APPENDICES
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Appendix A

Revised Transportation Impact Study

Note: Appendices of the TIS are not included as no changes were made to the Appendices as provided in the Draft EIR. Please refer to Draft EIR Appendix G.
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EXECUTIVE SUMMARY

The Village at Corte Madera (herein “the Village”) is a regional shopping center located in the Town of Corte Madera between Redwood Highway and U.S. 101, on the northeast corner of the U.S. 101 / Tamalpais Drive / Paradise Drive interchange. U.S. 101 separates the Village from the Corte Madera Town Center, another shopping center that is located directly to the west of the Village on the west side of U.S. 101. The lands to the north and east of the Village are open marshland and the San Francisco Bay. There is a variety of different retail and office uses, with some residential uses, south of the project site along Paradise Drive.

PROJECT DESCRIPTION

The Proposed Project includes construction of a Restoration Hardware Gallery at the Village in an area currently occupied by surface parking for the shopping center and improvements to the existing gravel lot located northeast of the Village. The Gallery will be approximately 46,000 square feet of gross floor area, which will entail about 40,200 square feet of retail space and 5,800 square feet for a café-style restaurant. The Proposed Project would result in a net reduction of 166 parking spaces in the existing parking lot and an addition of up to 455 parking spaces in the improved gravel lot.

Based on empirical trip generation rates developed from trip counts at the Village driveways, the Proposed Project would generate 120 vehicle trips during the weekday mid-afternoon peak (2:00 – 4:00 PM) and 108 vehicle trips during the weekday PM peak (4:00 – 6:00 PM). The Project trips were assigned to the local roadway network using a trip distribution developed from anonymized cellphone location data provided through Streetlight, a Big Data vendor.

ANALYSIS PERIODS

The report evaluates transportation network conditions during the weekday PM (4:00 – 6:00 PM) and Mid-Afternoon (2:00 – 4:00 PM) peak periods. The weekday PM peak hour represents the highest combination of existing and project trips for travel on Tamalpais Drive and Lucky Drive through the residential areas west of U.S. 101. The weekday mid-afternoon period has the second-highest traffic levels to residential areas and slightly higher traffic levels near the Village compared to the weekday PM peak hour. Therefore, the weekday PM peak hour was selected as the primary time period for analysis. In addition, a focused intersection analysis of the Tamal Vista Boulevard corridor was conducted for the weekday mid-afternoon period.
SIGNIFICANT IMPACTS AND MITIGATIONS

The Proposed Project’s impact on the transportation network was found to be significant in the following areas:

- Existing Plus Project (i.e. Project-specific impacts)
  - Significant pedestrian impacts (two locations)
  - Significant construction impacts (three areas)

- Cumulative Plus Project (i.e. cumulatively considerable impacts)
  - Significant traffic impacts (four locations)

To mitigate these impacts, the following mitigation measures are proposed:

Pedestrian

- Mitigation Measure TR-1
  1A – Northern Driveway to Improved Gravel Lot - Modify the proposed improvement plans for the improved gravel lot to provide for low speed vehicular entry and exit at the northern driveway, a 75 foot minimum driveway “throat length” that eliminates the intersection with the north-south vehicular cross aisle, and direct, visible pedestrian paths that are separated from vehicular traffic to link the parking lot interior with the adjacent signalized crosswalk.

  1B – Southern Driveway to Improved Gravel Lot – Restrict driveway access to right-in, right-out movements and eliminate the southbound left turn lane by extending the existing median to the northwest. Provide fencing inside the curb line of the median to prevent pedestrians from crossing at this location. The fencing should extend from the northwestern extent of the new median (at the location of the beginning of the median taper for the northbound Redwood Highway left turn lane at the north Village entrance) and continue south for approximately 50 feet past the driveway entrance. Provide signage both within the improved gravel lot and at the southernmost driveway to direct pedestrians to cross Redwood Highway at the traffic signal at the northernmost driveway to the improved gravel lot. Provide striping across the driveway and signage adjacent to the driveway to enhance the crossing’s visibility to both drivers and Bay Trail users.

Mitigation Measure TR-1 would reduce the Project-specific impact to pedestrians at the two locations identified to less-than-significant.
Construction

- Mitigation Measure TR-2
  
  As part of the design review process for the proposed project, the applicant shall prepare a detailed Construction Traffic Control Plan and submit it for review and approval to the Town Department of Public Works. The applicant and the Town shall consult with Marin Transit and local emergency service providers for their input prior to approving the Plan. The plan shall ensure that acceptable operating conditions on local bicycle and pedestrian facilities, local roadways, and freeway facilities are maintained during construction. At a minimum, the plan shall include:

  - The number of daily truck trips during each construction phase
  - The time of day of arrival and departure of trucks, and identification of a staging area that is adequate to accommodate all waiting trucks without impacting traffic on local streets
  - Any limitations on the size and type of trucks
  - Truck circulation routes
  - Days and times of any planned street or lane closures
  - Plan showing location of advance warning signage for any street or lane closures
  - For any street or lane closures, plan showing safe and efficient access routes for emergency vehicles
  - Driveway access plan that provides safe vehicular, pedestrian, and bicycle movements (e.g., steel plates, minimum distances of open trenches, and provide vehicle pick up and drop off areas)
  - Days, times, and locations for any manual traffic control
  - Provisions for pedestrian safety
  - The number of construction employees by phase
  - Plan showing location of employee parking by phase

- Mitigation Measure TR-3

  The Bay Trail path on the east side of Redwood Highway, that serves bicycle and pedestrian travel, shall be open at all times during project construction. If a closure of the Bay Trail path is required for any construction phase, a continuous path shall be maintained around the closure until construction is completed in order to provide continuous travel for users of the Bay Trail. A flagger will be stationed at either end of the construction (northern and southern driveway) to assist Bay Trail users in safely navigating the closure. Work at the gravel lot shall be phased to minimize closure of the Bay Trail to the fewest number of days as feasible. If construction causes
any damage to the existing Bay Trail path, as determined by the Town Department of Public Works, it shall be reconstructed and/or repaired during the final construction phase.

Mitigation Measure TR-4

The applicant shall prepare and submit a detailed parking management plan to the Public Works Director that specifies when (and by how many spaces) the parking supply at the Village would be reduced during construction activities (both in the existing lot and in the improved gravel lot, when completed). If the parking supply during the specified construction periods would be less than the current demand during the same time period (assuming a 90 percent occupancy factor), the applicant shall implement travel and/or parking management strategies to address any parking shortfall for the duration of the shortfall such as (a) valet parking, (b) an off-site parking area with a sufficient number of parking spaces to meet the deficit in supply and shuttle service between the off-site parking area and the Village, (c) incentives to reduce vehicle travel by employees, and/or (d) special shopper shuttle buses.

Mitigation measures TR-2, TR-3, and TR-4 would reduce the Project-specific impacts due to construction activities to less-than-significant.

Traffic

Mitigation Measure C-TR-1

The project applicant shall make a fair share contribution to implementation of the following measures:

- Widen eastbound Tamalpais Drive to three lanes from the Hwy 101 NB Off-Ramp through the San Clemente Drive intersection
- Extend the third through lane at the San Clemente Drive intersection into one of the northbound left-turn lanes at the Redwood Hwy/Village at Corte Madera South Driveway intersection
- Construct a total of 3 northbound left-turn lanes and one right-turn lane at Tamalpais Drive/San Clemente Drive

The Village at Corte Madera is responsible for 100 percent of the cost of implementing this mitigation measure. The Corte Madera General Plan EIR presented that the full build-out of the Village under Alternative 4 would generate an additional 475 PM peak hour trips. The Proposed Project is expected to generate 108 PM peak hour trips, which represents 23 percent of the total. Therefore, the project applicant will contribute a fair share of 23 percent of the cost based on the project-specific contribution of traffic growth. To determine the dollar amount of the fair share contribution, the project applicant shall fund the preparation of an engineer’s estimate for construction of the mitigation measures, as directed and approved by the Public Works Director for the Town of Corte Madera.
Mitigation Measure C-TR-1 would reduce the cumulatively considerable Project impact to traffic to less-than-significant.

In addition to the above mitigation measures, the following improvement measure is proposed to reduce the effect of Project-added trips to the U.S. 101 freeway:

- Improvement Measure C-TR-2
  
  As part of the design review process, the project applicant shall develop a TDM Program and submit it to the Town Department of Public Works for review and approval. The Town will monitor the TDM Program on an annual basis. The TDM Program would be designed to reduce daily and peak hour vehicle trips, as forecasted for the project in this transportation impact assessment, by 5 percent.

