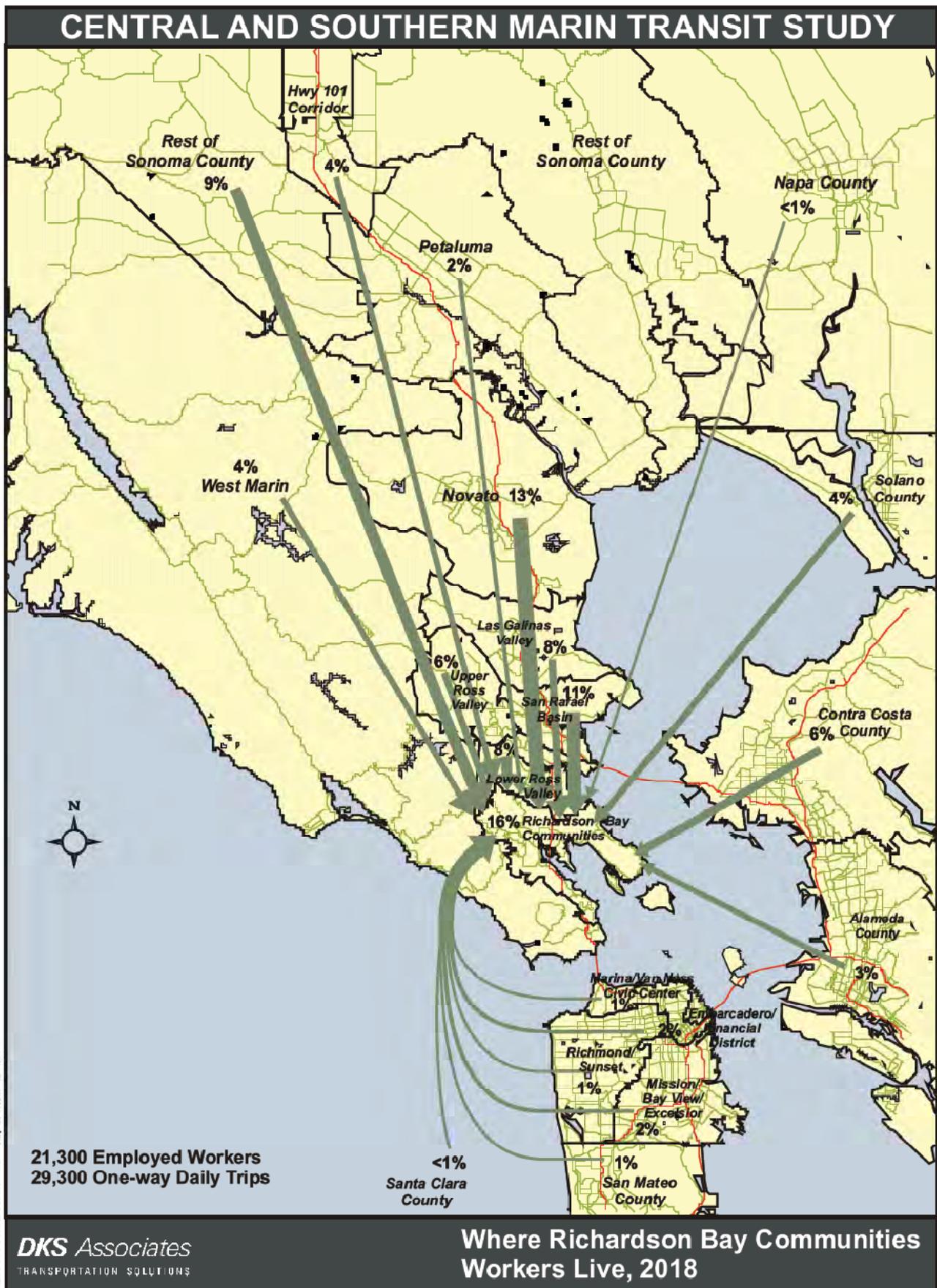
The visual patterns of the work trips are further illustrated in Figures 5.1 through 5.4. Figure 5.1 summarizes the resident travel patterns estimated for 2008, with Figure 5.2 doing the same for 2018. Figure 5.3 summarizes the employee trip patterns for 2008, while Figure 5.4 summarizes the same pattern for 2018.

Figure 5.1 Richardson Bay Residents, 2008



082013-00-Central South em Marin Map 20.08.cdm12/16/08

Figure 5.2 Richardson Bay Residents, 2018



062013-001-Central Southern Marin Map 20 18.cdr*12/16/08

Figure 5.3 Richardson Bay Workers, 2008



06203-000-Central Southern Marin Map 2008.cdr-12/16/08

Figure 5.4 Richardson Bay Workers, 2018



In Table 5.2 (Appendix A), the aggregate trip patterns are shown for the Richardson Bay Communities. As this table shows, more trips occur locally when all trips are considered, as shopping, recreational and school trips tend to remain closer to home. Almost half of the resident trips remain in the immediate area, and over 62 percent of the trips to the non-residential destinations are made by local residents.

Lower Ross Valley

The communities of Larkspur, Corte Madera and surrounding areas also show a strong trend to San Francisco. As shown in Table 5.3 and Figure 5.5. Around 36 percent of the residents are estimated to work in San Francisco or further south. This is quite significant, in that home-based work trips incorporate all trip patterns rather than the primary wage earner; secondary wage earner trips (such as student part-time workers at nearby grocery stores or restaurants) are counted equivalently to the primary wage earner. Another 26 percent are projected to work in northern Marin County (Las Gallinas Valley or Novato), with many other workers remaining local in Central and Southern Marin (39 percent). These patterns are generally constant between 2000 and 2018, and only 8 percent more work trips are projected in the 10-year period.

There are about 30 percent more jobs than workers. Much of this results from the high volume of retail activity. For those people working in these communities, most come locally. An estimated 9 percent are from this immediate area, with another 33 percent from other parts of Central and Southern Marin and approximately 20 percent come from northern Marin Communities. As with the residents, the travel patterns in this area are expected to remain stable by 2018, with only about a 1 percent growth in jobs projected.

The visual patterns of the work trips are further illustrated in Figures 5.5 through 5.8. Figure 5.5 summarizes the resident travel patterns estimated for 2008, with Figure 5.6 doing the same for 2018. Figure 5.7 summarizes the employee trip patterns for 2008, while Figure 5.8 summarizes the same pattern for 2018.

