6 CIRCULATION AND TRANSPORTATION

Novato's transportation system includes roadways, transit service and bicycle and pedestrian facilities. This report begins with an overview of Novato residents' travel characteristics and the City's current transportation policy framework, and then describes the current circulation network and existing traffic operations. The report then summarizes historical circulation safety statistics in the City, and concludes with descriptions of planned circulation improvements in and surrounding Novato.

A. Regulatory Framework

1. Federal Regulations

a. Americans with Disabilities Act

The Americans with Disabilities Act (ADA) provides comprehensive rights and protections to individuals with disabilities. The goal of the ADA is to assure equality of opportunity, full participation, independent living and economic self-sufficiency. To implement this goal, the U.S. Access Board has created accessibility guidelines for public rights-of-way. The guidelines address various issues, including roadway design practices, slope and terrain issues, pedestrian access to streets, sidewalks, curb ramps, street furnishings, pedestrian signals, parking and other components of public rights-of-way.

2. State Regulations

a. Complete Streets Act

On September 30, 2008, Governor Schwarzenegger signed AB 1358, the California Complete Streets Act of 2008, into law. As of January 2011, AB 1358 requires any substantive revision of the circulation element of a city or county's general plan to identify how they will safely accommodate the circulation of all users of the roadway including pedestrians, bicyclists, children, seniors, individuals with disabilities, and transit riders, as well as motorists.

b. Caltrans Regulations

The California Department of Transportation (Caltrans) is the primary State agency responsible for surface transportation facilities in California. One of its duties is the construction and maintenance of the State highway system. Caltrans has established standards for roadway traffic flow and has developed procedures to determine if intersections require improvements. For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any construction work may begin. For projects that would not physically affect facilities, but may influence traffic flow and levels of services at such facilities, Caltrans may recommend measures to mitigate the traffic impacts of such projects.

Caltrans' *Guide for the Preparation of Traffic Impact Studies* indicates that Caltrans attempts to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities. In areas where the LOS C or D standard is not feasible, the lead agency in that area may work with Caltrans to establish an appropriate LOS target. As described below, the Marin County CMP sets freeway thresholds of LOS E for US 101 and LOS D for SR 37. Caltrans indicates that where facilities operate below target service levels, the existing measure of effectiveness (i.e. density for freeways) should be maintained.

Caltrans Deputy Directive 64 requires Caltrans to consider the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning, maintenance, construction, operations and project development activities and products. This includes incorporation of the best available standards in all of the Depart-

ment's practices. Caltrans supports bicycle, pedestrian and transit travel with a focus on "complete streets" that begins early in system planning and continues through project construction and maintenance and operations.

3. Regional Regulations

a. Regional Transportation Plan

The current Regional Transportation Plan (RTP) produced by MTC, *Plan Bay Area*, was adopted in July 2013. The Plan sets forth regional transportation and land use policy, and provides capital program planning for all regional, state and federally funded projects. In addition, the Plan provides strategic investment recommendations to improve regional transportation system performance through the year 2040, including investments in regional highway, transit, local roadway, bicycle, and pedestrian projects. Plan Bay Area transportation infrastructure projects in and surrounding Novato include:

- Maintenance of local streets and roads.
- Widen Novato Boulevard between Diablo Avenue and Grant Avenue.
- Improve Downtown Novato Transit Facility.
- Bicycle and pedestrian projects including Safe Routes to School elements.
- Implement Marin Sonoma Narrows widening of US 101 including HOV lanes
- Implementation of SMART commuter rail and multi-use pathway project in Marin and Sonoma Counties
- Transit operating and capital improvement program for Marin Transit and Golden Gate Transit
- Improve local transit frequencies and service spans in Marin County

4. County Regulations

a. Marin County Congestion Management Plan

The Transportation Authority of Marin (TAM) is designated as both the congestion management agency and the transportation sales tax authority for Marin County. TAM is responsible for managing a variety of transportation projects and programs in Marin County, receiving federal, State, regional, and local funds, working closely with all eleven cities and towns as well as the County. The Marin County Transportation Sales Tax Expenditure Plan was approved by voters as Measure A in November 2004, authorizing a quarter percent sales tax to generate revenues for transportation needs in Marin County over a twenty-year period.

The 2013 Congestion Management Program (CMP) adopted by TAM has specified level of service criteria for a number of facilities in the County and its member cities, including Novato. Following are the roadways within Novato that are on the CMP roadway network, plus the LOS standard set by the CMP for that facility.

- US 101 (LOS E)
- State Route 37 (LOS E)
- Bel Marin Keys Boulevard from US 101 interchange to Commercial Boulevard (LOS D)
- Novato Boulevard from San Marin Drive to Diablo Avenue (LOS D)
- South Novato Boulevard from Diablo Avenue to US 101(LOS D)

b. Marin County Transportation Vision

Moving Forward – A 25-Year Transportation Vision for Marin County was prepared by the Transportation Authority of Marin in 2003. The document evaluates existing conditions and promotes a sustainable transportation system to manage congestion, address mobility and maintain quality of life in Marin County. The plan includes a series of recommendations in northern Marin relative to the City of Novato, including:

- Express bus routes serving the four primary employment areas of Novato (the Fireman's Fund campus, central Novato, Hamilton Field and the Bel Marin Keys employment area).
- Construction of an HOV on-ramp at either San Marin Drive-Atherton Interchange or Rowland Boulevard that will enable buses, carpools and vanpools to avoid backups and quickly access HOV lanes on US 101.
- Bicycle/pedestrian and highway interchange improvements at San Marin Drive-Atherton Interchange and US 101 to improve safety, relieve congestion and help connect communities east of the freeway with those to the west of US 101.
- New fixed route transit lines operating every 30 minutes to connect Southwest Novato, Hamilton, Ignacio and Black Point with Marin County communities to the south. The new routes will have timed transfers at a new primary transit junction in northern Marin County.
- Improved bicycle safety and access to new transit services, including bike lanes in Novato, a gap closure project between Ignacio/Bel Marin Keys and Novato, and a new bike lane to improve connectivity between Ignacio, the Hamilton area and Marinwood in San Rafael.

c. Non-Motorized Transportation Pilot Program

Marin County is one of four communities nationally that has been selected by the US Congress to participate in a Non-Motorized Transportation Pilot Program (NTPP) and receive $25 million for pedestrian and bicycling improvements. Through a screening and ranking process, the County Board of Supervisors adopted a funding plan for all of the NTPP funds in April 2007, and has subsequently designed and completed these improvements. Funded and completed projects in Novato include Class II bike lanes on Alameda del Prado and a Class I commuter bike connection along US Highway 101, roughly between South Novato Boulevard and Enfrente Road. Additionally, the City has improved bike detection at signalized intersections and added bike racks and signage under this program.

5. City Regulations

a. Novato General Plan

The existing General Plan Transportation Chapter includes a number of objectives, policies and programs addressing traffic, roadways, transit, and bicycle and pedestrian facilities. The chapter is organized around nine objectives that address all modes of transportation and call for the City to provide a balanced, efficient and accessible circulation system.

b. Downtown Novato Specific Plan

Downtown Novato Specific Plan, Section 2.6, Circulation and Parking, establishes transportation policies for downtown Novato. These policies address issues relating to pedestrian circulation, vehicular access and circulation, transit, bicycle circulation and parking.

c. Novato Bicycle Plan

The Novato Bicycle Plan, adopted in 2013, provides for a citywide network of bicycle paths, lanes and routes, along with bicycle-related programs and support facilities. The goal of the Bicycle Plan is to make bicycling a viable transportation option for people who live, work and recreate in Novato. The Bicycle Plan contains a statement of goals and policies, an overview of existing conditions, a needs analysis, a proposed system of bicycle paths, lanes and routes, and a list of implementation measures.

B. Roadway System

This section describes the roadway system in Novato, including regional highways and local streets. The roadway system is shown in Figure 6-1.