  The project applicant shall be responsible for funding and overseeing the delivery of trip reduction/TDM proposed programs and strategies to achieve the above reduction in peak hour trips, which may include, but are not limited to, the following:

  - Establishment of employee carpool, buspool, or vanpool programs;
  - Alternative work week and flex-time schedules that shift employee trips off of the evening commute period;
  - Cash allowances, passes, or other public transit subsidy and purchase incentives;
  - Guaranteed ride-home program;
  - Bicycle programs including bike purchase incentives, storage, and maintenance programs.
  - Bus shuttles to nearby Sonoma-Marin Area Rail Transit (SMART) rail station and Larkspur Ferry Terminal
1 INTRODUCTION

The Village at Corte Madera is a regional shopping center located in the Town of Corte Madera between Redwood Highway and U.S. 101, on the northeast corner of the U.S. 101 / Tamalpais Drive / Paradise Drive interchange. U.S. 101 separates the Village from the Corte Madera Town Center, another shopping center that is located directly to the west of the Village on the west side of U.S. 101. The lands to the north and east of the Village are open marshland and the San Francisco Bay. There is a variety of different retail and office uses, with some residential uses, south of the project site along Paradise Drive.

This report examines the existing transportation conditions around the Village and analyzes the transportation impacts of adding retail space at the Village to accommodate a new, larger facility for the existing Restoration Hardware store (herein “Proposed Project” or “Project”). Specifically, the Proposed Project includes:

- A new retail store and cafe space of approximately 46,000 square feet in size
  - The café-style restaurant is approximately 5,800 square feet in size and contains 150 seats
- Net reduction of approximately 166 parking spaces in the existing parking lot at the Village for the building footprint
- Creation of up to 455 paved parking spaces in what is currently a gravel lot adjacent to the northeast corner of the Village parking lot area

The existing space that Restoration Hardware currently occupies in the Village would be vacated and used by another retail tenant.

This transportation impact analysis evaluates the Proposed Project’s potential impacts on traffic conditions, transit service, bicycle circulation, pedestrian circulation, and emergency access. This chapter summarizes the project study area, proposed changes at the Village, and outlines the report structure.

1.1 PROJECT STUDY AREA

The transportation study area for the Proposed Project (herein “study area”) is bounded by Fifer Avenue and Industrial Way (north), Madera Boulevard (west), Tamalpais Drive (south), and Redwood Highway (east). Figure 1-1 shows the location of the Proposed Project and streets and intersections within the study area.
Legend

= Study Intersection
= Project Location
= Roadway Segment Count Location

Figure 1-1
Project Study Area
1.2 PROJECT DESCRIPTION

The Proposed Project includes construction of a Restoration Hardware Gallery at the Village in an area currently occupied by surface parking for the shopping center and improvements to the existing gravel lot. The Gallery will be approximately 46,000 square feet of gross floor area, which will entail about 40,200 square feet of retail space and 5,800 square feet for a café-style restaurant. The Proposed Project would result in a net reduction of 166 parking spaces in the existing parking lot for the Village with the construction of the gallery building and parking lot improvements. The improved gravel lot will provide up to 455 parking spaces, whereas currently with the gravel lot parking spaces not formally delineated the lot can fit approximately 10 fewer spaces or 445 parking spaces.

As part of the General Plan update process in 2009, the Town evaluated several land use alternatives and selected Alternative 4 as the preferred alternative. Alternative 4 allows for 185,000 square feet of retail space and 300 dwelling units at the Village and 10,000 square feet of retail and 180 dwelling units at the northeast corner of the intersection of Tamal Vista Boulevard and Wornum Drive. Since approval of the General Plan, there has been one retail expansion at the Village: a 17,430 square foot expansion at the Nordstrom store. Therefore, approximately 167,000 square feet of retail expansion space remains. With the addition of the Proposed Project, approximately 121,000 square feet of retail space for expansion would remain.

The Village currently has 1,773 paved parking spaces (as counted in October 2015) not including any spaces on the gravel lot. The Proposed Project would result in a net reduction of about 166 paved existing parking spaces with the construction of the new gallery building and reconfiguration of some of the existing spaces around the new building. The parking required by the Town of Corte Madera Municipal Code for a 46,000 square foot retail space, at the current rate of one space for every 250 square feet, is 184 spaces. The gravel lot across Redwood Highway to the northeast of the Village would be paved and striped to provide up to 455 spaces, which would satisfy the code requirement and accommodate the existing parking spaces eliminated by the Project.

1.3 REPORT ORGANIZATION

The remainder of this report is divided into the following chapters:

Chapter 2 – Existing Conditions describes the operating conditions of the existing transportation network within the vicinity of the Village, including the surrounding roadway network, intersection operating conditions, transit service, pedestrian and bicycle conditions, and parking supply and occupancy.

---

1 Based on Town of Corte Madera Zoning Code 18.20.030
Chapter 3 – Regulatory Framework discusses the relevant state, regional, and local jurisdictions that operate in the Town of Corte Madera and have transportation policies that may apply to the Project impact analysis.

Chapter 4 – Travel Demand Analysis includes the selection of the study time periods for analysis as well as the Proposed Project’s trip generation, trip distribution, and trip assignment forecasts for private vehicles. The Proposed Project’s trip generation was developed based on counts collected at the Village driveways.

Chapter 5 – Significance Criteria describes how each transportation mode was assessed for Project-related impacts based on the Town’s General Plan and other relevant policy documents. Areas analyzed include traffic, transit, pedestrians, bicycles, and emergency access.

Chapter 6 – Existing Plus Project Conditions describes the anticipated operating conditions of the transportation network with the Proposed Project in place and identifies the extent to which Proposed Project traffic would impact the transportation network. Existing Plus Project conditions describes the anticipated operating conditions of the transportation network under Existing conditions with the addition of the Proposed Project. Operations of the transportation network after the addition of the travel demand from the Proposed Project is described, including the project’s impacts on study intersections, transit, bicycles, pedestrians, parking, and emergency vehicles.

Chapter 7 – Cumulative Conditions describes the anticipated operating conditions of the transportation network under Cumulative conditions, including the traffic associated with the Proposed Project, and other reasonably foreseeable development projects as included in the Town of Corte Madera General Plan. Future year traffic forecasts with the Proposed Project were previously prepared as part of the Transportation Impact Analysis for the General Plan, which used the Corte Madera Travel Demand Model (which is itself based on the Marin County travel demand model). The Proposed Project’s contribution to potential impacts on future transportation conditions for traffic, transit, bicycles, pedestrians, parking, and emergency vehicles is described.
2 EXISTING CONDITIONS

This chapter provides a description of the existing transportation and circulation setting within the surrounding vicinity of The Village. It includes descriptions of the existing roadway network, intersection operating conditions, freeway operating conditions, transit network and service, bicycle and pedestrian circulation, and parking supply and occupancy.

2.1 ELEMENTS OF ANALYSIS

This study examines Existing conditions related to the following transportation elements:

- Intersection and Freeway Operations – operations at key intersections and freeway corridors providing access to and through the study area;
- Transit Service – local and regional transit operations into and within the study area;
- Pedestrian Circulation – qualitative assessment of conditions into and within the study area;
- Bicycle Circulation – qualitative assessment of conditions into and within the study area; and
- Parking Conditions – characterization of supply throughout the study area.

2.2 ROADWAY FACILITIES

This section describes the regional and local roadway system in the study area. The primary roadways used to access the Village include Redwood Highway, U.S. Highway 101, Tamalpais Drive, and San Clemente Drive. Four primary vehicular entrances to the Village, and two to the gravel lot, are located along Redwood Highway between San Clemente Drive and Wornum Drive.

2.2.1 Regional Access

**U.S. Highway 101 (U.S. 101)** provides the primary regional access to the Village and runs north-south through the study area. U.S. 101 connects Marin and Sonoma counties with San Francisco to the south. U.S. 101 also provides access to other regional roadways, including I-580 to the North of the project site. Primary access to and from the project is provided at the Tamalpais Drive interchange as well as the northbound on-ramps at the intersection of Redwood Highway and Industrial Way. Additional access is provided at the Fifer Avenue southbound off-ramps and on-ramps. Within the study area, U.S. 101 is generally four lanes in each direction, including three mixed-flow lanes and one high occupancy vehicle (HOV) lane.
2.2.2 Local Access

Redwood Highway is a north-south running local street on the east side of U.S. 101 north of Tamalpais Drive. Along the Village, Redwood Highway has two travel lanes in each direction. North of the Village, the roadway provides one travel lane in each direction. West of San Clemente Drive, Redwood Highway becomes Tamalpais Drive. Redwood Highway provides access to the Village at four intersections, three of which are signalized. Access to U.S. 101 northbound is provided at the on-ramp located at Industrial Way via Redwood Highway. The Bay Trail parallels Redwood Highway on the east side, from Tamalpais Drive to Wornum Drive.