Figure 5.5 Lower Ross Valley Residents, 2008

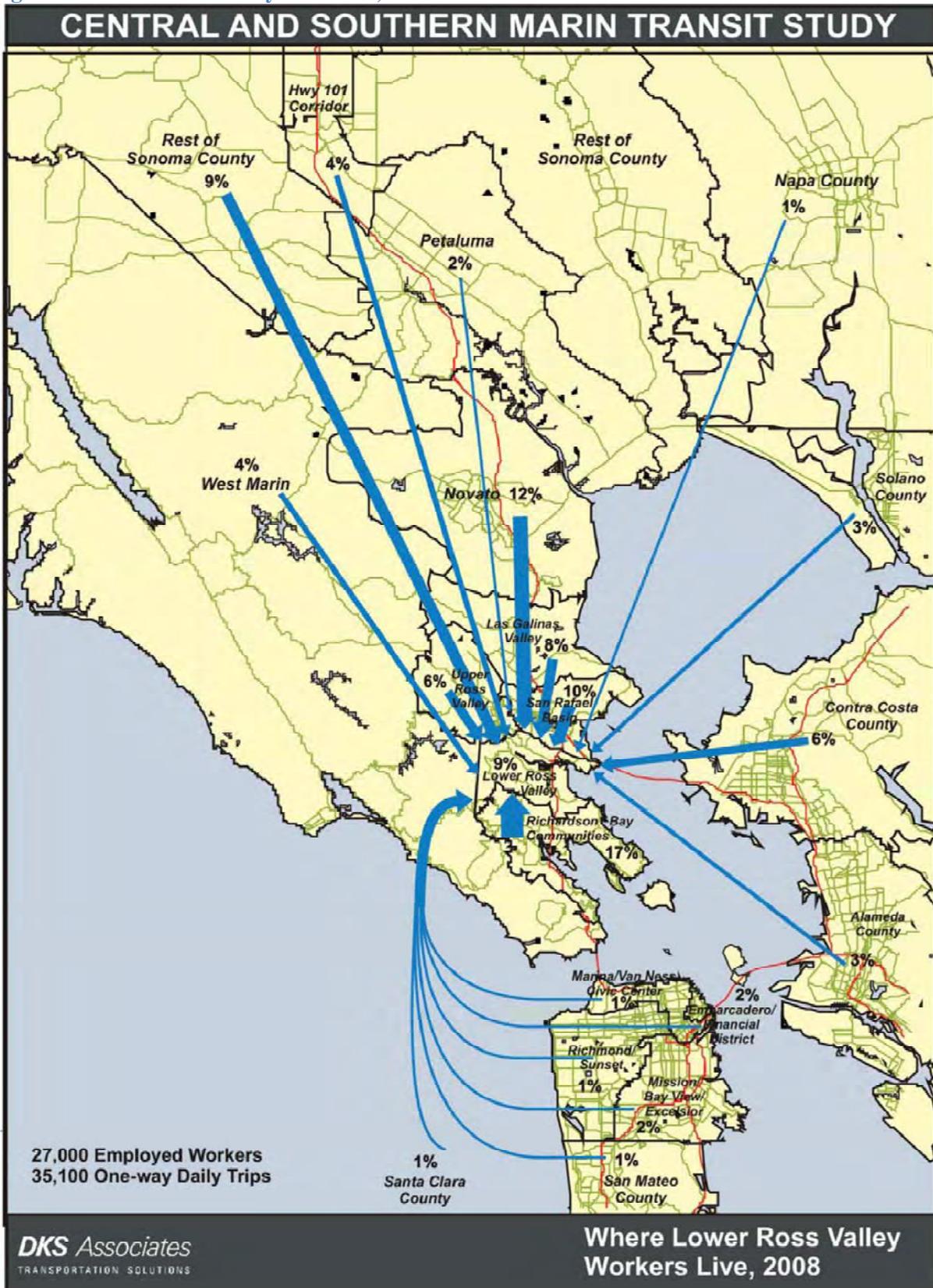


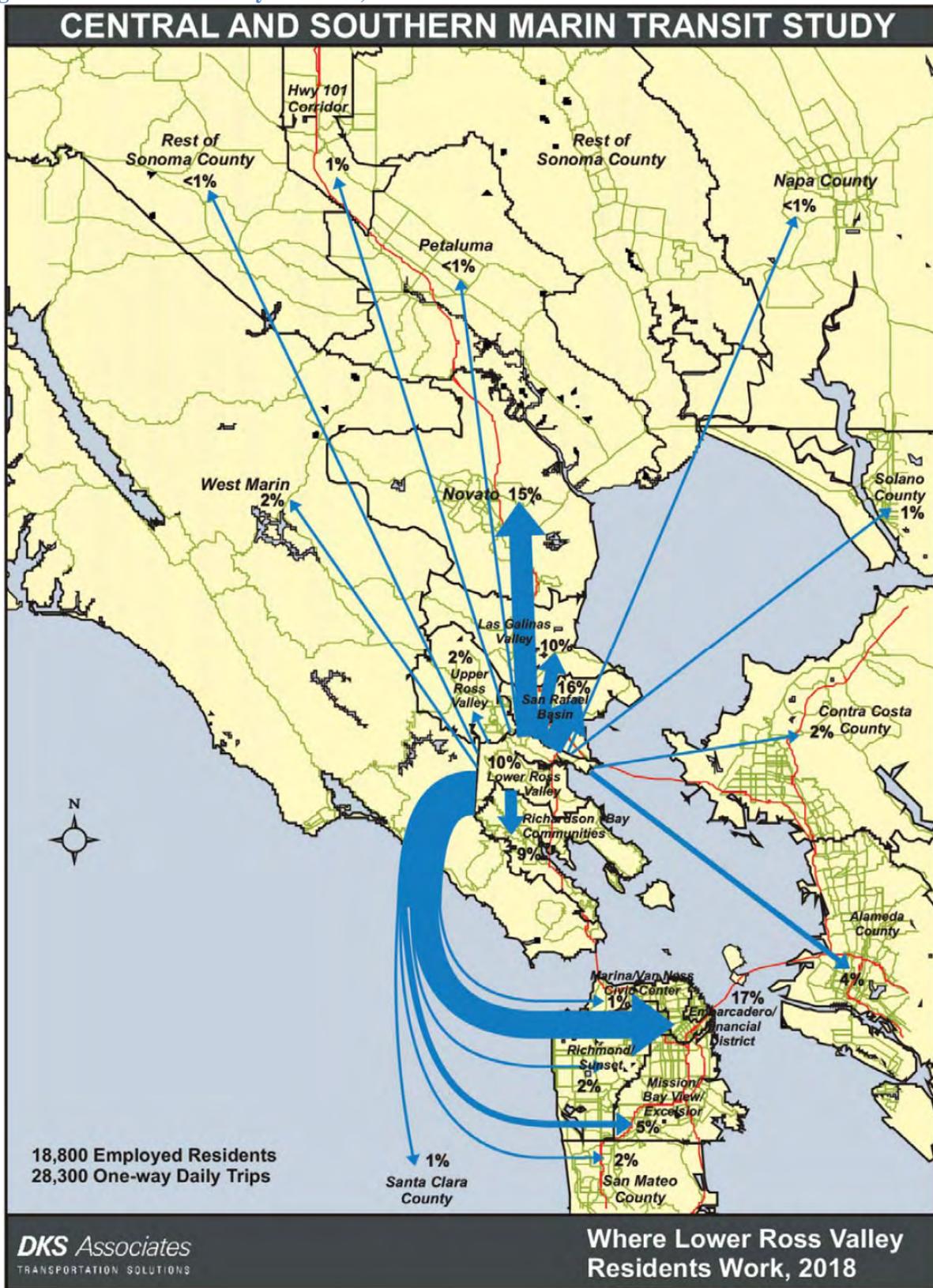
Figure 5.6 Lower Ross Valley Residents, 2018



Figure 5.7 Lower Ross Valley Workers, 2008



Figure 5.8 Lower Ross Valley Workers, 2018



The prominence of local retail activity tends to result in a high proportion of trips remaining in the immediate Lower Ross area, as shown in Table 5.4. About 40 percent of the resident trips today are estimated to be doing this. Of the remaining trips, the Central San Rafael basin accounts for an estimate 20 percent more of these trips. The proportion of non-resident trip ends in this area are slightly lower (33 percent for 2008) because of the strong regional shopping centers in the area.

Upper Ross Valley

The communities of San Anselmo, Fairfax, Woodside and surrounding areas also show a strong trend to San Francisco, but slightly less than the communities in more southerly parts of Marin County. As shown in Table 5.5 and Figure 5.9, around 34 percent of the residents are estimated to work in San Francisco or further south. This is quite significant, in that home-based work trips incorporate all trip patterns rather than the primary wage earner; secondary wage earner trips (such as student part-time workers at nearby grocery stores or restaurants) are counted equivalently to the primary wage earner. Another 23 percent are projected to work in northern Marin County (Las Gallinas Valley or Novato), with many other workers remaining local in Central and Southern Marin (37 percent). These patterns are generally constant between 2000 and 2018, and only 16 percent more work trips are projected in the 10-year period.

There are about five workers to every job in this area. Most employment is associated with local-serving businesses. For those people working in these communities, most come locally. An estimated 7 percent are from this immediate area, with another 35 percent from other parts of Central and Southern Marin and approximately 26 percent come from northern Marin Communities. As with the residents, the travel patterns in this area are expected to remain stable by 2018, with only about a 7 percent growth in jobs projected.

The visual patterns of the work trips are further illustrated in Figures 5.9 through 5.12. Figure 5.9 summarizes the resident travel patterns estimated for 2008, with Figure 5.10 doing the same for 2018. Figure 5.11 summarizes the employee trip patterns for 2008, while Figure 5.12 summarizes the same pattern for 2018.