1. Regional Highway System

The City of Novato is served by two freeways, defined as access-controlled, divided highways having two or more lanes in each direction. US 101 has a north-south alignment, with six mixed-flow lanes through the City of Novato. Additionally, HOV lanes currently exist in both directions south of SR 37, and a widening project is under construction that will extend these HOV lanes to the City's northern limit. Six US 101 interchanges serve the City:

- San Marin Drive-Atherton Avenue
- DeLong Avenue
- Rowland Avenue
- Novato Boulevard-SR 37
- Ignacio Boulevard-Bel Marin Keys Boulevard
- Alameda del Prado

SR 37 begins at US 101 and extends east with two lanes in each direction. In addition to the interchange at US 101, access to SR 37 is provided at Atherton Avenue.

2. Local Street System

The City of Novato applies three functional classifications to its local streets (see Figure 6-1). The roadway classification system is used to describe a roadway's volume, local access (number and type of curb cuts and driveway access), posted speeds, parking, median type, traffic control and other characteristics. The four functional street classifications in Novato, listed in order of highest to lowest volume, are as follows:

- **Arterial.** An arterial is commonly defined as a roadway, generally with four through lanes, which may be separated by a median and may have bicycle lanes. Parking is generally prohibited on arterial roadways. Arterials serve volumes of 10,000 to 35,000 daily trips. Direct access to fronting parcels is usually prohibited. Most of Novato's arterial roadways meet this definition, though there are some exceptions.

- **Collector.** A collector is generally a two-lane undivided roadway with the primary function of collecting and distributing local traffic. A collector is a relatively low-speed, relatively low-volume street that typically averages 5,000 to 10,000 trips daily and provides access within and between neighborhoods. Collectors usually serve short trips and are intended to collect trips from local streets and distribute them to arterial streets.

- **Local.** Remaining streets are considered local streets as they serve local traffic, feeding into the collector and arterial streets. Local streets have two lanes and usually include parking on both sides, with paved widths of 20 to 40 feet.

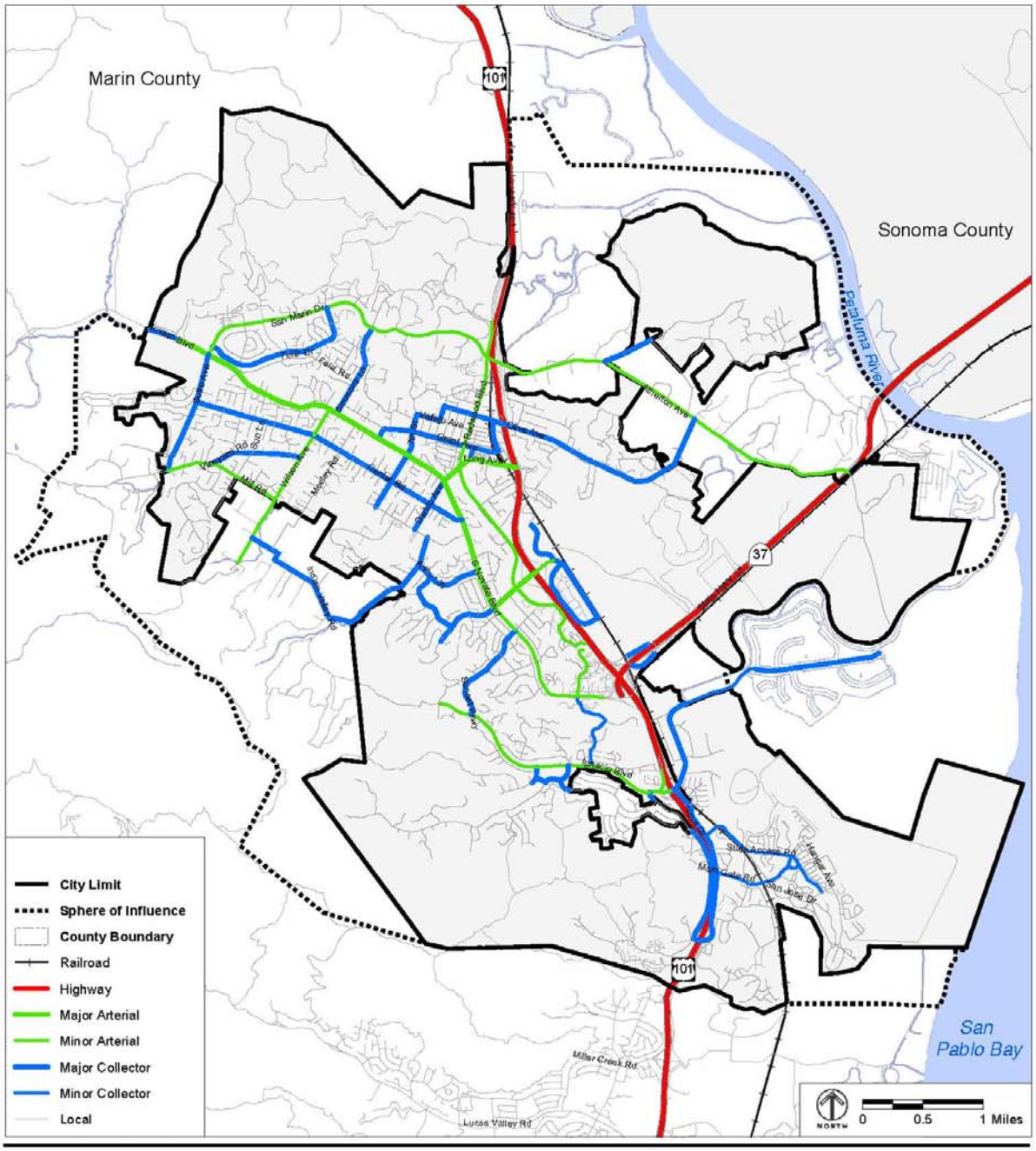

FIGURE 6-1
ROAD CLASSIFICATIONS

C. Existing Traffic Operations

1. Intersection Operation

The capacity of a street system is typically dependent upon the operation of intersections rather than the segments connecting them since conflicting vehicle movements are concentrated at intersections. Traffic analyses therefore usually focus on the points where two arterial or collector streets intersect. Traffic engineers use "level of service" to rank intersection operations using a series of letter designations ranging from LOS A to F based on traffic volumes during peak periods and capacity. Generally, LOS A represents free flow conditions and LOS F represents forced flow or breakdown conditions.

LOS is analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2000. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle. The level of service designation is accompanied by a measure that indicates a level of delay. The ranges of delay associated with the various levels of service are indicated in Table 6-1.

The existing General Plan establishes standards for acceptable levels of service for intersections in Novato. Intersections with traffic signals or four-way stop signs should operate at LOS D or better. For intersections with stop signs on side streets only, LOS E is acceptable.

The circulation studies to be conducted for the General Plan update will include level of service (LOS) analyses at the 41 intersections shown in Figure 6-2.