Tamalpais Drive is a four-lane east-west minor arterial street located south of the Village with two travel lanes in each direction. The Tamalpais Drive / U.S. 101 interchange provides the primary freeway access to the Village. East of San Clemente Drive, Tamalpais Drive becomes Redwood Highway. West of the U.S. 101 interchange, Tamalpais Drive provides access to the residential neighborhoods in Corte Madera. There are sidewalks on both sides of Tamalpais Drive West of the U.S. 101 southbound off-ramp. East of the southbound off-ramp, there is a sidewalk on the south side of Tamalpais Drive over the U.S. 101 overcrossing.

San Clemente Drive is a north-south minor arterial street with two travel lanes in each direction. Tamalpais Drive connects to the residential neighborhoods to the southeast of the project site. San Clemente Drive connects with and becomes Paradise Drive approximately 2,500 feet south of its intersection with Tamalpais Drive. There are sidewalks on the East and West side of the street from Tamalpais Drive to Paradise Drive.

Wornum Drive is a two-lane, east-west local street that passes under U.S. 101 and provides a connection between Tamal Vista Boulevard, located west of U.S. 101, and Redwood Highway, located east of U.S. 101. Currently, there is no direct freeway access to and from Wornum Drive. There is a sidewalk on the North side of the street from Redwood Highway to Tamal Vista Boulevard. There is a multi-use path that runs on the South side of Wornum Drive, designated as Route 16 on the Marin Country bicycle network. This path is a primary route for bicyclists and pedestrians to cross U.S. 101 north of the project site.

Tamal Vista Boulevard is a two-lane, north-south collector street that connects Madera Boulevard to Fifer Avenue and is located west of U.S. 101. The street also provides a center two-way left turn lane and sidewalks on both the east and west side.

2.3 INTERSECTION OPERATIONS

This report evaluates intersection operating conditions during the weekday PM (4:00 PM to 6:00 PM) and Mid-Afternoon (2:00 PM – 4:00 PM) peak periods. A detailed discussion about the selection of these two
time periods for analysis is provided in Section 4.1. Intersections usually form the critical capacity constraints on roadways. Therefore, most transportation analyses examine intersection operations as a measure of overall roadway conditions. The following 14 study area intersections were selected for analysis, through consultation with the City of Corte Madera staff, given their location along routes where a significant number of project trips would be added.

1. Redwood Highway / Wornum Drive
2. Redwood Highway / Northwest Village Entrance
3. Redwood Highway / Northeast Village Entrance
4. Redwood Highway / Middle Village Entrance
5. Redwood Highway / Southeast Village Entrance
6. Tamalpais Drive / Redwood Highway / San Clemente Drive
7. Tamalpais Drive / Northbound U.S. 101 Ramps
8. Tamalpais Drive / Southbound U.S. 101 Ramps
9. Tamalpais Drive / Town Center Entrance
10. Tamalpais Drive / Madera Boulevard
11. Tamal Vista Boulevard / Fifer Avenue
12. Tamal Vista Boulevard / Wornum Drive
13. Wornum Drive / Nellen Avenue
14. Redwood Highway / Industrial Way

All 14 study intersections were studied for the weekday PM peak period, while the mid-afternoon peak period was a focused analysis of the following three study intersections near the Tamal Vista Boulevard corridor, which is located near the Redwood High School and Tamiscal High School:

- Tamal Vista Boulevard / Fifer Avenue
- Tamal Vista Boulevard / Wornum Drive
- Wornum Drive / Nellen Avenue

2.3.1 Methodology

The operating characteristics of study intersections are evaluated using the metric of Level of Service ("LOS"). LOS is a qualitative description of driver comfort and convenience. Most often, an intersection’s average delay per vehicle is used as a quantitative proxy for LOS. Intersection levels of service range from LOS A, which indicates free flow or excellent vehicle flow conditions with short delays, to LOS F, which indicates congested or overloaded vehicle flow conditions with extremely long delays. For this project, LOS A through D are considered acceptable, and LOS E and LOS F are considered unsatisfactory service levels. The intersections were evaluated using the methodology described in the 2000 Highway Capacity Manual (HCM).

Traffic operations at signalized intersections are evaluated using the LOS method described in Chapter 16 of the HCM. A signalized intersection’s LOS is based on the weighted average control delay measured in
seconds per vehicle and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration. Table 2-1 summarizes the relationship between the control delay and LOS for signalized intersections.

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
<th>Average Control Delay (seconds per vehicle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Operations with very low delay occurring with favorable traffic signal progression and/or short cycle lengths.</td>
<td>&lt; 10</td>
</tr>
<tr>
<td>B</td>
<td>Operations with low delay occurring with good progression and/or short cycle lengths.</td>
<td>&gt; 10 to 20</td>
</tr>
<tr>
<td>C</td>
<td>Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.</td>
<td>&gt; 20 to 35</td>
</tr>
<tr>
<td>D</td>
<td>Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.</td>
<td>&gt; 35 to 55</td>
</tr>
<tr>
<td>E</td>
<td>Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.</td>
<td>&gt; 55 to 80</td>
</tr>
<tr>
<td>F</td>
<td>Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.</td>
<td>&gt; 80</td>
</tr>
</tbody>
</table>


Traffic conditions at unsignalized intersections are evaluated using the method in Chapter 17 of the HCM. With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each movement that must yield the right-of-way. For all-way stop-controlled intersections, the average control delay is calculated for the intersection as a whole. At two-way or side street-controlled intersections, the control delay (and LOS) is calculated for each controlled movement, the left turn movement from the major street, and the entire intersection, though only the delay for the worst movement is typically reported. Table 2-2 summarizes the relationship between delay and LOS for unsignalized intersections.
### TABLE 2-2: UNSIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
<th>Average Control Delay (seconds per vehicle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Little or no delays</td>
<td>&lt; 10</td>
</tr>
<tr>
<td>B</td>
<td>Short traffic delays</td>
<td>&gt; 10 to 15</td>
</tr>
<tr>
<td>C</td>
<td>Average traffic delays</td>
<td>&gt; 15 to 25</td>
</tr>
<tr>
<td>D</td>
<td>Long traffic delays</td>
<td>&gt; 25 to 35</td>
</tr>
<tr>
<td>E</td>
<td>Very long traffic delays</td>
<td>&gt; 35 to 50</td>
</tr>
<tr>
<td>F</td>
<td>Extreme traffic delays with intersection capacity exceeded</td>
<td>&gt; 50</td>
</tr>
</tbody>
</table>


On January 20, 2016, the Governor’s Office of Planning and Research (OPR) released draft guidance for changes to the CEQA Guidelines that will amend the way transportation impacts are analyzed (Public Resources Code Section 21099), as directed under Senate Bill (SB) 743 passed in 2013. SB 743, codified as Public Resources Code Section 21099, requires OPR to amend the CEQA Guidelines to provide an alternative to Level of Service (LOS) for evaluating transportation impacts. Measurements of transportation impacts may include “vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated.” Once the CEQA Guidelines are amended to include those alternative criteria, auto delay will no longer be considered a significant impact under CEQA. This transportation assessment uses LOS as a transportation impact metric because OPR has yet to release final guidance on implementing SB 743 and the Transportation Authority of Marin (TAM) is currently preparing an update to the countywide travel model and other forecasting tools that will be used to assess VMT effects.

#### 2.3.2 Intersection Operation Results

*Figure 2-1* displays the existing PM and mid-afternoon peak hour traffic volumes for the 14 study intersections, obtained from peak period traffic counts collected in October 2015, February 2016, and February 2017 during typical conditions when local schools were in session. This figure also displays the lane configurations and traffic controls (signals, stop signs, etc.) at each intersection. Traffic volume and intersection turning movement count summary sheets are provided in *Appendix A.*

LOS was calculated at each study intersection for the weekday PM and mid-afternoon peak hours. *Table 2-3* presents the resulting LOS and corresponding delay at each study intersection. As shown in the table, all study intersections currently operate at LOS C or better during the PM and mid-afternoon peak hours.
The highest delay occurs at Tamalpais Drive/Madera Boulevard with 34 seconds of average intersection delay during the PM peak hour. Detailed LOS analysis results are provided in Appendix B.