Figure 5.9 Upper Ross Valley Residents, 2008

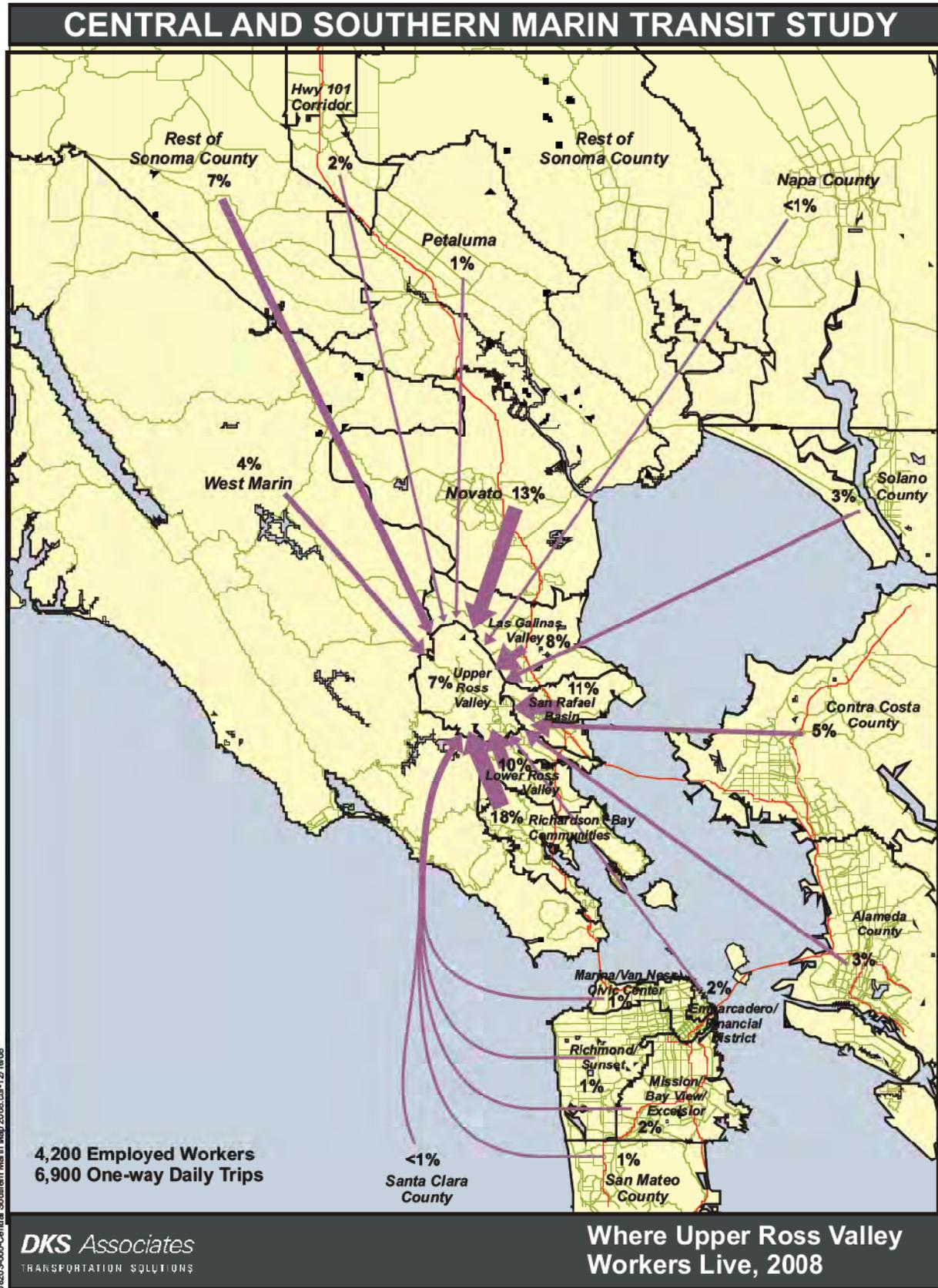


Figure 5.10 Upper Ross Valley Residents, 2018

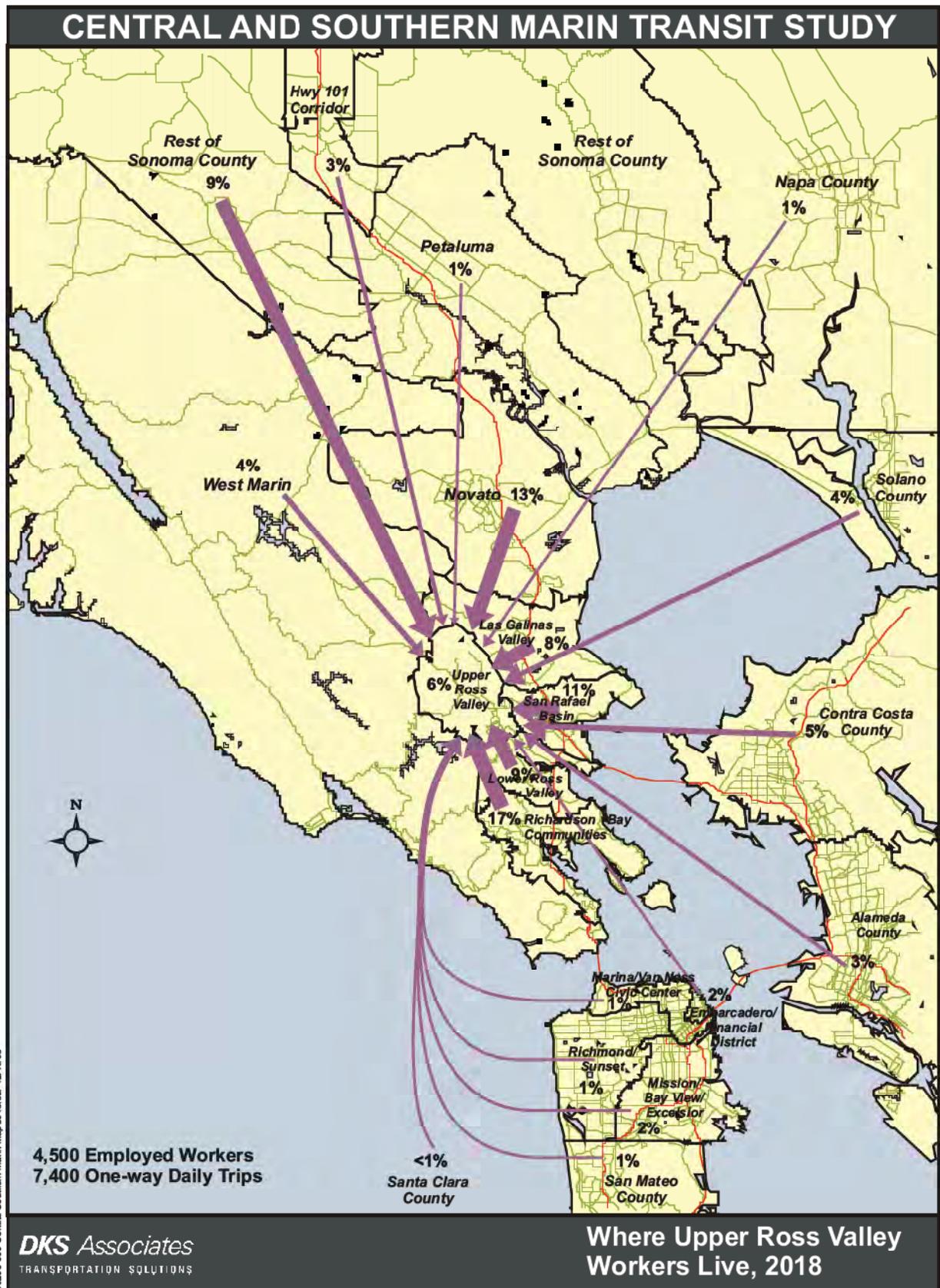


Figure 5.11 Upper Ross Valley Workers, 2008

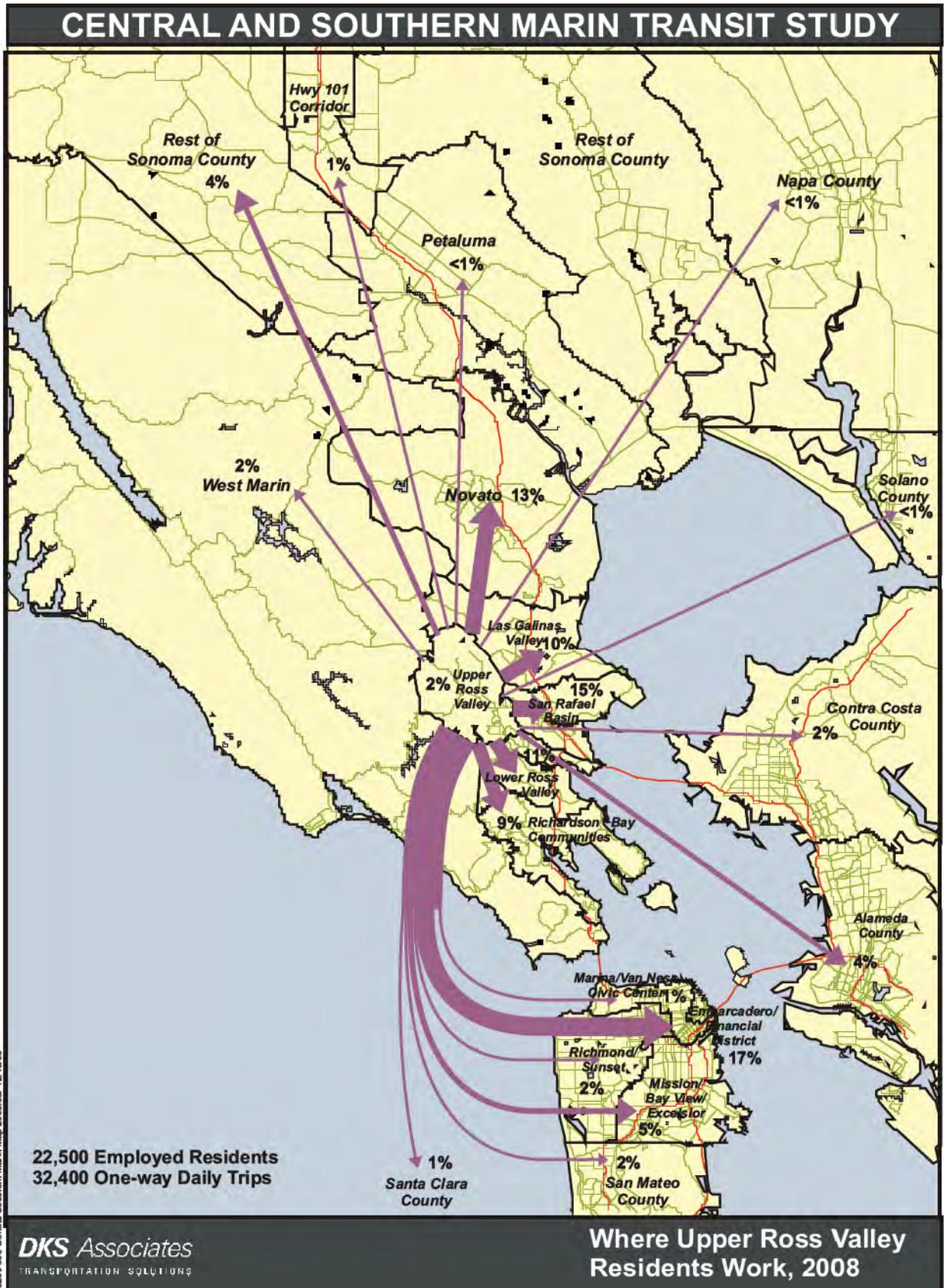
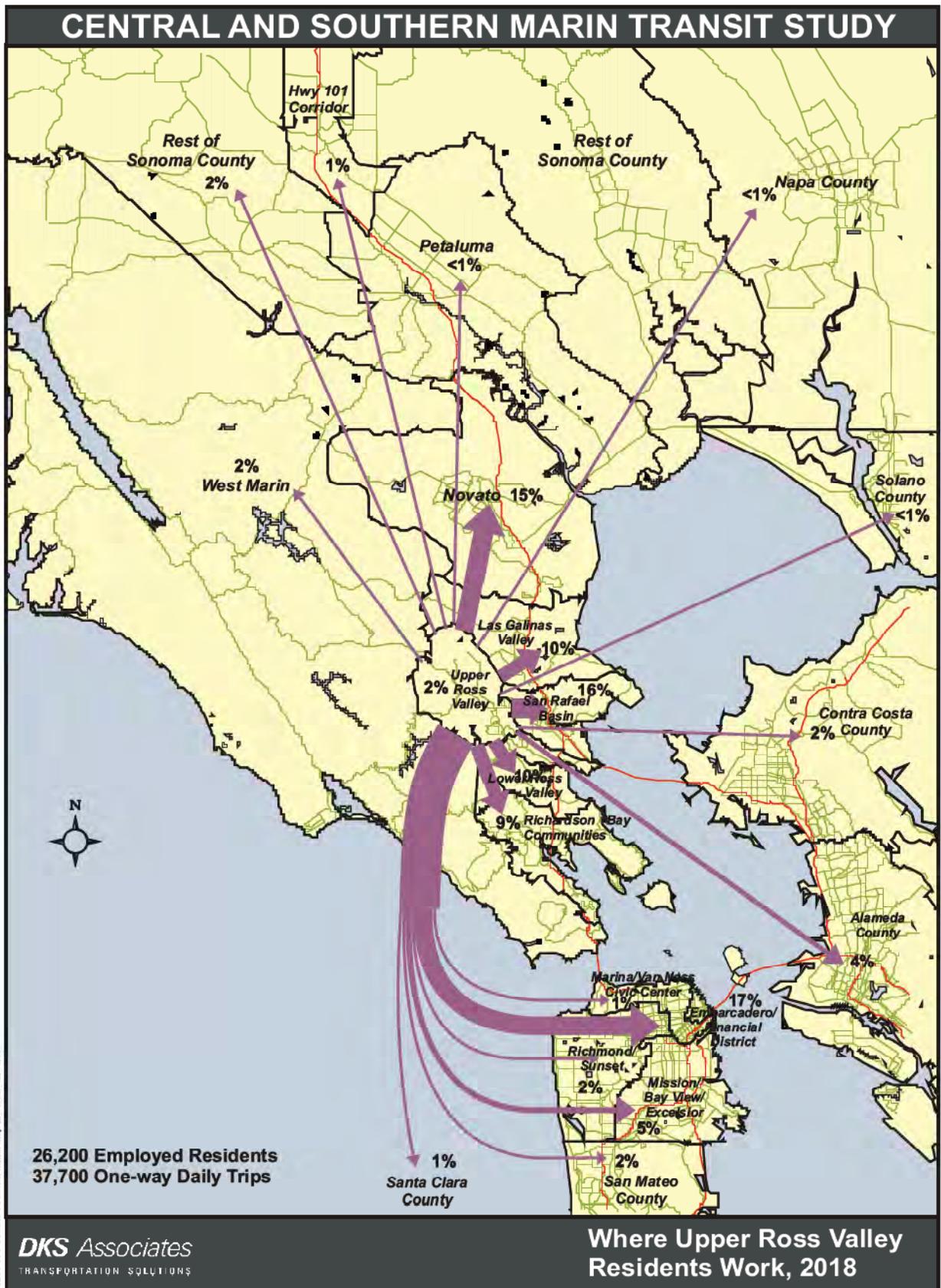