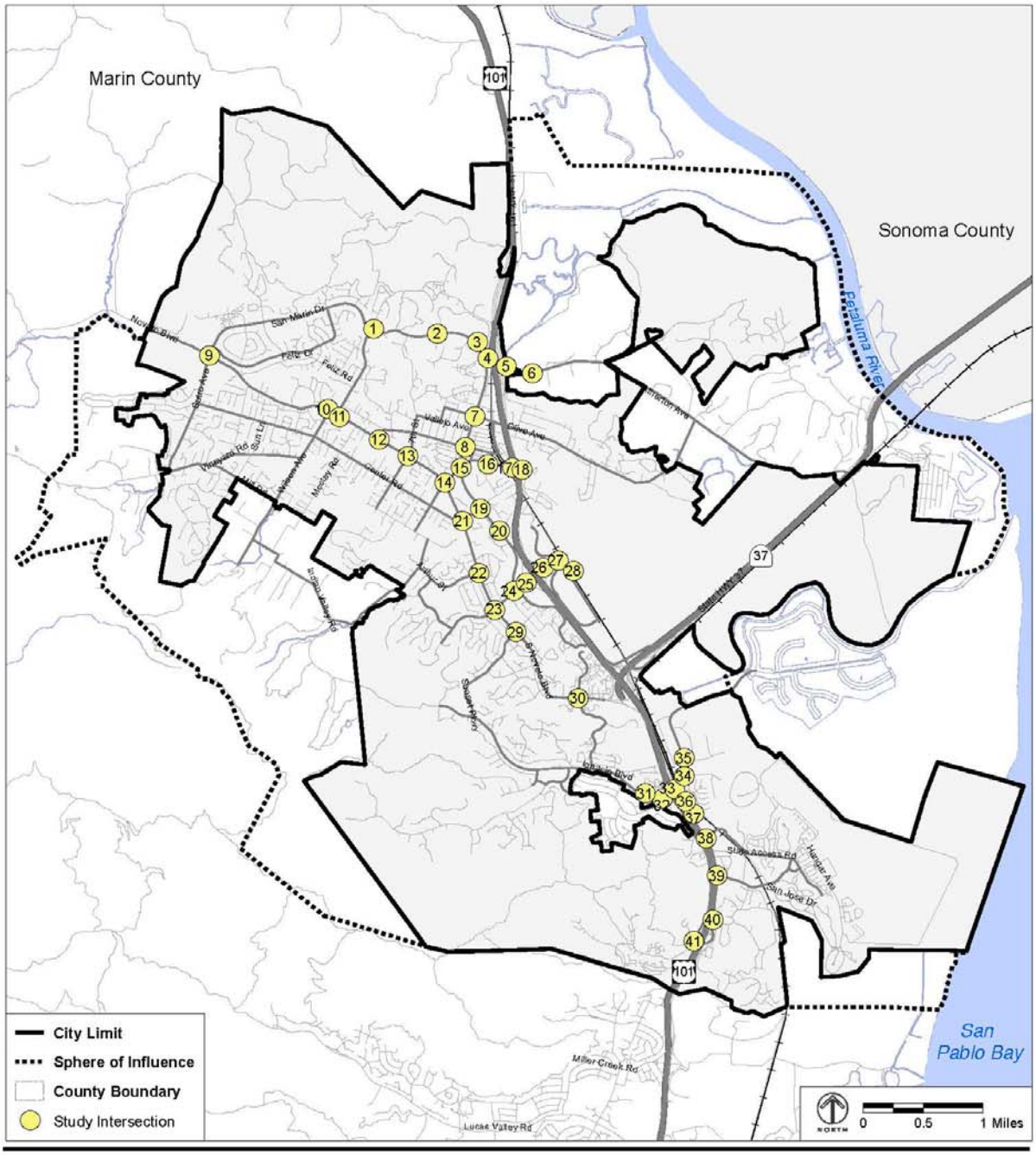

FIGURE 6-2
STUDY INTERSECTIONS

TABLE 6-1 **INTERSECTION LEVEL OF SERVICE CRITERIA**

LOS	Signalized Intersections	All-Way Stop-Controlled Intersections
A	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase and do not stop at all.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.
B	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.
C	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach, and wait for vehicle to clear from one or more approaches prior to entering the intersection.
D	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.
E	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.
F	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.

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

a. Signalized Intersections

The study intersections that are currently controlled by a traffic signal, or may be in the future, were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether or not the signals are coordinated, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology.

b. Unsignalized Intersections

The study intersections with stop signs on all approaches were analyzed using the "All-Way Stop-Controlled" Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole, and is then related to a Level of Service.

TABLE 6-2 **EXISTING INTERSECTION LEVELS OF SERVICE**

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1. San Marin Dr/Simmons Ln	AWSC	32.5	D	23.7	C
2. San Marin Dr/W Campus Dr	Signalized	4.8	A	6.9	A
3. San Marin Dr/E Campus Dr	Signalized	2.4	A	6.3	A
4. Redwood Blvd/San Marin Dr	Signalized	29.6	C	47.1	D
5. US 101 S/San Marin Dr	Signalized	19.7	B	11.3	B
6. US 101 N/Atherton Ave	Signalized	15.2	B	19.6	B
7. Redwood Blvd/Olive Ave	Signalized	29.6	C	20.6	C
8. Redwood Blvd/Grant Ave	AWSC	13.4	B	16.1	B
9. Novato Blvd/San Marin Dr-Sutro Ave	AWSC	28.8	D	16.5	C
10. Wilson Ave/Novato Blvd	Signalized	20.0	B	19.5	B
11. Simmons Ln/Novato Blvd	Signalized	39.9	D	20.5	C
12. Grant Ave/Novato Blvd	Signalized	15.5	B	15.0	B
13. 7th St-Tamalpais Ave/Novato Blvd	Signalized	18.0	B	27.6	C
14. Diablo Ave/Novato Blvd	Signalized	31.1	C	34.2	C
15. Redwood Blvd/Diablo Ave-DeLong Ave	Signalized	36.1	D	38.0	D
16. DeLong Ave/Reichert Ave	Signalized	20.5	C	21.3	C
17. US 101 S/DeLong Ave	Signalized	12.3	B	16.6	B
18. US 101 N/DeLong Ave	Signalized	11.3	B	18.4	B
19. Redwood Blvd/Lamont Ave	Signalized	11.6	B	11.9	B
20. Redwood Blvd/Landing Ct	Signalized	3.8	A	3.7	A
21. S Novato Blvd/Center St	Signalized	17.8	B	20.8	C
22. S Novato Blvd/Arthur St	Signalized	20.0	B	14.9	B
23. S Novato Blvd/Rowland Blvd	Signalized	32.7	C	35.0	D
24. Redwood Blvd/Rowland Blvd	Signalized	20.6	C	30.0	C
25. US 101 S/Rowland Blvd	Signalized	8.0	A	12.4	B
26. US 101 N/Rowland Blvd	Signalized	30.1	C	34.6	C
27. Rowland Blvd/Rowland Way	Signalized	9.0	A	16.7	B
28. Rowland Blvd/Vintage Way	Signalized	5.9	A	18.7	B
29. S Novato Blvd/Sunset Pkwy	Signalized	28.6	C	22.2	C
30. S Novato Blvd/Redwood Blvd	AWSC	**39.7**	**E**	34.6	D
31. Ignacio Blvd/Alameda del Prado	Signalized	19.4	B	16.4	B
32. US 101 S/Ignacio Blvd-Enfrente Rd	Signalized	32.3	C	21.2	C
33. US 101 N/Bel Marin Keys Blvd-Nave Dr	Signalized	18.4	B	20.5	C
34. Bel Marin Keys Blvd/Commercial Blvd	Signalized	5.7	A	15.0	B
35. Bel Marin Keys Blvd/Digital Dr	Signalized	12.1	B	20.4	C
36. US 101 M/Nave Dr	Signalized	13.2	B	13.7	B
37. Nave Dr/Hamilton Center	Signalized	7.6	A	11.2	B
38. Nave Dr/N Hamilton Pkwy	Signalized	16.7	B	16.4	B

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
39. Nave Dr/Main Gate Dr	Signalized	10.5	B	9.6	A
40. Nave Dr/Bolling Dr	Signalized	12.0	B	11.1	B
41. Alameda del Prado/Nave Dr (Overpass)	AWSC	**39.6**	**E**	**21.7**	**C**

Notes: AWSC = all-way stop-control; Delay is expressed in average seconds per vehicle; LOS=Level of Service; **Bold** = deficient operation

2. Roadway and Freeway Operation

Several roadway and freeway segments in Novato are part of the Marin County Congestion Management Program (CMP) network. The Transportation Authority of Marin (TAM), which serves as the region's congestion management agency, has established LOS standards for designated roadways in Marin County. Unlike the LOS standards set by the Novato General Plan, which focus on intersections, the CMP LOS standards focus on roadway segments. The standards affecting Novato include a LOS D requirement for SR 37 and designated CMP major arterial segments, and LOS E requirement for US 101. The CMP specifies the weekday p.m. peak hour as the analysis period on which LOS shall be determined.

a. Roadway Segments

The roadway segment level of service methodology uses the thresholds set in the *2013 Update: Marin County Congestion Management Program*, TAM, 2013. The average speed on segments is used to determine LOS. Average speeds were determined through use of the Simtraffic software application, which is an extension of the Synchro application used to determine intersection levels of service. The average of ten randomly-seeded Simtraffic runs was taken to obtain average segment speeds, using the same traffic volume, signal operation, and roadway geometry factors used in Synchro. The roadway segment LOS criteria are shown in Table 6-3.