At Tamal Vista Boulevard/Wornum Drive, the southbound left movement experiences substantial queueing during some traffic signal cycles that occur in both the PM and mid-afternoon PM peak periods. The mid-afternoon period experiences a higher volume of left turning vehicles and longer queues due to traffic traveling from nearby schools (Redwood High School and Tamiscal High School).
Figure 2-1

Peak Hour Traffic Volumes and Lane Configurations - Existing
### TABLE 2-3: EXISTING INTERSECTION LOS AND DELAY

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Intersection Control</th>
<th>Time Period</th>
<th>Delay</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Redwood Highway / Wornum Drive</td>
<td>Signal</td>
<td>PM</td>
<td>11</td>
<td>B</td>
</tr>
<tr>
<td>2. Redwood Highway / Northwest Village Entrance</td>
<td>SSSC</td>
<td>PM</td>
<td>&lt;10</td>
<td>A</td>
</tr>
<tr>
<td>3. Redwood Highway / Northeast Village Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>12</td>
<td>B</td>
</tr>
<tr>
<td>4. Redwood Highway / Middle Village Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>&lt;10</td>
<td>A</td>
</tr>
<tr>
<td>5. Redwood Highway / Southeast Village Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>12</td>
<td>B</td>
</tr>
<tr>
<td>6. Tamalpais Drive / Redwood Highway / San Clemente Drive</td>
<td>Signal</td>
<td>PM</td>
<td>25</td>
<td>C</td>
</tr>
<tr>
<td>7. Tamalpais Drive / Northbound U.S. 101 Ramps</td>
<td>Signal</td>
<td>PM</td>
<td>15</td>
<td>B</td>
</tr>
<tr>
<td>8. Tamalpais Drive / Southbound U.S. 101 Ramps</td>
<td>Signal</td>
<td>PM</td>
<td>15</td>
<td>B</td>
</tr>
<tr>
<td>9. Tamalpais Drive / Town Center Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>&lt;10</td>
<td>A</td>
</tr>
<tr>
<td>10. Tamalpais Drive / Madera Boulevard</td>
<td>Signal</td>
<td>PM</td>
<td>34</td>
<td>C</td>
</tr>
<tr>
<td>11. Tamal Vista Boulevard / Fifer Avenue</td>
<td>Signal</td>
<td>PM Mid-Afternoon</td>
<td>17</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16</td>
<td>B</td>
</tr>
<tr>
<td>12. Tamal Vista Boulevard / Wornum Drive</td>
<td>Signal</td>
<td>PM Mid-Afternoon</td>
<td>18</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>21</td>
<td>C</td>
</tr>
<tr>
<td>13. Wornum Drive / Nellen Avenue</td>
<td>SSSC</td>
<td>PM Mid-Afternoon</td>
<td>&lt;10</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt;10</td>
<td>A</td>
</tr>
<tr>
<td>14. Redwood Highway / Industrial Way</td>
<td>Signal</td>
<td>PM</td>
<td>11</td>
<td>B</td>
</tr>
</tbody>
</table>

Notes:
- **Bold** indicates LOS E or F operations
- 1. SSSC = Side-Street Stop Control
- 2. Delay reported as seconds per vehicle. For all intersections, a combined weighted average delay for the various movements within the intersection is reported based on the methodology in the Highway Capacity Manual 2000. This is consistent with the Town of Corte Madera’s guidance for reporting intersection LOS results from the General Plan.

2.4 FREEWAY OPERATIONS

Mainline segments located near the Village were analyzed using methodology specified by the 2015 Congestion Management Program (CMP) Update published by the Transportation Authority of Marin (TAM). Based on guidance from TAM, the following eight freeway segments are analyzed:

Northbound U.S. 101:

1. North of Tiburon Boulevard to Tamalpais Drive (CMP facility)
2. Tamalpais Drive to Industrial Way
3. Industrial Way to Sir Francis Drake Boulevard
4. Sir Francis Drake Boulevard to Interstate 580 (I-580) (CMP facility)

Southbound U.S. 101:

5. I-580 to Sir Francis Drake Boulevard (CMP facility)
6. Sir Francis Drake Boulevard to Fifer Avenue
7. Fifer Avenue to Tamalpais Drive
8. Tamalpais Drive to Tiburon Boulevard (CMP facility)

These segments are analyzed during the PM peak period because it represents the most congested period on U.S. 101.

2.4.1 Methodology

The operating characteristics of freeway segments, like intersections, are evaluated using the concept of Level of Service. Traffic operations on freeway segments are evaluated using the LOS method described in Chapter 16 of the HCM. While LOS is typically defined using density (vehicles per lane per mile), the CMP assesses a freeway segment’s LOS based on the average vehicle speed measured in miles per hour. Table 2-4 summarizes the relationship between the control delay and LOS for signalized intersections.
TABLE 2-4: FREEWAY SEGMENT LEVEL OF SERVICE CRITERIA

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Speed (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt; 60</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 57 to 60</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 54 to 57</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 46 to 54</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 30 to 46</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 30</td>
</tr>
</tbody>
</table>


2.4.2 Freeway Segment Operation Results

Existing ramp and mainline volume data were obtained from the following sources:

- Ramp volumes from existing intersection turning movement counts (Fehr & Peers, October 2015)
- Mainline counts obtained from the Performance Measurement System (PeMS) database

This data was reviewed and volumes that represent a typical weekday were selected. **Table 2-5** below displays the existing PM peak hour traffic volumes and level of service results on the study freeway segments. The freeway mainline segments were evaluated using a vehicle speed analysis consistent with the 2000 HCM and CMP requirements. Using the HCM methodology, most freeway segments currently operate at or better than the CMP level of service standard (LOS E) during the PM peak period. Due to the bottleneck of traffic at the Sir Francis Drake Boulevard interchange, the northbound U.S. 101 segments south of the interchange operate at LOS F. Detailed LOS results can be found in **Appendix C**.
Under the HCM methodology, some northbound study segments were initially calculated to have a speed over 50 mph. However, this is not consistent with observed traffic conditions. The HCM freeway segment methodology does not account for localized bottlenecks (i.e. congestion caused due to a lack of capacity) and their effects on upstream freeway segments. Therefore, speed data from PeMS provided by Caltrans was used to understand the congestion happening in the corridor and adjust the LOS results accordingly.

Spatial speed data provided through PeMS along northbound U.S. 101 shows that a bottleneck occurs from 3 PM to 6 PM between postmile 448 and 449, which is in the area just south of the Sir Francis Drake Boulevard interchange. This is likely due to the typically large volume of commuter vehicle traffic heading to the Richmond-San Rafael Bridge via Sir Francis Drake Boulevard. South of the bottleneck, from Tamalpais Drive to Tiburon Boulevard, there is significant congestion with average speeds below 30 mph along this segment during the PM peak hour. The spatial speed output data is provided in Appendix C. Based on this information, the northbound segment between Industrial Way and Sir Francis Drake Boulevard operates at LOS F, since the bottleneck occurs in the vicinity of the northbound off-ramp to Sir Francis Drake Boulevard. Since the bottleneck causes congestion upstream, the segments south of this point to Tiburon Boulevard also operate at LOS F.
2.5 TRANSIT SERVICE

Figure 2-2 shows the transit service available within the study area. Table 2-6 below summarizes transit service in the study area, while the remainder of this section provides detail about the two main transit operators in the area: Marin Transit and Golden Gate Transit. Given the nature of the Village retail stores and the distance to the nearest bus stop, transit ridership associated with the shopping center is relatively small and generated by employees who travel to the center by Marin Transit buses.

<table>
<thead>
<tr>
<th>TABLE 2-6: TRANSIT SERVICE SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Line</strong></td>
</tr>
<tr>
<td><strong>Marin Transit</strong></td>
</tr>
<tr>
<td>17</td>
</tr>
<tr>
<td>22</td>
</tr>
<tr>
<td>36</td>
</tr>
<tr>
<td><strong>Golden Gate Transit</strong></td>
</tr>
<tr>
<td>18</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>27</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>70</td>
</tr>
</tbody>
</table>
2.5.1 Local Transit Service

Marin Transit provides local bus service within Marin County. Table 2-6 describes the service provided through Marin Transit within the Project study area. Bus service within vicinity of the Village is provided through Route 22, which runs along Tamalpais Drive West of San Clemente Drive, and Routes 17 and 36, which run along U.S. 101. Route 17 is a local route that carries the highest ridership of these transit lines, with approximately 900 daily riders while route 22, another local route, serves approximately 800 daily riders. Route 36 is an urban trunk line that serves approximately 400 daily riders. There are bus stop locations on the arterial street Tamalpais Drive / Paradise Drive / U.S. 101 Overpass and Tamalpais Drive / Madera Boulevard. There are two bus stops serving U.S. 101 located at Tamalpais Drive / U.S. 101 southbound on-ramp and Tamalpais Drive / U.S. 101 northbound off-ramp. The closest bus stop is approximately 1,400 feet from the Project site at the Village and is located on Tamalpais Drive near the U.S. 101 northbound off-ramp.