Figure 5.12 Upper Ross Valley Workers, 2018



The local focus of retail activity tends to result in a high proportion of trips remaining in the immediate Upper Ross area, as shown in Table 5.6. About 40 percent of the resident trips today are estimated to be doing this. Of the remaining trips, the Central San Rafael basin accounts for an estimated 18 percent more of these trips. The proportion of non-resident trip ends in this area is much higher (56 percent for 2008) because of the strong orientation of local-serving businesses.

San Rafael Basin

Central San Rafael and the surrounding neighborhoods of the San Rafael Basin show as strong trend to San Francisco, but slightly less than the communities in more southerly parts of Marin County. As shown in Table 5.7 and Figure 5.11, around 36 percent of the residents are estimated to work in San Francisco or further south. This is quite significant, in that home-based work trips incorporate all trip patterns rather than the primary wage earner; secondary wage earner trips (such as student part-time workers at nearby grocery stores or restaurants) are counted equivalently to the primary wage earner. Another 23 percent are projected to work in northern Marin County (Las Gallinas Valley or Novato), with many other workers remaining local in Central and Southern Marin (38 percent). These patterns are generally constant between 2000 and 2018, and only 6 percent more work trips are projected in the 10-year period.

There are slightly over two jobs to every worker in this area. An estimated 16 percent are from this immediate area, with another 30 percent from other parts of Central and Southern Marin and approximately 19 percent come from more northerly Marin areas. As with the residents, the travel patterns in this area are expected to remain stable by 2018, with only about a 13 percent growth in jobs projected.

The visual patterns of the work trips are further illustrated in Figures 5.13 through 5.16. Figure 5.13 summarizes the resident travel patterns estimated for 2008, with Figure 5.14 doing the same for 2018. Figure 5.15 summarizes the employee trip patterns for 2008, while Figure 5.16 summarizes the same pattern for 2018.