TABLE 6-3 ROADWAY SEGMENT LEVEL OF SERVICE CRITERIA

Level of Service	Average Segment Travel Speed (miles per hour)
A	>25
B	20-25
C	13-19
D	10-13
E	7-9
F	<7

Source: 2013 Marin Congestion Management Plan Update, TAM, 2013

b. Freeway Segments

The freeway analysis methodology contained in Chapter 10 of the HCM, "Freeway Facilities," was used to determine levels of service on US 101. The method analyzes extended lengths of freeway composed of continuously connected basic freeway, weaving, merge, and diverge segments, which are collectively referred to as a freeway facility. For each individual segment, the analysis methodologies from the relevant chapters of the HCM, including Chapter 11 "Basic Freeway Segments," Chapter 12 "Freeway Weaving Segments," and Chapter 13 "Freeway Merge and Diverge Segments," were used. The method uses variables such as traffic volumes, geometric configuration of the freeway (i.e., number of lanes, presence of auxiliary lanes, distance between merges and diverges, widths of lanes and shoulders), topography, the percentage of heavy vehicles, and free-flow speeds. These data are used to determine the density of the segment, which is the criterion used for determining freeway LOS. Density is indicative of the travel speed service flow rates and travel demand on a freeway facility, and is measured in the number of passenger cars per mile per lane. The ranges of vehicle density associated with the various Levels of Service are presented in Table 6-4.

TABLE 6-4 FREEWAY SEGMENT LEVEL OF SERVICE CRITERIA

Level of Service	Density (Passenger Cars/Mile/Lane)
A	≤ 11
B	> 11 - 18
C	> 18 – 26
D	> 26 - 35
E	> 35 – 45
F	> 45 or v/c ratio > 1.00

Source: *Highway Capacity Manual*, Transportation Research Board, 2010
Note:v/c ratio = volume to capacity ratio

Operation of the freeway segments was evaluated based on 2011 traffic volume data obtained from Caltrans in December 2013. The freeway LOS analysis focuses on the operation of mixed flow lanes (and not carpool lanes).

3. Existing Roadway Segment and Freeway Level of Service

Existing road segment and freeway operations were evaluated for the weekday PM peak hour, consistent with the requirements set forth in the 2013 CMP. Road segment LOS results are summarized in Table 6-5, and freeway segment levels of service are summarized in Table 6-6. All of the road segments are currently operating at LOS B or better, and the study freeway segments are currently operating at LOS E or better. All roadway and freeway segments meet the thresholds required by the Marin County CMP. Level of service calculation worksheets are provided in Appendix B.

TABLE 6-5 **EXISTING PM PEAK HOUR ROAD SEGMENT LEVELS OF SERVICE**

Segment	Direction of Travel	Segment Length (mi)	Average Speed (mph)	LOS
Novato Blvd	Eastbound	1.1	24	B
Wilson Ave to Diablo Ave	Westbound	1.1	27	A
S Novato Blvd	Northbound	2.4	24	B
Diablo Ave to US 101	Southbound	2.4	31	A
Bel Marin Keys Blvd	Northbound	0.4	25	B
US 101 to Digital Dr	Southbound	0.4	20	B

Notes: LOS = Level of Service; mph = miles per hour

TABLE 6-6 **EXISTING PM PEAK HOUR FREEWAY SEGMENT LEVELS OF SERVICE**

Freeway Segment	V/C Ratio	Density	LOS
US 101 Northbound			
Nave Drive to Bel Marin Keys Blvd	0.88	35.3	E
Bel Marin Keys Blvd to SR 37	0.71	39.1	D
SR 37 to Rowland Blvd	0.72	21.7	C
Rowland Blvd to De Long Ave	0.58	23.7	C
De Long Ave to Atherton Ave	0.45	17.9	B
US 101 Southbound			
San Marin Dr to De Long Ave	0.46	18.2	C
De Long Ave to Rowland Blvd	0.54	21.8	C
Rowland Blvd to SR 37	0.51	18.8	C
SR 37 to Ignacio Blvd	0.59	23.2	C
Ignacio Blvd to Alameda del Prado	0.56	20.4	C
SR 37 Eastbound			
Marsh Dr to Atherton Ave	0.43	13.7	B
SR 37 Westbound			
Atherton Ave to Hanna Ranch Rd	0.23	7.5	A

Notes: V/C Ratio = Volume to Capacity Ratio; Density is measured in passenger cars per mile per lane (pc/mi/ln); LOS = Level of Service

4. Collision History

Traffic collision data were obtained from the California Highway Patrol's *Statewide Traffic Integrated Records System* (SWTIRS) for the five-year period including 2006 through 2010, which is the last full year for which data is available. The SWTIRS data includes all reported collisions submitted by the Novato Police Department and the California Highway Patrol. During the five-year study period a total of 2,270 collisions were reported within the City of Novato, averag-

ing 454 collisions per year with the highest number of collisions occurring in 2007 (495 collisions), followed by an overall decrease between 2008 and 2010, with the lowest number of collisions reported in 2008 (403 collisions). In total, eight collisions resulted in fatalities during the five-year period. An additional 814 collisions, approximately one-third of all collisions, resulted in injury.

The California Office of Traffic Safety (OTS) compiles and analyzes SWTIRS data annually to determine collision trends and to ranks cities of similar size. These rankings are generally used by OTS to prioritize funding to high-collision areas. The City of Novato was compared to California cities with a population in the range of 50,001 to 100,000, of which there are 103. Table 6-7 shows Novato's rankings for 2010 based on the type of collision, listed in order from highest to lowest collision rates. A lower number indicates worse performance relative to cities of a similar size. The category that indicated the worst record for the City of Novato is collisions involving motorcyclists, as Novato had the second worst ranking by vehicle miles traveled of all cities in the group. Other types of collisions of concern include those involving pedestrians in general, but especially those over 65 years old. The collision data is included in Appendix B.

TABLE 6-7 2010 COLLISION RANKINGS

Type of Collision	Victims Killed and Injured	Ranking by Daily Vehicle Miles Traveled*	Ranking by Population*
Composite	N/A	88	96
Pedestrians	14	45	54
Pedestrians (under 15 years old)	0	98	98
Pedestrians (over 65 years old)	2	30	32
Bicyclists	10	66	67
Bicyclists (under 15 years old)	2	52	59
Motorcycles	18	2	4
Alcohol Involved	9	87	92
Had Been Drinking (21–34 years old)	1	95	94
Had Been Drinking (under 21 years old)	0	89	85
Total Fatal and Injury	134	75	83

* Compared with 103 cities of similar size (including Novato). Lower number indicates poorer performance.

D. Parking

Vehicle parking facilities have a significant impact on the attractiveness and accessibility of neighborhoods, commercial districts and communities as a whole. In Novato, parking for individual land uses is generally provided either directly on-site or along the street adjacent to the site.

1. Residential Parking

On-street parking is typically provided on both sides of the street in residential neighborhoods, on local roads, on collector streets and occasionally along the city's arterials. While an abundance of parking is generally available in the city's residential neighborhoods, some of the city's older multi-family developments provide more limited on-site parking, resulting in greater use of on-street parking in these areas.