2.5.2 Regional Transit Service

Golden Gate Transit is the primary regional transit provider within Marin and Sonoma Counties. Golden Gate Transit provides extensive bus service to the San Rafael Transit Center in Downtown San Rafael from Marin and Sonoma counties, San Francisco, and Contra Costa County. Commute route 18 provides service to San Francisco on weekdays with bus stop locations along Tamalpais Drive shared with Marin transit. Commute routes 24, 27, and 97 as well as regional routes 30 and 70 provide service to San Francisco on weekdays with bus stop locations along U.S. 101 located at Tamalpais Drive / U.S. 101 southbound on-ramp, Tamalpais Drive / U.S. 101 northbound off-ramp, Lucky Drive / U.S. 101 on-ramp and Lucky Drive / U.S. 101 off-ramp. Route 70 serves the highest ridership of all routes serviced by Golden Gate Transit, with approximately 2,400 riders per day.

Golden Gate also provides ferry service between Larkspur and San Francisco. The Larkspur ferry terminal is located to the North of the Village and is accessible via U.S. 101. Service operates with 30 minute headways during the AM and PM peak periods.
2.6 PEDESTRIAN CIRCULATION

Pedestrian circulation within the study area is relatively complete. There are sidewalks on at least one side of all streets surrounding the Project area. Redwood Highway provides pedestrian access on a paved, shared-use path on the east side of the street between Wornum Drive and San Clemente Boulevard. North of Wornum Drive to Industrial Way, there is a sidewalk on the east side of Redwood Highway. Each of the three signalized entrances into the Village has one crosswalk over Redwood Highway to allow pedestrians to enter the Village from the shared-use path. All other intersections along Redwood Highway have at least one north-south and one east-west crossing to allow for pedestrian circulation.

Tamalpais Drive has sidewalks on both sides of the street west of the U.S. 101 southbound ramps. Between the U.S. 101 northbound on-ramp and U.S. 101 southbound off-ramp, there is a sidewalk on the south side of Tamalpais Drive for pedestrians crossing over U.S. 101. At the U.S. 101 northbound on-ramp, the sidewalk merges into a pathway that brings pedestrians down from the overcrossing, and provides access to the southern crosswalk at Tamalpais Drive / U.S. 101 northbound off-ramp. Between San Clemente Drive and the U.S. 101 northbound off-ramp there is a sidewalk on the north side of Tamalpais Drive that allows pedestrian circulation from the bus stop near the Tamalpais Drive / U.S. 101 northbound ramp intersection. There are no north-south crosswalks on Tamalpais Drive between the U.S. 101 Southbound off-ramp and San Clemente Drive on the U.S. 101 overcrossing.

2.7 BICYCLE CIRCULATION

Bicycle facilities consist of bicycle paths, bicycle lanes, bicycle routes, and separated bikeways.

- Class I (Shared Use Bicycle Path): These facilities provide a dedicated area for bicyclists on a paved right-of-way completely separated from any street or highway. It is usually shared with pedestrians and other active transportation users.
- Class II (Bicycle Lanes): These facilities provide a dedicated area of bicyclists within the paved street width through the use of striping and appropriate signage.
- Class III (Bicycle Routes): These facilities are provide shared use with motor vehicle traffic. The street is designated as a bicycle route through the use of signage informing drivers to expect bicyclists.
- Class IV (Separated Bikeways or Cycle Tracks): These facilities are for the exclusive use of bicycles and requires a vertical element that separates the bikeway and adjacent vehicular traffic.

The Corte Madera Public Works Department plans to implement the Redwood Highway Pathway Repaving project. This project will grind and repave the existing 8 foot wide multi-use pathway and install a 2 foot wide shoulder on each side of the pathway along the east side of Redwood Highway from San Clemente...
Drive to Wornum Drive. The pathway will be realigned away from the curb at crosswalks to the Village Shopping Center. It will be widened to 10 feet where there is adequate width to consistently widen the path for a significant distance. The header board at the edge of the pathway will also be replaced. Signage and centerline striping may also be added.

Figure 2-3 shows the existing bicycle facilities in the study area. Currently there are designated Class I shared use bicycle paths along Wornum Drive, Redwood Highway, and San Clemente. The east-west shared use path on the south side of Wornum Drive is provided west of Redwood Highway to Tamal Vista Boulevard, at which point the shared path becomes the Sandra Marker Trail. The shared use path located on the east side of Redwood Highway begins South of Wornum Drive and ends at San Clemente Drive. At the intersection of Redwood Highway and San Clemente Drive, the shared use path continues on the east side of San Clemente Drive to Paradise Drive.

Class II bicycle lanes are provided along segments of Redwood Highway, Madera Boulevard, and San Clemente Boulevard. On Redwood Highway north of Wornum Drive to Industrial Way, there are north-south bicycle lanes on the east and west side. Similarly, on Madera Boulevard there are north-south bicycle lanes along the east and west side from Council Crest Drive to Tamalpais Drive. On San Clemente Boulevard there are north-south bicycle lanes from Tamalpais Drive to Paradise Drive, in addition to the shared-use path to the east side of the street.

There are no Class III bicycle routes or Class IV cycle tracks within the study area. At the Village, there are a few Class II bicycle storage racks, which can be used for temporary storage, but no Class I bicycle lockers.

The Corte Madera Public Works Department plans to implement the Redwood Highway Pathway Repaving project. This project will grind and repave the existing 8 foot wide multi-use pathway and install a 2 foot wide shoulder on each side of the pathway along the east side of Redwood Highway from San Clemente Drive to Wornum Drive. The pathway will be realigned away from the curb at crosswalks to the Village Shopping Center. It will be widened to 10 feet where there is adequate width to consistently widen the path for a significant distance. The header board at the edge of the pathway will also be replaced. Signage and centerline striping may also be added.
Figure 2-3
Bicycle Network Map

Legend
- = Project Location
- = Class I (Share-use Path)
- = Class II (Bicycle Lane)
2.8 PARKING CONDITIONS

The Village currently offers 1,773 surface parking spaces designated for visitors and employees (not including parking at the unpaved gravel lot). Parking occupancy data was collected on Thursday October 15, 2015 during the mid-afternoon and PM peak period. Table 2-7 provides weekday peak hour parking occupancy data for both time periods. At 2 PM, there is a peak occupancy of 59 percent during the mid-afternoon period. The weekday PM period experiences peak occupancy at 4 PM with an occupancy of 52 percent. The gravel parking lot located north of the intersection of Redwood Highway / Northeast Village Entrance is used as an overflow lot during peak shopping periods, such as on weekends and during the holidays in November and December.

On-street parking is also available on the north and south side of Tamalpais Drive west of Madera Boulevard, but these spaces are unlikely to be used by visitors due to their distance from the Village.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Capacity</th>
<th>Number of Spaces Occupied</th>
<th>Occupancy percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-Afternoon PM</td>
<td>1,773</td>
<td>1,042</td>
<td>59%</td>
</tr>
<tr>
<td>PM</td>
<td>1,773</td>
<td>927</td>
<td>52%</td>
</tr>
</tbody>
</table>

Notes:
Parking occupancy data collected on Thursday, October 15, 2015 from 2 – 6 PM. Number of spaces occupied represents peak parking occupancy during the specified time period.
Source: Fehr & Peers, 2017
3 REGULATORY FRAMEWORK

This section describes the relevant state, regional, and local agencies with operations in the Town of Corte Madera and their associated transportation-related policies that could apply to Project-related transportation issues.

3.1 STATE

The California Department of Transportation (Caltrans) operates and maintains U.S. Highway 101 and has jurisdiction over the freeway and the on and off-ramp intersections and interchanges that access this regional facility, which includes the freeway segments and intersections studied in the TIS. U.S. 101 provides regional access to the Town of Corte Madera and the neighboring cities within Marin County. Additionally, the Caltrans Division of Planning has four major functions including the Office of Advance Planning, Regional Planning/Metropolitan Planning Organization, Local Assistance/IGR/CEQA, and System Planning Public Transportation.