Figure 5.13 San Rafael Basin Residents, 2008

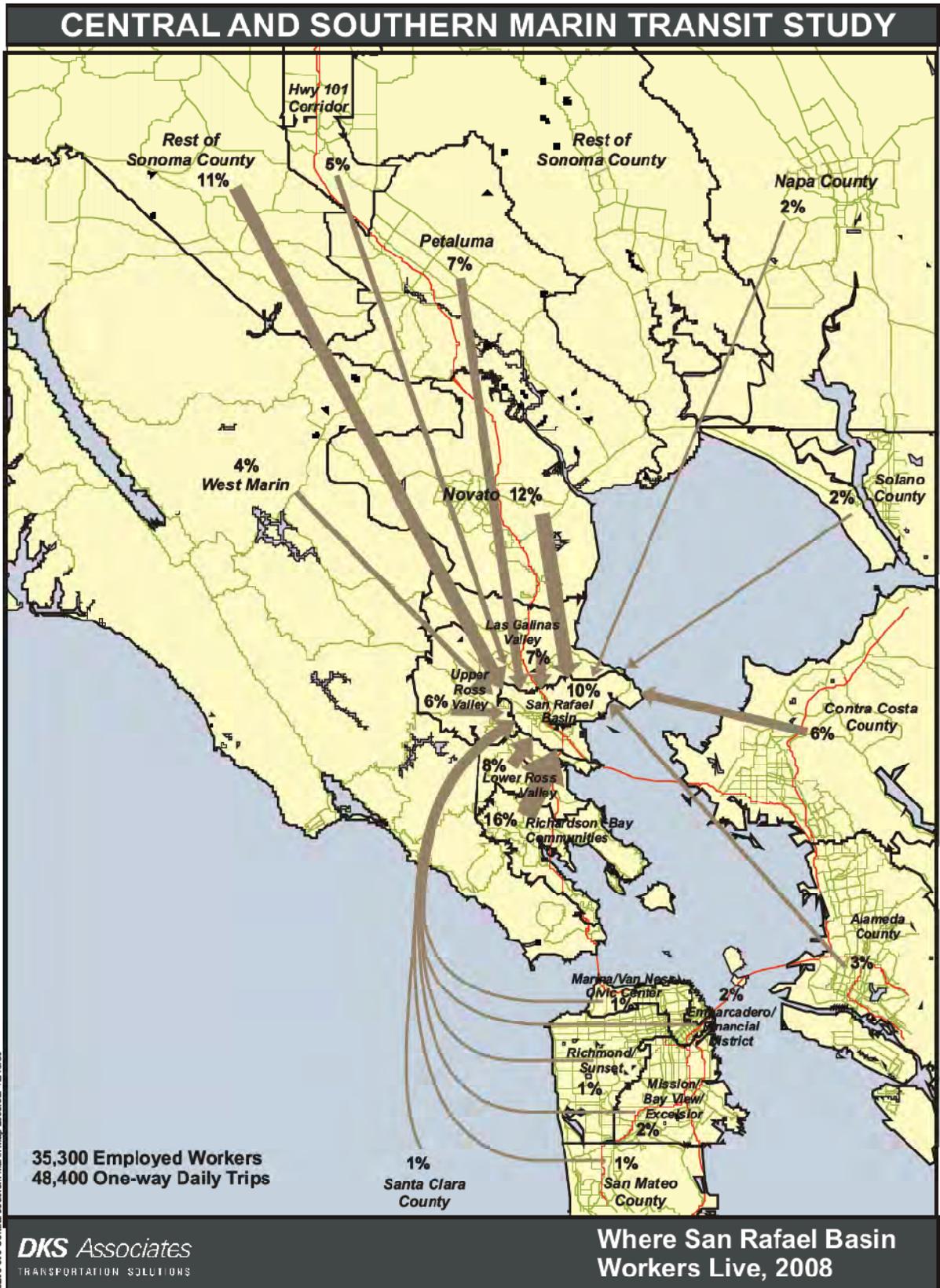


Figure 5.14 San Rafael Basin Residents, 2018

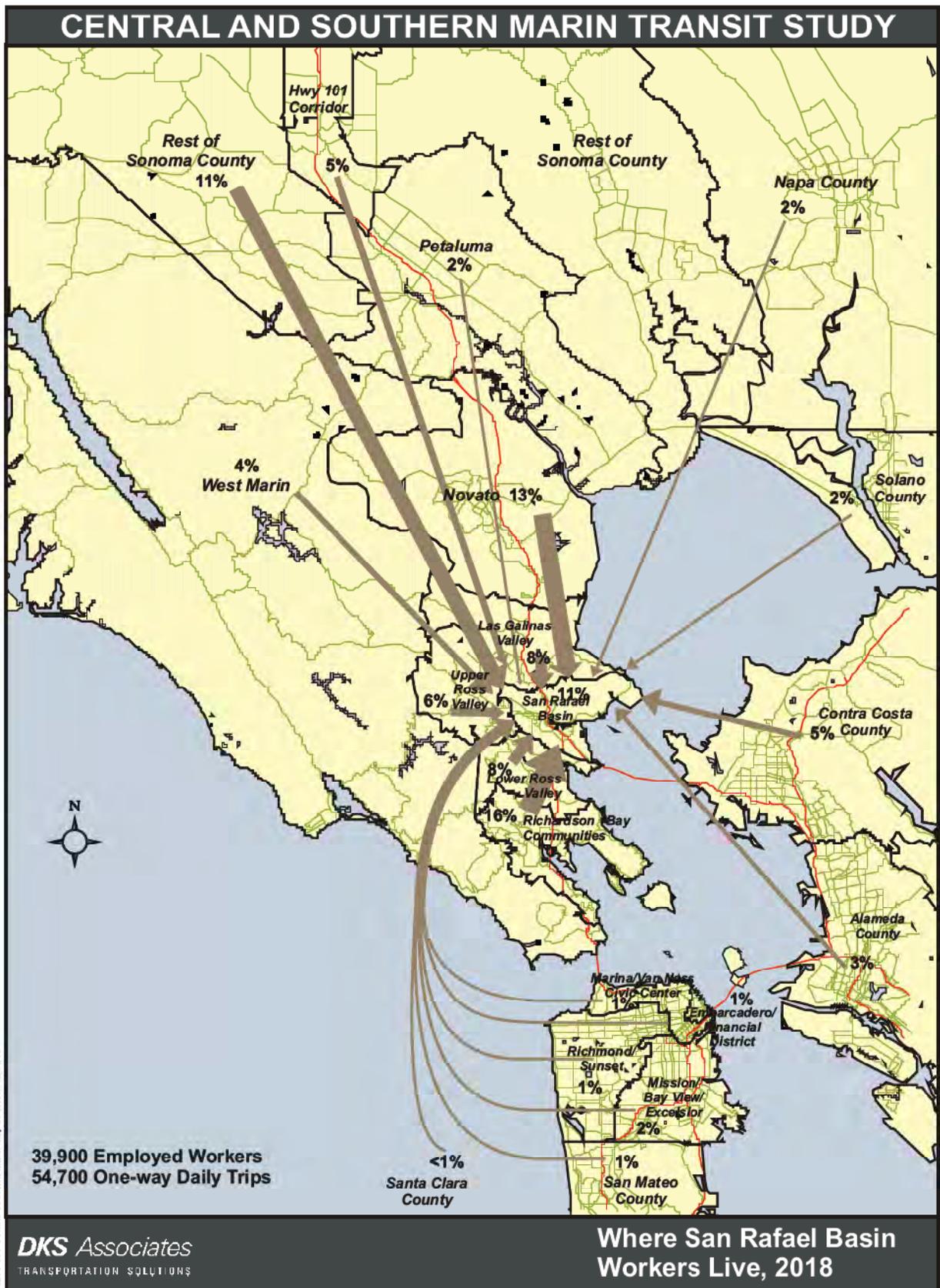


Figure 5.15 San Rafael Basin Workers, 2008



Figure 5.16 San Rafael Basin Workers, 2018



The role of the Central San Rafael basin as the County's hub tends to result in a high proportion of trips remaining in the immediate area, as shown in Table 5.8. About 50 percent of the resident trips today are estimated to be doing this. The proportion of non-resident trip ends in this area is somewhat lower (38 percent for 2008) because of the role that this area plays as a major activity hub within Marin County.

5.3 Estimated Transit Trip Patterns and Mode Shares

As documented in the ridership totals for Golden Gate Transit in the past few years, the total number of commuters using transit continues to drop in both absolute and real percentage terms. The Census Bureau has been sampling the trends associated with mode shares for several years and the trends are evident in their data.

The Census Bureau has two sources available:

- The Year 2000 Census contained a long-form which included a question on primary commute mode when journeying to work. This was collected as a sample of roughly nine percent of the households in urban areas such as Marin County.
- The Census Bureau abandoned the reliance on the long-form at the decennial mark, and begun collecting data using the American Community Survey program. This program, initiated in 2005, has had data released for 2005, 2006 and 2007. In each year, about 1.5 percent of all households were surveyed. Using a three-year averaging process, the Census Bureau recently provided a summary of the modes of transportation to work by residents of Marin County, factored to the estimated total number of workers. It should be noted that this is the first time that the Census Bureau has provided this type of data, so that technical adjustments to the results may be needed as the program matures.

The results summarized in Table 5.9 show that many people in Marin are not using transit. A comparison of the two surveys shows the percentage of workers who commute using transit falling from 10.0 percent to 7.5 percent. This is an absolute reduction of about 3,700 workers, or 7,400 daily transit boardings. About half of this difference has been absorbed by an increase in people who work at home (up from 8.8 to 10.1 percent). A significant increase in bicycle commuting (up from 1.0 to 1.4 percent) has also occurred. It is also worth mentioning that while about the same percentage of people are driving (about 76 percent) there has been an increased shift from those who carpool to those who drive alone.

Table 5.9 Means of Transportation to Work for Workers 16 Years and Over

Means of Transportation to Work	Census 2000		2007 ACS Estimates	
	Total Workers	Percentage of Workers	Total Workers	Percentage of Workers
Total	126,646	100.0%	121,198	100.0%
Car, truck, or van:	96,495	76.2%	92,581	76.4%
--Drove alone	82,898	65.5%	80,598	66.5%
--Carpooled	13,597	10.7%	11,983	9.9%
Public transportation (excludes taxis)	12,729	10.0%	9,044	7.5%
Taxicab	68	0.1%	126	0.1%
Motorcycle	427	0.3%	571	0.5%
Bicycle	1,233	1.0%	1,640	1.4%
Walked	3,835	3.0%	4,017	3.3%
Other means	732	0.6%	969	0.8%
Worked at home	11,127	8.8%	12,250	10.1%

Source: US Bureau of the Census web site

CHAPTER 6: SUMMARY OF TRANSIT RIDER PROFILES

6.1 Survey Results

Both The Marin County Transit District and the Golden Gate Bridge Highway and Transit District recently conducted on-board surveys of their riders. The information provided in these surveys gives an indication about key aspects of the transit operations which are directly relevant to this study.

6.2 Marin County Transit Survey

The onboard survey of Marin County Transit District bus riders was conducted in October and November, 2008. A total of 2,947 responses were received. It is estimated that there are 9,332 eligible riders on sampled buses, which indicates that there was a 32 percent response rate. This is useful for a system wide perspective of the operations.

The survey indicated that 44 percent of Marin County weekday riders live in San Rafael (note that a portion of San Rafael north of Downtown is not located in the study area). The survey showed that another 27 percent of Marin County riders live in the Southern Marin study area – 13 percent in the Ross Valley taken as a whole, and 14 percent further south in the communities surrounding Richardson Bay.

The draft survey report provides some information by route. Key information by the routes identified in this report is summarized in Table 6.1. As the summary shows, walking and transferring are the primary ways in which Marin Transit users access the bus. About 5 percent of the riders are approaching the routes by bicycle or by being dropped off. Most of the riders are using Marin Transit for work-related trips, and school usage by route varies considerably. Many of the riders come from San Rafael, although Southern Marin riders are more prevalent on the routes which do not operate within the San Rafael city limits.

Table 6.1 Marin Transit District Rider Survey

Item	Route						Total Study Area Routes
	17	19	22	23	29	36	
Access Modes							
Walk	78%	72%	77%	78%	67%	69%	74%
Bus Transfer	24%	26%	18%	20%	25%	36%	23%
Bicycle	6%	3%	6%	6%	3%	3%	5%
Dropped Off	4%	6%	5%	4%	4%	5%	5%
Drove	1%	3%	1%	1%	4%	2%	2%
	4%	2%	5%	6%	10%	5%	6%
Trip Purpose							
Commute or Work Related	53%	53%	46%	60%	62%	71%	56%
Home-School	13%	4%	33%	14%	14%	12%	18%
Other	34%	43%	21%	26%	24%	17%	26%
City of Residence							
San Rafael	29%	36%	31%	24%	63%	65%	39%
Novato	7%	9%	8%	8%	8%	7%	8%
Southern Marin	64%	55%	61%	68%	29%	28%	53%
Other Transportation Alternatives (multiple answers accepted -- totals greater than 100 percent)							
Transit is Only Option	54%	61%	49%	50%	60%	49%	53%
Drive/Carpool	20%	24%	32%	24%	21%	30%	26%
Other	26%	18%	23%	33%	21%	23%	25%
Riders Who Cannot Drive or Own A Car							
	78%	71%	72%	80%	80%	75%	76%
Annual Riders	225,957	71,245	334,800	223,562	185,578	161,584	1,202,726

Source: MCTD, *Marin Transit 2008 Systemwide Onboard Survey: Draft Summary Report*

6.3 Golden Gate Bus Transit Rider Survey

The onboard survey of Golden Gate Bridge, Highway and Transit District bus riders was conducted in October and November, 2008. While a draft survey report is not available, the draft summary tables provide some information by route. Key information by the routes identified in this report is summarized in Table 6.2. The survey does not distinguish between different segments of the route, so that data includes riders who board or alight in San Francisco or Northern Marin.

As the summary shows, walking is a primary mode for the basic routes, while many of the commute route patrons arrive using their autos. It should be noted that the survey did not differentiate the home versus non-home end, so that many of the percentage of persons who walk to the bus are expected to be doing this in San Francisco. Because the other modes of access are considered as something done only at one end, the reader can conclude that the actual percentages for drive, bicycle and drop-off/pick-up are about double within Marin County. When this assumption is made, the percentage of Marin riders who are driving to the bus is estimated at 8 percent for the basic routes, and 48 percent for the commuter routes. Riders with bicycles are estimated at 12 percent for basic routes, and 3 percent for commuter routes. The drop-off/pick-up riders would be estimated at 22 percent for the basic routes, and 8 percent for the commuter routes.

Among the commuter routes, Route 4 has the highest share of persons who drive. This is expected, as the route primarily serves the Manzanita park-and-ride lot. In contrast, Route 2, which primarily serves Sausalito and Marin City, has few drivers due to the limited park-and-ride opportunities and the slightly higher population densities along the route.

A significant finding is that the trip purpose varies between the basic and commute routes. About half of the basic riders are traveling for work-related items, while almost all of the commuter routes are work-related. This is expected, as the commute routes generally operate only during hours when people are traveling to and from work.