2. Downtown Parking

Concerns about the availability of parking tend to be focused on the downtown area because of its visitor-serving amenities and aggregation of activities. An inventory of on-street and off-street parking spaces in the downtown area, along with parking occupancy rates, was documented in the 1998 Downtown Specific Plan and the City's Downtown Parking Study, which is updated annually by City staff. The standard used in the Downtown Parking Study is that a 90 percent occupancy level indicates a parking shortage. The City's most recent analysis, conducted in 2012, indicates that 75 percent of parking spaces downtown are occupied during the peak parking accumulation period from noon to 1:00 p.m. on weekdays.

Parking downtown generally consists of public on-street spaces and parking in private lots that serve individual land-uses. One small public off-street lot known as the Zenk parking lot exists downtown on Reichert Avenue between Grant Avenue and De Long Avenue. The Signature Properties/Whole Foods development on the northeast corner of Reichert Avenue/De Long Avenue also includes 26 spaces available to the public during business hours. Diagonal on-street parking is provided on Redwood Boulevard, Grant Avenue and several surrounding side streets including Machin Avenue, Sweetser Avenue, Vallejo Avenue and First Street. On-street parallel parking is available on all other downtown streets. On-street parking in downtown is free, with parking that varies from 30 minutes to two hours on Grant Avenue and up to four hours on the side streets. Individual businesses provide private on-site parking in surface lots throughout downtown.

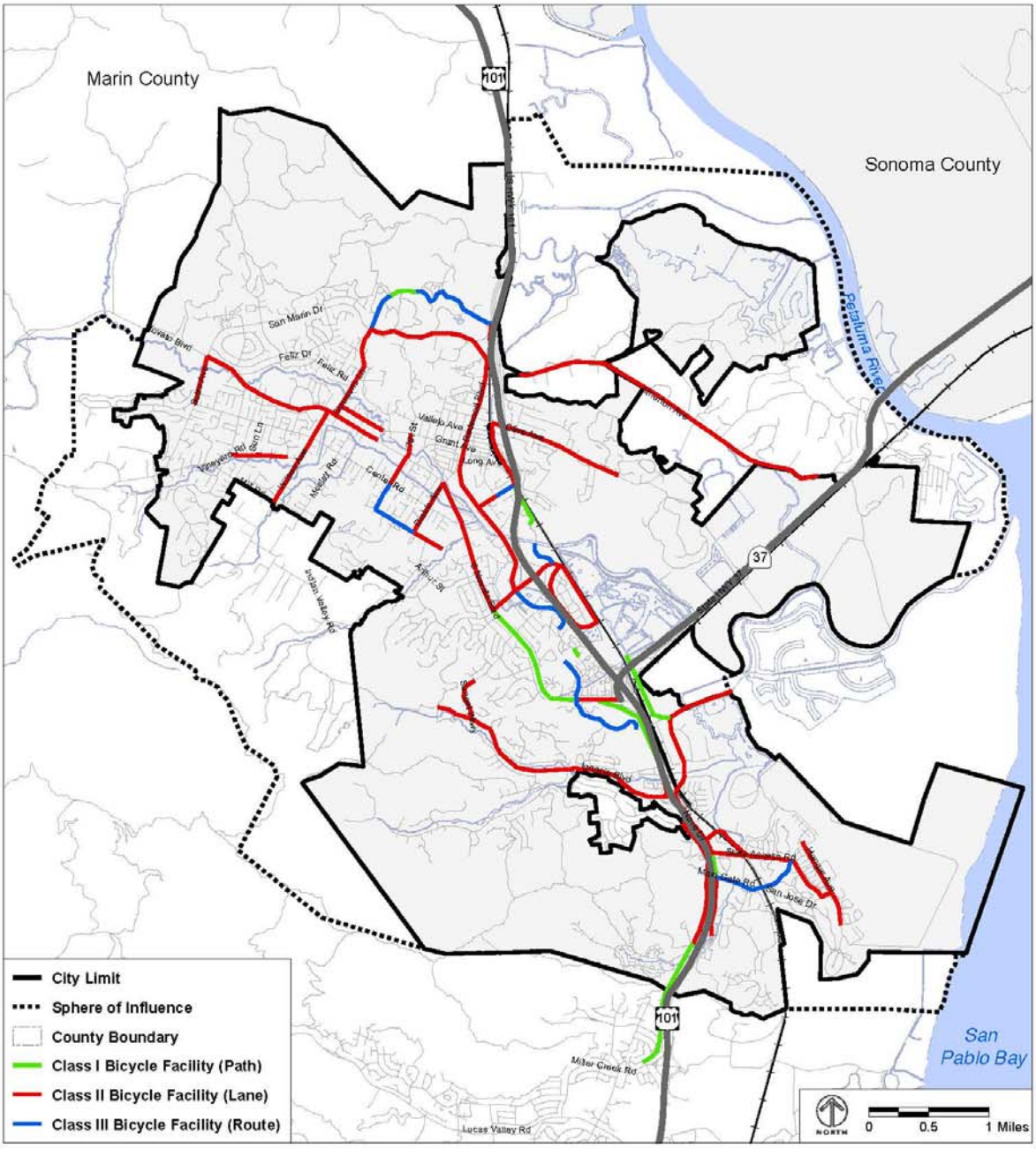

FIGURE 6-3
BICYCLE FACILITIES

E. Bicycle and Pedestrian Facilities

Novato residents and visitors walk and bicycle throughout the City for leisure, recreation, and for access to schools, employment sites, transit resources, shopping and other utilitarian purposes. The City's Mediterranean climate and mostly flat topography are conducive to walking and bicycling. Moreover, the City has a well-developed network of bicycle and pedestrian facilities and amenities that provide dedicated access for pedestrians and bicyclists along many of its primary transportation routes. Although the planned pedestrian and bicycle network may not be built out for many more years, and barriers such as US 101 limit access and permeability to major destinations, the overall quality of the City's non-motorized transportation system is high.

1. Bicycle Facilities

Bicycle facilities in Novato consist of Class I pathways, Class II bike lanes, and Class III bike routes along with support facilities such as bicycle parking, multi-modal transit access and amenities such as showers, changing areas and storage facilities. The majority of Novato's bikeway system is comprised of Class II Bicycle Lanes. The primary north-south bikeway corridor is along Novato Boulevard between San Marin Drive to just east of Redwood Boulevard. This bikeway is a major regional connector frequently used by recreational cyclists traveling to and from west Marin County. Bike lanes along Redwood Boulevard continue north to east-west bike lanes on Atherton Avenue. Primary east-west bikeways are provided along San Marin Drive, Atherton Avenue, Olive Avenue, Rowland Boulevard, Ignacio Boulevard, Bel Marin Keys Boulevard, and Hamilton Parkway.

A breakdown of existing mileage by bikeway type is provided in Table 6-8. Figure 6-3 identifies the location of existing bicycle facilities in Novato.

a. Bicycle Lanes

The majority of Novato's bikeway system is comprised of Class II Bicycle Lanes. The primary north-south bikeway corridor is along Novato and South Novato Boulevards between San Marin Drive to just east of Redwood Boulevard. This bikeway is a major regional connector frequently used by recreational cyclists traveling to and from west Marin County. Bike lanes along Redwood Boulevard continue north to existing and proposed east-west bike lanes on Atherton Avenue. Primary east-west bikeways are provided along San Marin Drive, Atherton Avenue, Olive Avenue, Rowland Boulevard, Ignacio Boulevard, Bel Marin Keys Boulevard and Hamilton Parkway.

b. Bicycle Parking

Bicycle racks can be found at various businesses, employment centers, schools, transit stops and parks throughout Novato. Bicycle lockers for long-term bicycle parking can be leased from Caltrans at the Alameda del Prado park-and-ride lot. The park-and-ride lot at Rowland Boulevard has bike lockers available to bicyclists on a first-come, first-served basis to riders who bring their own locks.