3.2 MARIN COUNTY

The Transportation Authority of Marin (TAM) is designated as the Marin Congestion Management Agency (CMA), to address Marin’s unique transportation issues and to fulfill the legislative requirements of Propositions 111 and 116, approved in June 1990. The agency was created for the purpose of administering the Measure A sales tax program. The Authority is responsible for programming funding for all transportation programs in Marin County. The TAM Board includes representatives from each city and town in Marin County, plus the five members of the Board of Supervisors.

The City of Larkspur is located to the north of the Town of Corte Madera and has jurisdiction over the intersection of Redwood Highway and Industrial Way. The City’s General Plan contains a Circulation Element that has the following transportation-related policy that is applicable to the Proposed Project:

- Goal 4, Policy d: Wherever possible, maintain standards for acceptable traffic Levels of Service during peak periods. Acceptable Level of Service (LOS) shall be defined for signalized intersections at the D level
3.3 TOWN OF CORTE MADERA

The Town of Corte Madera has jurisdiction over all Town streets and Town-operated traffic signals. The Town’s General Plan contains a Circulation Element that has several transportation-related policies and implementation programs that are applicable to the Proposed Project.

3.3.1 Intersections

The Town’s General Plan specifies the following Policy and Implementation Program related to traffic operations at intersections:

- Policy CIR-1.2: Ensure that current Levels of Service at intersections are maintained when considering new development within Corte Madera
  - Implementation Program CIR-1.1.a: Level of Service Standards: Ensure that current Levels of Service (LOS) at intersections are maintained at LOS D or better operation during the evening peak periods at intersections of an arterial street with either another arterial or a collector street and intersections of two collector streets. For all types of controls the LOS standard is to be applied to the average operation of the intersection, and not that for any single movement or approach. Exceptions to meeting this standard include:
    1. Stop-controlled minor street approaches to either collector or arterial streets, where safety shall be the primary consideration;
    2. Locations where the Town Engineer deems improvement to be technically, financially, or environmentally infeasible;
    3. Conditions where the improvement would result in significant adverse impacts to other travel modes, including walking, bicycling, or transit; or
    4. Locations where attainment would ensure the loss of an area’s unique character.

3.3.2 Transit

The Town’s General Plan specifies the following Policy and Implementation Program related to transit service:

- Policy CIR-1.8: Support investment in local and regional transit and transportation plans that provide alternatives to automobile-intensive transportation programs through CIP actions
  - Implementation Program CIR-1.8.a: Regional Transit: Partner with regional transportation agencies and transit providers to create programs aimed at reducing vehicle miles traveled (VMT) in the Town and region. These programs may include the provision of additional transit options, reviving fixed rail service within the County, carpooling
programs, partnerships with employers to support variable work hours, transit passes, and
programs aimed at altering travel behavior

3.3.3 Pedestrians

The Town’s General Plan specifies the following Policies and Implementation Programs related to
pedestrians:

- Policy CIR-1.6: Assure the adequacy and availability of the circulation system for all persons by
  implementing the Americans with Disabilities Act
  - Implementation Program CIR-1.6.a: Barrier Removal. Remove barriers on sidewalks and at
    street crossings as identified and prioritized in the Town of Corte Madera ADA Transition
    Plan
  - Implementation Program CIR-1.6.b: Barrier Free Design. Continue to design roadway
    intersection, and sidewalk projects to assure accessibility for all persons, consistent with
    Americans with Disabilities Act
- Policy CIR-3.5: Emphasize use of pedestrian pathways and sidewalks as an integral part of the
  Town’s circulation system
  - Implementation Program CIR-3.5.a: Sidewalk Design: Design new and replacement
    sidewalks to increase pedestrian safety, use, and aesthetics
  - Implementation Program CIR-3.5c: Sidewalk Repairs. Require property owners to pay their
    fair share of costs for repairing existing sidewalks

3.3.4 Parking

The Town’s General Plan specifies the following Policies and Implementation Programs related to parking:

- Policy CIR-6.1: Require parking to meet the needs of existing and planned uses
  - Implementation Program CIR-6.1.a: Off-Street Parking. Through the design review
    process and appropriate update to the Zoning Ordinance, require all new development to
    provide sufficient off-street parking. The Zoning Ordinance parking standards shall
    recognize reduced on-site parking requirement when development includes mixed-uses
    with offset peak hour parking, and provisions for alternative transportation modes
  - Implementation Program CIR-6.1.b: Preferential Employee Parking. The Zoning Ordinance
    shall require that all new office, commercial, and light industrial development that
    includes 50 or more on-site employees provide preferential employee parking for
    carpools and vanpools
3.3.5 Bicycle Plan

The Town’s Bicycle Plan (adopted July 2016) establishes the Town’s vision for a network of bicycle and pedestrian facilities to encourage bicycling and walking as viable modes of travel around the Town. The Plan identifies specific improvement projects around the Town to improve the walking and bicycling environment.
4 TRAVEL DEMAND ANALYSIS

This section describes the time periods selected for analysis, the vehicle travel demand that would be generated by the Proposed Project, and how the Project trips would be distributed throughout the study area intersections. The travel demand associated with the Proposed Project at the Village was estimated using a three-step process: trip generation, trip distribution, and trip assignment.

4.1 STUDY TIME PERIODS

Transportation impact studies typically evaluate the peak hours for weekday traffic conditions during morning (7-9 am) and evening (4-6 pm) time periods as those peak hours represent the highest level of traffic when looking at the combination of added project traffic and existing/background traffic. Retail land uses have different travel profiles than residential or office uses that have peak traffic generation during weekday AM and PM peak hours. Retail uses, particularly shopping centers, generate substantially fewer trips during the weekday AM peak period as most stores don’t open until mid-morning. Peak traffic generation levels occur during the weekday PM peak hour and on weekends.

An assessment was conducted to determine which time period(s) should be evaluated in the traffic study. To inform the decision, the following assessment of existing traffic volume was made for three road segments for three time periods:

- Weekday PM Peak Hour (highest hour between 4-6 pm)
- Weekday Mid-Afternoon Peak Hour (highest hour between 2-4 pm)
- Saturday Peak Hour (highest hour based on counts on Redwood Highway adjacent to Village Shopping Center)

Two of the road segments, Tamalpais Drive and Lucky Drive, were selected in order to gauge traffic levels in the largely residential neighborhoods west of the U.S. 101 commercial centers. The weekday mid-afternoon peak hour occurring between 2-4 pm was assessed to determine if traffic levels are higher during this weekday period when school traffic is at its peak, as opposed to during the weekday pm peak hour that occurs from 4-6 pm. A third segment on Redwood Highway was selected to measure traffic variations near the Village.

Additionally, a preliminary, conservative estimate of trip generation for the proposed Village expansion project (assuming the retail expansion would be approximately 53 ksf) from driveway counts and trip distribution patterns from the General Plan FEIR were used to estimate the additional volume expected on
each roadway segment. It should be noted that the trip generation and distribution ultimately used for the
TIS was slightly different from those used for the peak hour selection exercise.

4.1.1 Study Period Data Collection

Traffic counts were collected for the traditional weekday PM period (4 to 6 PM), weekday mid-afternoon
period (1 to 3 PM), and Saturday midday period (1 to 3 PM) on three roadway segments in Corte Madera as shown on Figure 1-1:

1) Redwood Highway between San Clemente Drive and Southeast Village Entrance
2) Tamalpais Drive between Madera Boulevard and Lakeside Drive
3) Lucky Drive between Doherty Drive and Fifer Avenue

In general, the Redwood Highway segment captures demand for the Village, and the Tamalpais Drive and
Lucky Drive segments capture traffic demand between U.S. 101 and the residential neighborhoods to the
west. The traffic volumes on these road segments also include school-related traffic generated by Redwood
High School and Neil Cummins Elementary School. The full data collection sheets are provided in Appendix
A and summarized in the following section.