It is important to note that the data provided here is in draft form, and some adjustments and refinements are possible before a draft and final report is released and accepted.

Table 6.2 Golden Gate Transit District Rider Survey

Route	Basic Routes			Commuter Routes						
	Total	10	70/80	Total	2	4	8	18	24	26/27
Access Modes										
Walked All the Way	56%	62%	56%	65%	83%	58%	87%	70%	62%	71%
Bicycle	6%	6%	5%	3%	3%	2%	2%	4%	4%	1%
Drive	4%	3%	5%	24%	5%	33%	8%	23%	23%	14%
Drop-Off/Pick Up	11%	4%	11%	4%	4%	3%	1%	2%	5%	6%
Transit Transfer	19%	22%	19%	4%	6%	3%	6%	3%	4%	7%
No Answer	28%	25%	28%	7%	11%	6%	9%	8%	7%	8%
Trip Purpose										
Commuter or Work Related	49%	64%	47%	95%	94%	96%	96%	94%	97%	93%
Home-School	6%	7%	6%	3%	3%	3%	2%	5%	2%	4%
Other	45%	29%	47%	2%	3%	2%	2%	1%	1%	3%
Annual Riders	1,691,347	216,172	1,475,175	902,444	67,304	366,173	22,087	110,145	227,648	109,087

Source: GGBHTD, Golden Gate Transit 2008 Systemwide Onboard Survey: Cross-Tabulated Tables

CHAPTER 7: KEY EXISTING CONDITIONS FINDINGS

7.1 EXISTING TRANSIT SERVICES:

Golden Gate Transit

1. Majority of GGT bus routes serving Central and Southern Marin have experienced a decrease in annual ridership between 2004 and 2008.
2. This trend 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), by a general reduction in commute travel between Marin County and San Francisco, and a possible mode shift back to auto usage.
3. Recent ridership data collected in the last nine months suggests that ridership on GGT basic and Commute Routes is beginning to increase.
4. GGT bus on-time performance has improved in recent years, achieving the desired performance standard of 90% of all trips running on-time as scheduled. Schedules were adjusted with additional running time.

Marin Transit

1. Only one Marin Transit route serving Central and Southern Marin is not achieving a desired productivity goal of 20 passengers per revenue hour. Route 19 carried 12 passengers per revenue hour in FY 2007/08.
2. Marin Transit local service on time performance has improved significantly in recent years. On time performance has increased from a 56% on time performance level reported in the 2006 Marin Transit Short Range Transit Plan to 95.3% reported in July and August 2008.

Planning Implications for Study

The significance of transit in the service area will become more apparent when mode share data and transfer data becomes available. The latter will be available in the recent onboard passenger survey findings. From the initial findings of the existing conditions transit service overview:

1. Congestion along the Highway 101 Trunk and east/west corridors will continue to create on time performance challenges for both GGT and Marin Transit. Enhancements along the Highway 101 Trunk and east/west corridors should focus on improving bus

running times to increase the attractiveness and travel time advantage of GGT Basic and Commute Routes. Running time enhancements will facilitate good on time performance without investing additional revenue hours.

2. Improved on time performance along the east/west corridors will become increasingly important to ensure good connectivity between local and commute services if BRT-type service is introduced along selected east/west corridors.

7.2 TRANSIT HUB AND CORRIDOR FACILITIES:

Hwy 101 facilities:

1. Current park and ride capacity, with the exception of Smith Ranch north of the Study Area, shows significant excess demand.
2. Locations with no formal parking – especially bus pads in the Lucky Drive/Tamalpais Drive and also at Shoreline/Manzanita – generate significant overflow demand on adjacent surface streets.
3. Park and ride facilities are currently configured for the southbound commute, but in the future, demand forecasts suggest some provision for the northbound commute should be considered (applicable both to Golden Gate Transit and SMART)

7.3 TRAVEL FORECASTS AND TRANSIT DEMAND PROJECTIONS:

1. There is no significant slow-down in freeway travel time in the southbound AM peak period direction. This is partly the result of the traffic being restricted upstream in Central San Rafael.
2. There is an anticipated benefit on transit travel time in the northbound PM peak period with the completion of the gap closure project in January 2009. Today, there is at least a 7-minute delay for all northbound buses that cannot use the HOV lane.
3. The aggregate demand for travel is forecast as "slower growth" in the next decade. The total number of trip ends increases by less than 15 percent for both residents and for non-resident trip attractions in all cases. The reason is that much of the area has been "built out", with only small sites available for redevelopment.
4. The increases in demand tend to be to the north. While some growth is forecast to occur to/from San Francisco, the overall trend is to have more trips traveling northward in the future. Even with this shift, the overall demand of travel is not going to shift significantly.

7.4 CORRIDOR PROFILES:

1. The five East-West Study Corridors all show constant population and employment levels over the next ten years, with growth of less than 3% over the entire decade.
2. Corridor population densities are broadly in line with, or somewhat below, the current level of local service provision (30-minute peak/60 minute off-peak fixed route service).
3. Regional and local mobility needs exist to destinations beyond each corridor, and beyond the County, on all travel corridors: these may require transit service in future, irrespective of low residential or employment densities and land uses which support local transit services.
4. Opportunities for significant land use change towards densities, which might support higher capacity transit (such as streetcar), appear limited in the next ten years; this is especially apparent in the Mill Valley-Sausalito corridor.
5. The regional commute demand in the non-traditional direction (northbound, Sonoma employment destinations) suggests a need to better define in the subsequent tasks of the Study, the optimal transit connections between the East West corridors and the 101 trunk line/SMART services northwards, in addition to the primary southbound/San Francisco direction.

APPENDIX A: EXHIBITS AND TABLES

**Figure A-1: Highway 101 Greenbrae/Twin Cities Corridor Improvements: Southbound
Option C – Northbound Option E**

Table 5.1 Work Trip Patterns of Richardson Bay Communities

Richardson Bay Residents going to work in:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	1,083	2%	1,129	2%	46	4%
Santa Clara	413	1%	430	1%	17	4%
Alameda County	1,959	4%	2,044	4%	85	4%
Contra Costa	1,134	2%	1,184	2%	50	4%
Solano County	584	1%	622	1%	38	7%
Napa County	334	1%	356	1%	21	6%
Embarcadero/Financial District	8,900	18%	9,198	17%	298	3%
Marina/ Van Ness/Civic Center	545	1%	581	1%	36	7%
Richmond/Sunset	937	2%	980	2%	43	5%
Mission/ Bay View/ Excelsior	2,347	5%	2,534	5%	187	8%
Petaluma	21	0%	90	0%	69	333%
Rest of Sonoma County	77	0%	334	1%	257	333%
Sonoma Hwy 101 Corridor	89	0%	384	1%	296	333%
Richardson Bay Communities	4,630	9%	4,785	9%	156	3%
Lower Ross Valley	5,862	12%	5,712	10%	-150	-3%
San Rafael Basin	7,807	15%	8,602	16%	796	10%
West Marin	1,065	2%	1,145	2%	80	8%
Las Gallinas Valley	5,124	10%	5,367	10%	243	5%
Novato	6,671	13%	8,203	15%	1,532	23%
Upper Ross Valley	1,261	2%	1,229	2%	-31	-2%
Total	50842		54910		4068	8%
Richardson Bay Employees coming from their homes in:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	202	1%	187	1%	-14	-7%
Santa Clara	147	1%	131	0%	-16	-11%
Alameda County	811	3%	849	3%	38	5%
Contra Costa	1,539	6%	1,644	6%	104	7%
Solano County	735	3%	1,032	4%	297	40%
Napa County	15	0%	17	0%	2	10%
Embarcadero/Financial District	445	2%	461	2%	16	4%
Marina/ Van Ness/Civic Center	180	1%	181	1%	0	0%
Richmond/Sunset	309	1%	307	1%	-2	-1%
Mission/ Bay View/ Excelsior	490	2%	532	2%	41	8%
Petaluma	402	2%	496	2%	94	23%
Rest of Sonoma County	1,997	7%	2,680	9%	683	34%
Sonoma Hwy 101 Corridor	1,192	4%	1,237	4%	46	4%
Richardson Bay Communities	4,630	17%	4,785	16%	156	3%
Lower Ross Valley	2,415	9%	2,487	8%	71	3%
San Rafael Basin	2,870	11%	3,257	11%	387	13%
West Marin	1,023	4%	1,083	4%	60	6%
Las Gallinas Valley	2,141	8%	2,341	8%	200	9%
Novato	3,369	13%	3,787	13%	418	12%
Upper Ross Valley	1,744	7%	1,773	6%	30	2%
Total	26,658		29,266		26,09	10%