Bicycle parking was included as a part of the Grant Avenue Improvement Project. Racks were placed at various locations for access to retail destinations. Space created by reconfiguring curb lines and constructing bulbouts was used to install racks outside the pedestrian travel zone. The City of Novato has adopted official design standards for sidewalk bicycle parking and an ordinance requiring showers, lockers and change facilities in newly-developed employment centers.

TABLE 6-8 **EXISTING BIKEWAY MILEAGE BY TYPE**

Class	Bikeway Type	Total Mileage
I	Multi-Use Path	5.62
II	Striped Bicycle Lanes	25.09
III	Signed Bicycle Routes	4.76
All Bikeways		**35.47**

2. Pedestrian Facilities

Novato has a well-developed network of pedestrian facilities that includes sidewalks, pathways, ADA curb ramps, crosswalks and amenities such as bulbouts, pedestrian scale lighting, benches, transit shelters, street trees, landscape plantings and decorative paving treatments. Sidewalks are provided on the majority of streets in Novato, with continuous sidewalks and/or multi-use pathways in place along most principal arterials, minor arterials and collector streets. Downtown Novato and surrounding neighborhoods have nearly complete sidewalk coverage, while outlying residential areas have varying coverage. Figure 6-4 identifies sidewalk coverage on arterial and collector streets in Novato.

CITY OF NOVATO
EXISTING CONDITIONS REPORT
CIRCULATION AND TRANSPORTATION

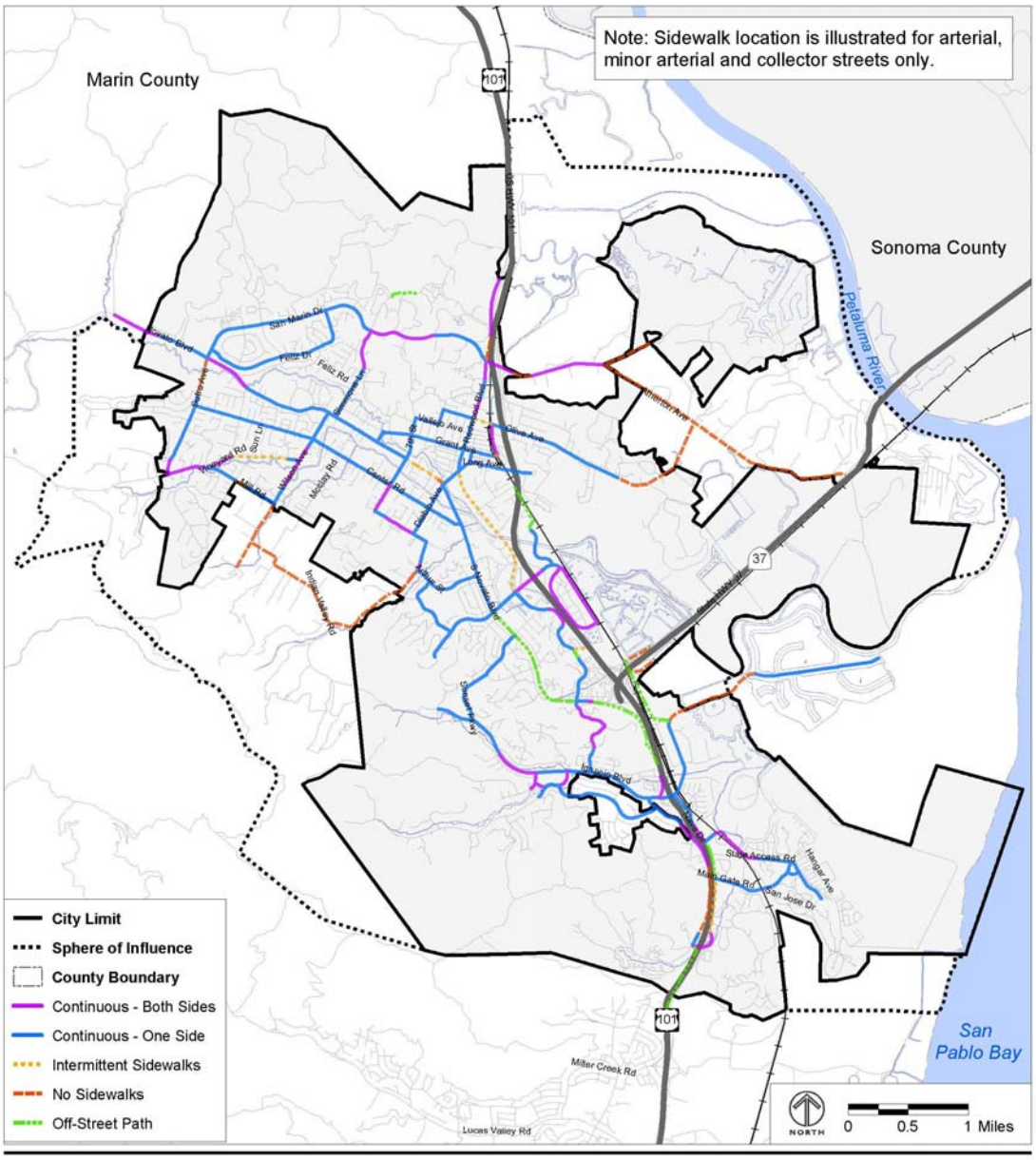

FIGURE 6-4
PEDESTRIAN FACILITIES

In general, sidewalks are constructed of concrete, are at least 4 to 5 feet wide, and include either a landscape buffer or parking lane between the sidewalk and vehicle travel lanes. ADA curb ramps are provided at most intersections and sidewalk transitions. In recent years the City has installed or upgraded ADA curb ramps throughout the community to meet current accessibility standards. Upgraded ramps, which include accessible grades, landings and tactile inlays, have been installed throughout the downtown area, at intersections along major arterials, in school zones and at select 'high activity' crossings. Bulbouts, pedestrian refuge islands, decorative treatments, landscaping and amenities are provided in downtown and other locations throughout the city. High visibility markings and advanced warning signs are also provided at mid-block crossings on arterials, in school zones and at transit hubs.

F. Transit Service and Facilities

1. Bus Service

Marin Transit is responsible for providing local transit service within Marin County, including the City of Novato. Although Marin Transit has responsibility for local services, it contracts with other providers including Golden Gate Transit and Whistlestop Wheels to provide local transit services in Novato. Timed bus transfers in Novato currently take place at the transit facility on Redwood Boulevard at Grant Avenue. Most Golden Gate Transit bus stops within the City of Novato have bicycle racks located at the stops. Up to two bicycles can be accommodated on buses.

Golden Gate Transit and Marin Transit serve Novato with local and express bus service linking to Marin and Sonoma County cities, as well as to San Francisco. Transit service in Novato is provided via routes 49, 51, 56, 58, 70, 71, 80, and 101. Route descriptions are provided below.

- Route 49 provides service within Novato and connects to the Marin Civic Center and downtown San Rafael Transit Center. The route operates on weekdays at approximately one-hour headways in each direction.

- Route 51 provides local service in Novato and Marin County with approximately one-hour headways in each direction. It serves San Marin, Downtown Novato, Sutter Novato Medical Center, Vintage Oaks Shopping Center, Indian Valley College, and Ignacio.

- Route 56 provides commuter service between Novato and San Francisco, with five southbound morning buses and six northbound afternoon buses. The route serves the San Marin area and the Rowland Boulevard park and ride lots.

- Route 58 also provides commuter service between Novato and San Francisco, with four southbound buses during the morning commute and three northbound buses during the return afternoon commute. The route serves the downtown Novato transit hub and Hamilton areas.