In addition to the roadway segment data, turning movement data at each of the four Village access
driveways over the three time periods was collected. These counts were used to estimate the number of
vehicle trips that would be generated by the proposed expansion during each of the time periods. Using
the number of vehicles entering and exiting the Village, the number of vehicle trips generated by each 1,000
square feet (ksf) of the existing retail land uses was calculated for the Village. These Village-specific empirical
trip generation rates were applied to the preliminary size of the proposed expansion to estimate the number
of new vehicle trips that would be generated during each time period. Driveway counts and the preliminary
trip generation calculations are summarized in Table 4-1.
### TABLE 4-1: PRELIMINARY PROJECT TRIP GENERATION

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Village Center Driveway Counts (2015)</th>
<th>Village Center Average Trip Rate per KSF&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Preliminary Project Trip Generation (Vehicle Trips) (53 KSF)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Driveway Count&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Inbound Percentage</td>
<td>Outbound Percentage</td>
</tr>
<tr>
<td>Weekday Mid-Afternoon Peak Hour (3-4 PM)</td>
<td>1,187</td>
<td>46%</td>
<td>54%</td>
</tr>
<tr>
<td>Weekday PM Commute Peak Hour (4-5 PM)</td>
<td>1,069</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td>Saturday Midday Peak Hour (1:15 to 2:15 PM)</td>
<td>2,299</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Notes:
1. Driveway counts collected in October and November 2015.
2. KSF = thousand square feet; As of December 2014, the Village contains 458 KSF of gross floor area
3. Project-added trips were calculated based on a preliminary understanding of the Proposed Project size, which at the time was 53ksf. The proposed project is now 46ksf, so these trip generation estimates were conservative

Source: Fehr & Peers, 2017

### 4.1.2 Study Period Findings

Roadway segment peak hour traffic counts, added project volumes, and existing plus project volumes are summarized in Table 4-2 for each of the three time periods. The Tamalpais Drive and Lucky Drive volumes are added together as a proxy for the total amount of traffic entering/exiting the residential neighborhoods to the west of the U.S. 101 commercial area.
## TABLE 4-2: ROADWAY SEGMENT VOLUMES – EXISTING AND WITH PROJECT

<table>
<thead>
<tr>
<th>Segment</th>
<th>Weekday Mid-Afternoon Peak (3 – 4 PM)</th>
<th>Weekday PM Peak (4 -5 PM)</th>
<th>Saturday Mid-day Peak (1:15 to – 2:15 PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NB/EB</td>
<td>SB/WB</td>
<td>Total</td>
</tr>
<tr>
<td>Streets Connecting to Residential Neighborhoods</td>
<td>1,385</td>
<td>1,373</td>
<td>2,758</td>
</tr>
<tr>
<td>Redwood Highway north of San Clemente Drive</td>
<td>732</td>
<td>576</td>
<td>1,308</td>
</tr>
<tr>
<td>Streets Connecting to Residential Neighborhoods</td>
<td>7</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Redwood Highway north of San Clemente Drive</td>
<td>60</td>
<td>64</td>
<td>124</td>
</tr>
</tbody>
</table>

### Existing Counts

### Project-Added Volume (Preliminary)

### Total Volume-Existing plus Project (Preliminary)

**Notes:**
Weekday counts collected on October 15, 2015; Saturday counts collected on October 24, 2015.

NB = Northbound; EB = Eastbound; SB = Southbound; WB = Westbound

The residential neighborhood and Redwood Highway roadway segment results are illustrated in Figure 4-1 and Figure 4-2, respectively. These figures show that residential access traffic volumes are about equal during the weekday mid-afternoon and PM commute peak hours, though slightly higher during the PM commute hour. For all three time periods, the Village expansion project would add less than one percent of the existing volume to the residential roadways. On Redwood Highway near the U.S. 101 interchange with Tamalpais Drive, volumes are highest during the mid-day peak on Saturday, and the Project would increase existing traffic volumes by nearly 14 percent. On the weekday, volumes on this segment are highest during the mid-afternoon peak from 3:00 to 4:00 PM.
4.2 TRIP GENERATION

Trip generation is the process for quantitatively estimating the number of trips that will start and end at a particular land use over a specific period of time. There are various methods that can be used to estimate trip generation, each with advantages and disadvantages. For the purposes of this study, locally derived empirical trip generation rates were used instead of rates provided by ITE or the General Plan. This is because the empirical method provides trip generation rates for the weekday mid-afternoon peak period that is included in this study. The other two sources lack information regarding trip generation rates during this period.
mid-afternoon peak period. Therefore, for consistency the empirical method was used for the two analysis periods.

The collection of trip generation data from existing comparable local uses in the community is considered the best approach when feasible. ITE Trip Generation recommends using observed local data, when available, to better account for local conditions not necessarily captured in their nation-wide averages. In addition, empirical data can be used to derive rates for any analysis period, whereas the data sources in ITE Trip Generation are largely focused on the AM and PM peak hours.

To develop empirical trip generation rates, turning movement data were collected at each of the four Village driveways over the two time periods selected for analysis (weekday PM peak and weekday mid-afternoon peak). Using the number of vehicles entering and exiting the Village, the number of vehicle trips generated by each 1,000 square feet (ksf) of the existing land uses can be determined for the Village. These Village-specific empirical trip generation rates are then applied to the size of the proposed expansion to determine the number of new vehicle trips that would be generated during each time period. Since the existing Village contains a combination of retail and restaurant/café-style uses, the rate can be applied to the full 46 ksf size of the proposed expansion.

Driveway counts and the trip generation calculation are summarized in Table 4-3.

### Table 4-3: Project Trip Generation

<table>
<thead>
<tr>
<th>Method</th>
<th>Village Center Driveway Counts (2015)</th>
<th>Village Center Average Trip Rate per KSF</th>
<th>Proposed Project Trip Generation (Vehicle Trips)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Driveway Count</td>
<td>Inbound Percentage</td>
<td>Outbound Percentage</td>
</tr>
<tr>
<td>Weekday Mid-Afternoon Peak Hour (3-4 PM)</td>
<td>1,187</td>
<td>46%</td>
<td>54%</td>
</tr>
<tr>
<td>Weekday PM Commute Peak Hour (4-5 PM)</td>
<td>1,069</td>
<td>49%</td>
<td>51%</td>
</tr>
</tbody>
</table>

1 Driveway counts collected in October and November 2015.
2 At the time of the driveway counts, the Village contained 457 KSF of occupied space. This occupied square footage was used to calculate the average trip rate for the two time periods.
3 KSF = thousand square feet;
Source: Fehr & Peers, 2017
The proposed project would also result in a net reduction of 166 parking spaces in the existing parking lot for the Village. In conjunction with the addition of up to 455 parking spaces in the improved gravel lot, these changes would result in a reallocation of vehicle trips that would shift from the existing parking lot for the Village to the improved gravel lot. Based on existing counts at all driveways for the Village, the reduction of 166 parking spaces would result in the reallocation of 100 vehicle trips (49 inbound, 51 outbound) to the improved gravel lot driveway.

4.3 TRIP DISTRIBUTION

Trip distribution is the process of determining the likely origins and destinations of trips. For this study, trip distribution was derived using origin-destination data collected over the entire year 2015 using the Streetlight platform (a data vendor), which utilizes anonymized cell phone location data to provide insight on traffic entering and exiting the site. An origin zone was set at the Village and several destination zones were set up at the same external trip distribution locations (e.g. US-101 south of Tamalpais Drive, San Clemente Drive east of Paradise Drive) as defined in the traffic study for the General Plan.

Gate locations and the proposed trip distribution derived from the data are depicted in Figure 4-3. When compared to the trip distribution shown in the traffic study for the General Plan, the proposed trip distribution in Figure 4-3 has a higher percentage of trips distributed along the U.S. 101 highway and a lower percentage of trips using local roads such as Tamalpais Drive, Lucky Drive, and San Clemente Drive to enter and exit the Project. The proposed project trip distribution has about 13 to 27 percent fewer trips using local roadways than the General Plan trip distribution. The trip distribution data from Streetlight as well as the trip distribution from the General Plan are provided in Appendix D.
Figure 4-3
Project Trip Distribution
4.4 TRIP ASSIGNMENT

The new vehicle trips generated by the proposed project were assigned to roadways and study intersection turning movements according to the trip distribution percentages identified in Section 4.3. The change in vehicle trips generated by the proposed project at the study intersections, including the new trips generated by the 46,000 square feet of additional retail uses and the reallocation of trips due to the net reduction of 166 parking spaces in the existing parking lot at the Village as well as the 455 new parking spaces in the improved gravel lot, is shown in Figure 4-4.
Figure 4-4

Peak Hour Traffic Volumes and Lane Configurations - Project Trips
5 SIGNIFICANCE CRITERIA

The State CEQA Guidelines state that a project will result in a significant transportation and circulation impact if it causes an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. For the purpose of this Transportation Impact Study, impacts are considered to be significant if the following could result from the implementation of the Proposed Project:

1. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the V/C ratio for freeways, or congestion at intersections);
2. Exceed the level of service (LOS) standard established by the county congestion management agency, Town of Corte Madera, or City of Larkspur for designated roads or highways;
3. Result in a significant unanticipated increase in transit ridership or result in development that is inaccessible to transit riders;
4. Disrupt existing pedestrian facilities, interfere with planned pedestrian facilities, or create inconsistencies with adopted pedestrian system plans, guidelines, policies or standards;
5. Disrupt existing bicycle facilities, interfere with planned bicycle facilities, conflict or create inconsistencies with adopted bicycle system plans, guidelines, policies or standards, or not provide secure and safe bicycle parking in adequate proportion to anticipated demand;
6. Result in a change in air traffic patterns, including either an increase in air traffic levels or a change in location that results in substantial safety risks;
7. Substantially increase hazards due to a design feature (i.e., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
8. Result in inadequate emergency access;
9. Conflict with adopted policies, plans, or programs supporting alternative transportation;
10. Construction activity results in substantial interference with pedestrian, bicycle, or vehicle circulation and accessibility to adjoining areas, thereby resulting in potential hazardous conditions, given consideration of the project site location and other relevant project characteristics.