Source: Marin County Travel Model

Table 5.2 Aggregate Trip Patterns of Richardson Bay Communities

Richardson Bay Residence Trips Going to:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	3,023	2%	3,847	2%	824	27%
Santa Clara	901	0%	1,306	1%	405	45%
Alameda County	2,624	1%	3,052	2%	428	16%
Contra Costa	1,576	1%	1,868	1%	292	18%
Solano County	1,015	1%	1,308	1%	293	29%
Napa County	559	0%	627	0%	68	12%
Embarcadero/Financial District	17,599	9%	20,385	10%	2,786	16%
Marina/ Van Ness/Civic Center	3,593	2%	4,452	2%	860	24%
Richmond/Sunset	2,715	1%	3,307	2%	592	22%
Mission/ Bay View/ Excelsior	3,667	2%	4,303	2%	636	17%
Petaluma	5,135	3%	7,915	4%	2,780	54%
Rest of Sonoma County	160	0%	422	0%	262	164%
Sonoma Hwy 101 Corridor	126	0%	423	0%	297	235%
Richardson Bay Communities	86,338	46%	88,609	44%	2,271	3%
Lower Ross Valley	21,571	11%	19,612	10%	-1,959	-9%
San Rafael Basin	17,089	9%	18,049	9%	960	6%
West Marin	2,429	1%	2,674	1%	245	10%
Las Gallinas Valley	7,234	4%	7,446	4%	212	3%
Novato	8,376	4%	9,748	5%	1,372	16%
Upper Ross Valley	2,505	1%	2,446	1%	-60	-2%
Total	188,236		201,799		13,563	7%
Richardson Bay Non-Residence Trips Coming from:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	1,856	1%	1,471	1%	-386	-21%
Santa Clara	370	0%	302	0%	-68	-18%
Alameda County	1,208	1%	1,179	1%	-30	-2%
Contra Costa	1,822	1%	1,874	1%	52	3%
Solano County	1,152	1%	1,355	1%	203	18%
Napa County	27	0%	27	0%	0	0%
Embarcadero/Financial District	3,004	2%	2,525	2%	-479	-16%
Marina/ Van Ness/Civic Center	2,988	2%	2,464	2%	-524	-18%
Richmond/Sunset	2,165	2%	1,800	1%	-364	-17%
Mission/ Bay View/ Excelsior	1,451	1%	1,323	1%	-128	-9%
Petaluma	456	0%	538	0%	82	18%
Rest of Sonoma County	2,032	1%	2,707	2%	675	33%
Sonoma Hwy 101 Corridor	1,196	1%	1,241	1%	44	4%
Richardson Bay Communities	86,338	62%	88,609	62%	2,271	3%
Lower Ross Valley	9,821	7%	10,486	7%	666	7%
San Rafael Basin	7,298	5%	8,150	6%	851	12%
West Marin	3,051	2%	3,026	2%	-25	-1%
Las Gallinas Valley	3,939	3%	4,107	3%	169	4%
Novato	5,407	4%	5,735	4%	328	6%
Upper Ross Valley	3,323	2%	3,445	2%	122	4%
Total	138,905		142,364		3,459	2%

Source: Marin County Travel Model

Table 5.3 Work Trip Patterns of Lower Ross Valley

Lower Ross Valley Residents going to work in:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	566	2%	588	2%	21	4%
Santa Clara	213	1%	222	1%	9	4%
Alameda County	1,022	4%	1,062	4%	40	4%
Contra Costa	591	2%	615	2%	24	4%
Solano County	159	1%	173	1%	14	9%
Napa County	108	0%	117	0%	10	9%
Embarcadero/Financial District	4,642	18%	4,778	17%	136	3%
Marina/ Van Ness/Civic Center	284	1%	302	1%	18	6%
Richmond/Sunset	489	2%	509	2%	20	4%
Mission/ Bay View/ Excelsior	1,224	5%	1,316	5%	92	7%
Petaluma	11	0%	47	0%	36	333%
Rest of Sonoma County	40	0%	173	1%	133	333%
Sonoma Hwy 101 Corridor	46	0%	199	1%	153	333%
Richardson Bay Communities	2,415	9%	2,487	9%	71	3%
Lower Ross Valley	3,056	12%	2,968	10%	-89	-3%
San Rafael Basin	4,072	15%	4,468	16%	396	10%
West Marin	557	2%	595	2%	39	7%
Las Gallinas Valley	2,675	10%	2,789	10%	114	4%
Novato	3,476	13%	4,257	15%	781	22%
Upper Ross Valley	658	3%	639	2%	-19	-3%
Total	26,305		28,303		1,998	8%
Lower Ross Valley Employees coming from their homes in:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	257	1%	226	1%	-31	-12%
Santa Clara	198	1%	164	0%	-34	-17%
Alameda County	1,028	3%	1,013	3%	-15	-1%
Contra Costa	2,018	6%	1,996	6%	-22	-1%
Solano County	1,052	3%	1,055	3%	3	0%
Napa County	251	1%	251	1%	0	0%
Embarcadero/Financial District	560	2%	548	2%	-12	-2%
Marina/ Van Ness/Civic Center	228	1%	216	1%	-12	-5%
Richmond/Sunset	393	1%	368	1%	-25	-6%
Mission/ Bay View/ Excelsior	620	2%	632	2%	12	2%
Petaluma	747	2%	715	2%	-32	-4%
Rest of Sonoma County	3,279	9%	3,558	10%	279	9%
Sonoma Hwy 101 Corridor	1,464	4%	1,452	4%	-12	-1%
Richardson Bay Communities	5,862	17%	5,712	16%	-150	-3%
Lower Ross Valley	3,056	9%	2,968	8%	-89	-3%
San Rafael Basin	3,618	10%	3,856	11%	238	7%
West Marin	1,294	4%	1,290	4%	-4	0%
Las Gallinas Valley	2,703	8%	2,780	8%	77	3%
Novato	4,248	12%	4,486	13%	238	6%
Upper Ross Valley	2,214	6%	2,122	6%	-91	-4%
Total	35,092		35,409		317	1%

Source: Marin County Travel Model

Table 5.4 Aggregate Trip Patterns of Lower Ross Valley

Lower Ross Valley Residence Trips Going to:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	948	1%	1,156	1%	208	22%
Santa Clara	391	0%	562	1%	170	44%
Alameda County	1,454	1%	1,780	2%	326	22%
Contra Costa	833	1%	1,028	1%	196	23%
Solano County	661	1%	1,114	1%	453	69%
Napa County	343	0%	421	0%	78	23%
Embarcadero/Financial District	6,062	6%	6,733	6%	670	11%
Marina/ Van Ness/Civic Center	753	1%	943	1%	190	25%
Richmond/Sunset	783	1%	924	1%	141	18%
Mission/ Bay View/ Excelsior	1,449	1%	1,633	2%	184	13%
Petaluma	992	1%	1,697	2%	705	71%
Rest of Sonoma County	94	0%	236	0%	142	150%
Sonoma Hwy 101 Corridor	69	0%	224	0%	156	227%
Richardson Bay Communities	9,821	10%	10,486	10%	666	7%
Lower Ross Valley	39,121	40%	38,993	37%	-128	0%
San Rafael Basin	19,331	20%	20,606	20%	1,275	7%
West Marin	1,106	1%	1,240	1%	134	12%
Las Gallinas Valley	4,908	5%	5,082	5%	174	4%
Novato	4,928	5%	5,613	5%	685	14%
Upper Ross Valley	4,029	4%	4,108	4%	80	2%
Total	98,075		104,578		6,503	7%
Lower Ross Valley Non-Residence Trips Coming from:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	1,000	1%	772	1%	-228	-23%
Santa Clara	410	0%	322	0%	-89	-22%
Alameda County	1,633	1%	1,481	1%	-151	-9%
Contra Costa	2,382	2%	2,272	2%	-110	-5%
Solano County	1,444	1%	1,359	1%	-85	-6%
Napa County	366	0%	351	0%	-14	-4%
Embarcadero/Financial District	1,516	1%	1,271	1%	-246	-16%
Marina/ Van Ness/Civic Center	1,239	1%	988	1%	-251	-20%
Richmond/Sunset	1,099	1%	902	1%	-197	-18%
Mission/ Bay View/ Excelsior	996	1%	921	1%	-76	-8%
Petaluma	829	1%	774	1%	-56	-7%
Rest of Sonoma County	3,332	3%	3,596	3%	264	8%
Sonoma Hwy 101 Corridor	1,472	1%	1,457	1%	-15	-1%
Richardson Bay Communities	21,571	18%	19,612	17%	-1,959	-9%
Lower Ross Valley	39,121	33%	38,993	34%	-128	0%
San Rafael Basin	16,786	14%	16,854	15%	68	0%
West Marin	2,542	2%	2,451	2%	-90	-4%
Las Gallinas Valley	6,754	6%	6,329	5%	-424	-6%
Novato	7,949	7%	7,653	7%	-296	-4%
Upper Ross Valley	7,348	6%	7,161	6%	-187	-3%
Total	119,789		115,520		-4,270	-4%

Source: Marin County Travel Model

Table 5.5 Work Trip Patterns of Upper Ross Valley

Upper Ross Valley Residents going to work in:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	670	2%	768	2%	99	15%
Santa Clara	258	1%	294	1%	36	14%
Alameda County	1,214	4%	1,392	4%	178	15%
Contra Costa	703	2%	807	2%	104	15%
Solano County	48	0%	56	0%	9	18%
Napa County	31	0%	38	0%	7	23%
Embarcadero/Financial District	5,518	17%	6,262	17%	744	13%
Marina/ Van Ness/Civic Center	339	1%	397	1%	59	17%
Richmond/Sunset	581	2%	668	2%	87	15%
Mission/ Bay View/ Excelsior	1,460	5%	1,735	5%	275	19%
Petaluma	16	0%	68	0%	52	333%
Rest of Sonoma County	1,197	4%	871	2%	-326	-27%
Sonoma Hwy 101 Corridor	241	1%	383	1%	142	59%
Richardson Bay Communities	2,870	9%	3,257	9%	387	13%
Lower Ross Valley	3,618	11%	3,856	10%	238	7%
San Rafael Basin	4,860	15%	5,903	16%	1,043	21%
West Marin	662	2%	784	2%	121	18%
Las Gallinas Valley	3,179	10%	3,660	10%	480	15%
Novato	4,184	13%	5,699	15%	1,516	36%
Upper Ross Valley	777	2%	829	2%	52	7%
Total	32,426		37,729		5,303	16%
Upper Ross Valley Employees coming from their homes in:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	54	1%	48	1%	-6	-11%
Santa Clara	32	0%	30	0%	-2	-7%
Alameda County	225	3%	220	3%	-5	-2%
Contra Costa	369	5%	394	5%	25	7%
Solano County	205	3%	330	4%	125	61%
Napa County	8	0%	10	0%	2	26%
Embarcadero/Financial District	119	2%	117	2%	-2	-2%
Marina/ Van Ness/Civic Center	50	1%	47	1%	-3	-6%
Richmond/Sunset	85	1%	80	1%	-6	-7%
Mission/ Bay View/ Excelsior	135	2%	137	2%	2	1%
Petaluma	59	1%	98	1%	40	67%
Rest of Sonoma County	465	7%	635	9%	170	37%
Sonoma Hwy 101 Corridor	140	2%	217	3%	77	55%
Richardson Bay Communities	1,261	18%	1,229	17%	-31	-2%
Lower Ross Valley	658	10%	639	9%	-19	-3%
San Rafael Basin	777	11%	829	11%	52	7%
West Marin	279	4%	278	4%	-1	0%
Las Gallinas Valley	579	8%	597	8%	18	3%
Novato	912	13%	965	13%	53	6%
Upper Ross Valley	473	7%	455	6%	-18	-4%
Total	6,884		7,356		471	7%