- Route 70 provides 34 trips per weekday in each direction between Novato and San Francisco with intermediate stops in other Marin County communities and headways of approximately one hour. The route overlaps with Route 71, which connects Novato to Marin City, also with approximately one-hour headways. The combined routes also provide 21 trips per day in each direction on weekends.

- Routes 80 and 101 operate along the US 101 corridor between Sonoma County and San Francisco, with stops in Downtown Novato. Twenty buses per weekday serve the northbound and southbound directions with headways of approximately one hour. The routes also operate on weekends with 28 buses per day in each direction at approximately 30-minute headways.

  Timed bus transfers in Novato currently take place at the transit facility on Redwood Boulevard at Grant Avenue. However, the existing facility serves only a limited number of routes. Planning efforts are currently underway to improve this facility.

- Route 49 provides service within Novato and connects to the Marin Civic Center and downtown San Rafael Transit Center. The route operates on weekdays at approximat4ely one-hour headways in each direction.

- Route 51 provides local service in Novato and Marin County with approximately one-hour headways in each direction. It serves San Marin, Downtown Novato, Sutter Novato Medical Center, Vintage Oaks Shopping Center, Indian Valley College, and Ignacio.

- Route 56 provides commuter service between Novato and San Francisco, with five southbound morning buses and six northbound afternoon buses. The route serves the San Marin area and the Rowland Boulevard park and ride lots.

- Route 58 also provides commuter service between Novato and San Francisco, with four southbound buses during the morning commute and three northbound buses during the return afternoon commute. The route serves the downtown Novato transit hub and Hamilton areas.

- Route 70 provides 34 trips per weekday in each direction between Novato and San Francisco with intermediate stops in other Marin County communities and headways of approximately one hour. The route overlaps with Route 71, which connects Novato to Marin City, also with approximately one-hour headways. The combined routes also provide 21 trips per day in each direction on weekends.

- Routes 80 and 101 operate along the US 101 corridor between Sonoma County and San Francisco, with stops in Downtown Novato. Twenty buses per weekday serve the northbound and southbound directions with headways of approximately one hour. The routes also operate on weekends with 28 buses per day in each direction at approximately 30-minute headways.

Timed bus transfers in Novato currently take place at the transit facility on Redwood Boulevard at Grant Avenue. However, the existing facility serves only a limited number of routes. Planning efforts are currently underway to improve this facility.

2. Park-and-Ride Lots

There are five park-and-ride lots in Novato. The facilities provide short- and long-term parking for commuters, transit riders and bicyclists. Four of the facilities are located along the US 101 and SR 37 corridors and are owned and operated by Caltrans. Another park-and-ride lot operated by the City of Novato and Golden Gate Transit is located at the Hamilton Theater on Palm Drive. Table 6-9 provides further details on the facilities, including their locations and amenities provided.

TABLE 6-9 NOVATO PARK-AND-RIDE LOTS

Lot	Location	Parking Spaces	GGT Routes	Bicycle Parking	Lighting
Atherton Ave.	US 101 at Atherton Ave.	58	56, 75	Yes	Yes
Hamilton Theater	555 Palm Drive	66	49, 58	No	Yes
Rowland Blvd.	US 101 at Rowland Blvd.	240	56, 70, 71, 80	Yes	Yes
Black Point	North of Route 37 at Atherton Ave.	29	None	No	Yes
Alameda del Prado	Northwest of Alameda del Prado/US 101 Overcrossing	106	49, 52, 58	Yes	Yes

3. Passenger Rail

Currently, no passenger rail service is provided in Novato. However, in November 2008, Marin and Sonoma County voters passed Measure Q, a quarter-percent increase in the local sales tax to fund the Sonoma Marin Area Rail Transit (SMART) passenger rail project. SMART will eventually provide a 70-mile passenger train service on the existing publically-owned Northwestern Pacific Railroad right-of-way between Cloverdale and Larkspur, though funding shortfalls have resulted in a phased approach such that upon opening in 2016 service will only run between San Rafael and Santa Rosa. The SMART project includes the development of two train stations in Novato. Novato SMART stations will be located in the Hamilton Area of south Novato and near the Fireman's Fund campus on Redwood Boulevard north of San Marin Drive. SMART intends to operate shuttle systems feeding both stations, serving downtown Novato and other major activity centers in the City.

4. Paratransit

The transportation needs of the elderly and persons with disabilities in Novato are addressed by demand responsive or 'Dial-A-Ride' paratransit services. EZ Rider partners with the Novato Human Needs Center to provide transportation services for all Novato area residents seven days a week. Novato's Dial-A-Ride service operates from 7:30 a.m. to 11:00 a.m. and 3:00 p.m. to 6:00 p.m. Monday through Friday and 9:00 a.m. to 5:00 p.m. on Saturdays and Sundays. Rides are arranged in advance, up to seven days prior to the trip.

G. Freight System

1. Rail Freight System

The Northwestern Pacific Railroad Company (NWPCo) is currently operating freight service between Napa and Petaluma along tracks owned by the Sonoma Marin Area Rail Transit District (SMART). As defined by a 2008 Consent Decree between the City of Novato, NWPCo and North Coast Railroad Authority (NCRA), NWPCo may operate up to three round trips per week with a maximum of 18 cars per trip. In addition, all freight operation shall occur during daylight hours until the City of Novato has established and executed a Quiet Zone pursuant to the Federal Railroad Administration's (FRA) Train Horn Rule. While there are three spurs in Novato, one public and two private, NWPCo currently does not provide service to any Novato customers.

SMART is currently upgrading seven of the ten Novato crossings with a combination of Supplemental Safety Measures (SSMs) and Alternative Safety Measures (ASMs) through a Memorandum of Understanding with the NCRA/NWPCo as required by the Consent Decree. The completion of these improvements will provide the City of Novato with the infrastructure required to file a Notice of Intent to Initiate a Quiet Zone with the FRA.

In addition, SMART has begun reconstruction of the rail line to support their future passenger service. Once operational, SMART will provide service to Novato residents and businesses through two stops; one on Redwood Boulevard just north of San Marin Drive and the other just north of Main Gate Road in the Hamilton Community. SMART intends to initially operate 14 round trips per day between Santa Rosa and San Rafael.

Truck Routes

The City of Novato's Municipal Code prohibits any vehicle exceeding the maximum gross weight limit of five tons from traveling or parking on any City street except on those streets designated as truck routes in Municipal Code Section 18-10.2. As shown in Figure 6-5, the following streets are designated as truck routes:

- Redwood Boulevard (from Rowland Boulevard to San Marin Drive)
- Atherton Avenue
- DeLong Avenue (from Redwood Boulevard to US 101)
- Diablo Avenue (easterly of Novato Boulevard)
- Novato Boulevard (northwesterly of Diablo Avenue)
- Rowland Boulevard (from Redwood Boulevard to US 101)
- San Marin Drive

Additional exceptions, defined in Municipal Code Section 18-10.3, allow trucks to travel on prohibited streets for the purpose of making pick-ups or deliveries to a location on that street. Passenger buses and vehicles used for the purpose of installing, maintaining or repairing public utilities are exempt from weight restrictions.

H. Citywide Modal Split

Data from the 2012 American Community Survey (ACS) produced by the United States Census was reviewed to determine the current mode split for residents of the City of Novato. As shown in Table 6-10, about 85 percent of Novato residents travel in motor vehicles, 5.2 percent use public transportation, 2.0 percent walk to work, and less than 1 percent commute via other means. The remaining 7.3 percent work at home. Compared to 2000 Census data, fewer commuters are taking public transportation to work, and more people are working at home. Considering the margin of error of the ACS data, the remaining comparisons are inconclusive.