Source: Marin County Travel Model

Table 5.6 Aggregate Trip Patterns of Upper Ross Valley

Upper Ross Valley Residence Trips Going to:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	601	1%	702	1%	100	17%
Santa Clara	260	0%	355	0%	94	36%
Alameda County	957	1%	1,117	1%	160	17%
Contra Costa	583	1%	701	1%	118	20%
Solano County	396	1%	577	1%	181	46%
Napa County	215	0%	250	0%	35	16%
Embarcadero/Financial District	3,884	5%	4,128	5%	244	6%
Marina/ Van Ness/Civic Center	362	0%	427	1%	65	18%
Richmond/Sunset	463	1%	516	1%	53	11%
Mission/ Bay View/ Excelsior	974	1%	1,065	1%	91	9%
Petaluma	454	1%	772	1%	319	70%
Rest of Sonoma County	67	0%	165	0%	99	148%
Sonoma Hwy 101 Corridor	49	0%	158	0%	109	224%
Richardson Bay Communities	3,323	5%	3,445	5%	122	4%
Lower Ross Valley	7,348	10%	7,161	9%	-187	-3%
San Rafael Basin	13,226	18%	13,915	18%	689	5%
West Marin	3,744	5%	4,337	6%	593	16%
Las Gallinas Valley	2,979	4%	3,051	4%	72	2%
Novato	3,230	4%	3,714	5%	484	15%
Upper Ross Valley	29,608	41%	29,916	39%	308	1%
Total	72,722		76,473		3,750	5%
Upper Ross Valley Non-Residence Trips Coming from:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	214	0%	172	0%	-41	-19%
Santa Clara	93	0%	76	0%	-17	-18%
Alameda County	373	1%	340	1%	-33	-9%
Contra Costa	484	1%	485	1%	1	0%
Solano County	363	1%	449	1%	86	24%
Napa County	52	0%	47	0%	-5	-9%
Embarcadero/Financial District	247	0%	219	0%	-28	-11%
Marina/ Van Ness/Civic Center	175	0%	149	0%	-26	-15%
Richmond/Sunset	185	0%	160	0%	-24	-13%
Mission/ Bay View/ Excelsior	192	0%	184	0%	-9	-5%
Petaluma	82	0%	116	0%	34	41%
Rest of Sonoma County	479	1%	646	1%	167	35%
Sonoma Hwy 101 Corridor	141	0%	218	0%	77	54%
Richardson Bay Communities	2,505	5%	2,446	5%	-60	-2%
Lower Ross Valley	4,029	8%	4,108	8%	80	2%
San Rafael Basin	5,907	11%	6,133	12%	226	4%
West Marin	3,905	7%	4,083	8%	178	5%
Las Gallinas Valley	1,448	3%	1,413	3%	-35	-2%
Novato	1,815	3%	1,798	3%	-17	-1%
Upper Ross Valley	29,608	57%	29,916	56%	308	1%
Total	52,296		53,158		862	2%

Source: Marin County Travel Model

Table 5.7 Work Trip Patterns of San Rafael Basin

San Rafael Basin Residents going to work in:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	408	2%	419	2%	10	3%
Santa Clara	157	1%	160	1%	3	2%
Alameda County	740	4%	758	4%	19	3%
Contra Costa	428	2%	440	2%	11	3%
Solano County	153	1%	162	1%	10	6%
Napa County	94	0%	99	0%	6	6%
Embarcadero/Financial District	3,357	18%	3,412	17%	54	2%
Marina/ Van Ness/Civic Center	206	1%	215	1%	10	5%
Richmond/Sunset	354	2%	363	2%	10	3%
Mission/ Bay View/ Excelsior	885	5%	939	5%	54	6%
Petaluma	8	0%	33	0%	25	333%
Rest of Sonoma County	28	0%	122	1%	94	333%
Sonoma Hwy 101 Corridor	32	0%	140	1%	108	333%
Richardson Bay Communities	1,744	9%	1,773	9%	30	2%
Lower Ross Valley	2,214	12%	2,122	10%	-91	-4%
San Rafael Basin	2,943	15%	3,186	16%	243	8%
West Marin	403	2%	425	2%	22	6%
Las Gallinas Valley	1,931	10%	1,989	10%	58	3%
Novato	2,511	13%	3,031	15%	520	21%
Upper Ross Valley	473	2%	455	2%	-18	-4%
Total	19,068		20,245		1,177	6%
San Rafael Basin Employees coming from their homes in:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	339	1%	333	1%	-6	-2%
Santa Clara	272	1%	245	0%	-27	-10%
Alameda County	1,370	3%	1,528	3%	159	12%
Contra Costa	2,674	6%	3,005	5%	330	12%
Solano County	742	2%	1,035	2%	293	39%
Napa County	1,094	2%	1,197	2%	103	9%
Embarcadero/Financial District	750	2%	828	2%	79	11%
Marina/ Van Ness/Civic Center	304	1%	324	1%	20	7%
Richmond/Sunset	522	1%	550	1%	28	5%
Mission/ Bay View/ Excelsior	829	2%	960	2%	130	16%
Petaluma	1,130	2%	1,148	2%	18	2%
Rest of Sonoma County	5,123	11%	5,851	11%	728	14%
Sonoma Hwy 101 Corridor	2,489	5%	2,486	5%	-3	0%
Richardson Bay Communities	7,807	16%	8,602	16%	796	10%
Lower Ross Valley	4,072	8%	4,468	8%	396	10%
San Rafael Basin	4,860	10%	5,903	11%	1,043	21%
West Marin	1,726	4%	1,950	4%	224	13%
Las Gallinas Valley	3,621	7%	4,230	8%	609	17%
Novato	5,702	12%	6,857	13%	1,156	20%
Upper Ross Valley	2,943	6%	3,186	6%	243	8%
Total	48,368		54,688		6,320	13%

Source: Marin County Travel Model

Table 5.8 Aggregate Trip Patterns of San Rafael Basin

San Rafael Basin Residence Trips Going to:						
Area	2008		2018		Change	Percent Change
San Mateo	1,046	1%	1,344	1%	298	28%
Santa Clara	530	0%	845	1%	314	59%
Alameda County	1,924	1%	2,646	2%	721	37%
Contra Costa	1,149	1%	1,607	1%	458	40%
Solano County	486	0%	1,098	1%	612	126%
Napa County	205	0%	290	0%	86	42%
Embarcadero/Financial District	6,634	5%	7,858	5%	1,224	18%
Marina/ Van Ness/Civic Center	691	1%	899	1%	208	30%
Richmond/Sunset	816	1%	1,011	1%	195	24%
Mission/ Bay View/ Excelsior	1,644	1%	2,005	1%	360	22%
Petaluma	948	1%	1,686	1%	739	78%
Rest of Sonoma County	1,352	1%	1,074	1%	-278	-21%
Sonoma Hwy 101 Corridor	304	0%	475	0%	170	56%
Richardson Bay Communities	7,298	6%	8,150	5%	851	12%
Lower Ross Valley	16,786	13%	16,854	11%	68	0%
San Rafael Basin	65,942	50%	73,923	49%	7,981	12%
West Marin	1,349	1%	1,600	1%	251	19%
Las Gallinas Valley	10,508	8%	11,313	8%	806	8%
Novato	6,783	5%	9,746	6%	2,963	44%
Upper Ross Valley	5,907	4%	6,133	4%	226	4%
Total	132,304		150,556		18,252	14%
San Rafael Basin Non-Residence Trips Coming from:						
Area	2008	Percent	2018	Percent	Change	Percent Change
San Mateo	1,168	1%	1,009	1%	-159	-14%
Santa Clara	696	0%	584	0%	-112	-16%
Alameda County	2,629	2%	2,601	1%	-29	-1%
Contra Costa	3,411	2%	3,616	2%	206	6%
Solano County	1,047	1%	1,302	1%	254	24%
Napa County	1,178	1%	1,273	1%	94	8%
Embarcadero/Financial District	1,518	1%	1,480	1%	-38	-2%
Marina/ Van Ness/Civic Center	1,085	1%	993	1%	-91	-8%
Richmond/Sunset	1,106	1%	1,045	1%	-60	-5%
Mission/ Bay View/ Excelsior	1,156	1%	1,242	1%	86	7%
Petaluma	1,309	1%	1,288	1%	-20	-2%
Rest of Sonoma County	5,247	3%	5,952	3%	705	13%
Sonoma Hwy 101 Corridor	2,508	1%	2,500	1%	-8	0%
Richardson Bay Communities	17,089	10%	18,049	10%	960	6%
Lower Ross Valley	19,331	11%	20,606	11%	1,275	7%
San Rafael Basin	65,942	38%	73,923	40%	7,981	12%
West Marin	3,456	2%	3,756	2%	300	9%
Las Gallinas Valley	15,951	9%	16,246	9%	294	2%
Novato	14,769	8%	15,507	8%	739	5%
Upper Ross Valley	13,226	8%	13,915	7%	689	5%
Total	173,822		186,888		13,066	8%

Source: Marin County Travel Model