TABLE 6-10 NOVATO DEMOGRAPHIC AND MODE SPLIT DATA

Mode Split	2000	2012
Car, Truck or Van	83.1%	84.5%
Drove alone	*70.3%*	*70.9%*
Carpooled	*12.8%*	*13.6%*
Public Transportation	8.4%	5.2%
Walked	1.6%	2.0%
Taxicab, Motorcycle, Bicycle or Other Means	1.3%	0.9%
Worked at home	5.6%	7.3%
Total	**100%**	**100%**

Sources: 2000 Census, 2010-2012 American Community Survey 3-Year Estimates

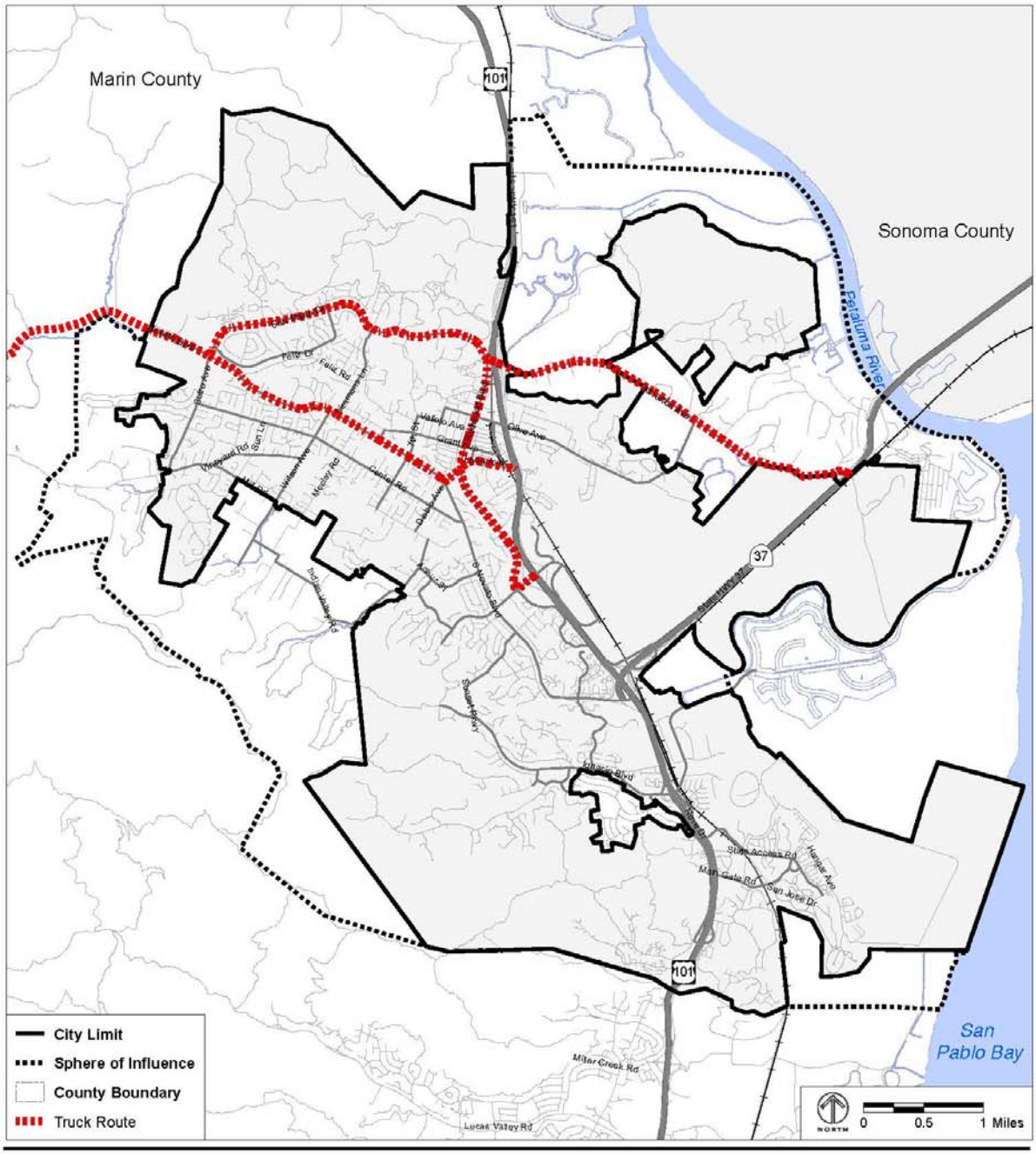

FIGURE 6-5
TRUCK ROUTES

The 2012 American Community Survey provided travel times for those residents who did not work at home. This data is summarized in Table 6-11. Commute times are distributed broadly, with the largest concentration, representing nearly 47 percent of all commuters, between 5 and 24 minutes. Significant numbers of residents had longer commutes; over 14 percent had a 30- to 34-mintue commute and just over 11 percent had a 45- to 59-minute commute.

TABLE 6-11 NOVATO TRAVEL TIME TO WORK DATA

	Number	Percent
Less than 5 minutes	870	3.7%
5 to 9 minutes	2,338	10.0%
10 to 14 minutes	3,364	14.4%
15 to 19 minutes	2,571	11.0%
20 to 24 minutes	2,681	11.5%
25 to 29 minutes	892	3.8%
30 to 34 minutes	3,378	14.4%
35 to 39 minutes	789	3.4%
40 to 44 minutes	1,419	6.1%
45 to 59 minutes	2,617	11.2%
60 to 89 minutes	2,010	8.6%
90 or more minutes	470	2.0%
Total	***23,399***	***100.0%***

Source: 2010-2012 American Community Survey 3-Year Estimates

I. Planned and Proposed Transportation Improvements

1. Marin-Sonoma Narrows Project

The Marin-Sonoma Narrows Project will widen 16.1 miles of US 101, from SR 37 to just north of the Corona Road Overcrossing in the City of Petaluma in Sonoma County. The project has been divided into three discrete segments: the Southern Segment extends from just south of SR 37 to north of Atherton Avenue; the Central Segment extends from Atherton Avenue Interchange to south of SR 116 (east), crossing the Marin-Sonoma county line; and the Northern Segment extends from SR 116 (east) to north of the Corona Overcrossing in the City of Petaluma.

The project includes adding northbound and southbound High Occupancy Vehicle (HOV) or "carpool" lanes along the entire project length, widening and realigning US 101 along the Novato Narrows, eliminating existing at-grade intersections, constructing new interchanges, building frontage roads, constructing sound walls, completing bicycle and pedestrian paths, and upgrading drainage facilities. The Southern Segment has been completed in the northbound direction and remains under construction in the southbound direction. Portions of the Central segment are also under construction

including the extension of northbound carpool lanes to near Olompoli State Park, completion of frontage roads, and construction of a full interchange at San Antonio Road.

2. Capital Improvement Projects Circulation Projects

The following improvements within Novato are included in the City's Capital Improvement Program (CIP) and have funding sources identified for future implementation.

- Novato Boulevard: Widen to four lanes between 7th Street and Diablo Avenue
- Redwood Boulevard/San Marin Drive: Widen intersection approaches and railroad overcrossing
- US 101 Northbound Ramps/Atherton Avenue: Modify northbound off-ramp to include dual left-turn lanes and a shared through-right turn lane
- San Marin Drive/Simmons Lane: Install a traffic signal or modern roundabout
- US 101 Southbound/San Marin Drive: Create a free right-turn from eastbound San Marin Drive to the southbound on-ramp
- Redwood Boulevard north of San Marin Drive: Widen Redwood Boulevard to include two southbound lanes and modify signal phasing
- Rowland Boulevard Corridor Improvements: Restripe Rowland Boulevard overpass and provide a new pedestrian/bicycle overcrossing of US 101
- Redwood Boulevard/Rowland Boulevard: Extend the westbound right-turn lane
- Olive Avenue: Upgrade roadway, drainage facilities, and SMART rail crossing between Railroad Avenue and Redwood Boulevard
- Grant Avenue: Replace bridge over Novato Creek between Virginia Avenue and Eighth Street, including widening to provide sidewalks and bike lanes
- Sunset Parkway/Ignacio Boulevard: Install a traffic signal.