Based on the 2009 Town of Corte Madera General Plan, the following are the significance thresholds used to assess whether the Proposed Project would result in significant impacts to the transportation network under the California Environmental Quality Act (CEQA). These criteria are organized by transportation mode to facilitate the transportation impact analysis.
5.1 TRAFFIC

5.1.1 Intersections

Based on Implementation Program CIR-1.1.a of the General Plan, the Project would have a significant impact to intersection operations in Corte Madera if the intersection’s level of service deteriorates from LOS D or better to LOS E or F.

Based on Goal 4, Policy d of the City of Larkspur General Plan, the Project would have a significant impact to intersection operations at the Redwood Highway / Industrial Way intersection if the intersection’s level of service deteriorates from LOS D or better to LOS E or F.

5.1.2 Freeway Segments

For CEQA purposes, a freeway segment would operate at an unacceptable level if the segment operates worse than the level of service standard identified for that segment by the County Congestion Management Agency, which is the Transportation Authority of Marin. Significant traffic impacts on freeway segments are based on the 2015 Marin County Congestion Management Program (CMP) Report, which establishes a LOS E threshold for Freeways and Rural Expressways (i.e. U.S. 101, I-580, SR 37). Therefore, segments that operate at LOS F are considered unacceptable, unless they are designated as “grandfathered” segments. The Project would be considered to have a significant impact to a freeway segment if it resulted in a change from LOS E or better condition to LOS F condition.

The CMP identifies some freeway segments as “grandfathered” roadway segments. These roadway segments were operating at a worse LOS than the standard at the time of its implementation in 1991 and are allowed to continue to operate at a worse LOS standard level until they are improved or the traffic load is diverted. A roadway’s designation as “grandfathered” does not affect the methodology for assessing impacts, but it provides context for why some roadways operate at a substandard level. The following freeway segment in the study area is “grandfathered”:

- CMP Segment 3B: U.S. 101 Northbound between Tiburon Boulevard and Tamalpais Drive

For segments that operate at LOS F without the Project, the Project will be considered to have a significant impact to a freeway segment if it would add trips equal to one percent or more of the freeway’s theoretical capacity. This specific criterion was used in the General Plan freeway analysis and is therefore applied in this study for consistency with the General Plan methodology. The General Plan identified the theoretical capacity of the freeway segments in the vicinity of the Village to be 8,880 vehicles per hour, so if the Project adds more than 88 trips to any freeway segment already operating at LOS F, there would be a significant impact.
5.2 TRANSIT

Based on Policy CIR-1.8 of the General Plan, a transit impact is considered significant if it would result in a significant unanticipated increase in transit patronage or result in development that is inaccessible to transit riders. A development is typically considered inaccessible if the distance required to walk between the site and the nearest transit stop is substantially longer than the common standard for desirable walking distance of ¼ mile, taking into account barriers or obstructions.

5.3 PEDESTRIANS

Based on Policy CIR-1.6 and CIR-3.5 of the General Plan, a pedestrian impact is considered significant if it would disrupt existing pedestrian facilities, interfere with planned pedestrian facilities, or create inconsistencies with adopted pedestrian system plans, guidelines, policies or standards.

5.4 BICYCLES

A bicycle impact is considered significant if it would disrupt existing bicycle facilities, interfere with planned bicycle facilities, conflict or create inconsistencies with adopted bicycle system plans, guidelines, policies or standards, or not provide secure and safe bicycle parking in adequate proportion to anticipated demand.

5.5 EMERGENCY ACCESS

An emergency vehicle access impact is considered to be significant if the proposed project would provide inadequate design features to accommodate emergency vehicle access and circulation.
6 EXISTING PLUS PROJECT CONDITIONS

This chapter evaluates potential traffic impacts under Existing Plus Project conditions. The Project-added trips shown in Figure 4-4 were added to the existing traffic counts to produce Existing Plus Project intersection turning movement volumes. Existing Plus Project freeway volumes were prepared by looking at how many Project trips were added to freeway on and off-ramps and increasing mainline segment volumes accordingly.

6.1 INTERSECTION IMPACTS

Existing Plus Project conditions were evaluated using the significance criteria described in Chapter 5. The Existing Plus Project analysis results are presented alongside Existing analysis results in Table 6-1 and are based on traffic volumes shown on Figure 6-1.

As shown in Table 6-1, all 14 intersections would operate at LOS C or better during the PM and mid-afternoon peak periods. Therefore, the Project’s impact on the study intersections would be considered less-than-significant for both the PM and mid-afternoon peak periods based on the thresholds of significance described in Chapter 5. The intersections of Tamalpais Drive/Redwood Highway/San Clemente Drive, Tamalpais Drive/Southbound U.S. 101 Ramps, and Redwood Highway/Industrial Way would experience a minor decline in delay during the PM peak period. During the mid-afternoon peak period, there is a minor decline in delay at Tamal Vista Boulevard/Fifer Avenue.
### TABLE 6-1: EXISTING PLUS PROJECT INTERSECTION LOS AND DELAY

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Intersection Control¹</th>
<th>Time Period</th>
<th>Existing Delay²</th>
<th>Existing Los²</th>
<th>Existing Plus Project Delay²</th>
<th>Delay²</th>
<th>Los²</th>
<th>Delay²</th>
<th>Delay²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Redwood Highway / Wornum Drive</td>
<td>Signal</td>
<td>PM</td>
<td>11</td>
<td>B</td>
<td>11</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Redwood Highway / Northwest Village Entrance</td>
<td>SSSC</td>
<td>PM</td>
<td>&lt;10</td>
<td>A</td>
<td>&lt;10</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Redwood Highway / Northeast Village Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>12</td>
<td>B</td>
<td>13</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Redwood Highway / Middle Village Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>&lt;10</td>
<td>A</td>
<td>&lt;10</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Redwood Highway / Southeast Village Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>12</td>
<td>B</td>
<td>12</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Tamalpais Drive / Redwood Highway / San Clemente Drive</td>
<td>Signal</td>
<td>PM</td>
<td>25</td>
<td>C</td>
<td>26</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Tamalpais Drive / Northbound U.S. 101 Ramps</td>
<td>Signal</td>
<td>PM</td>
<td>15</td>
<td>B</td>
<td>15</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Tamalpais Drive / Southbound U.S. 101 Ramps</td>
<td>Signal</td>
<td>PM</td>
<td>15</td>
<td>B</td>
<td>16</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Tamalpais Drive / Town Center Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>&lt;10</td>
<td>A</td>
<td>&lt;10</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Tamalpais Drive / Madera Boulevard</td>
<td>Signal</td>
<td>PM</td>
<td>34</td>
<td>C</td>
<td>33</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Tamal Vista Boulevard / Fifer Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>17</td>
<td>B</td>
<td>17</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Tamal Vista Boulevard / Wornum Drive</td>
<td>Signal</td>
<td>Mid-Afternoon</td>
<td>18</td>
<td>C</td>
<td>18</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Wornum Drive / Nellen Avenue</td>
<td>SSSC</td>
<td>Mid-Afternoon</td>
<td>&lt;10</td>
<td>A</td>
<td>&lt;10</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Redwood Highway / Industrial Way</td>
<td>Signal</td>
<td>PM</td>
<td>11</td>
<td>B</td>
<td>12</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- **Bold** denotes unacceptable level of service and delay. (LOS E or F)
- 1. SSSC = Side-Street Stop Control
- 2. Delay reported as seconds per vehicle. For all intersections, a combined weighted average delay for the various movements within the intersection is reported based on the methodology in the Highway Capacity Manual 2000. This is consistent with the Town of Corte Madera’s guidance for reporting intersection LOS results from the General Plan.

Sources: Fehr & Peers, 2017
Figure 6-1
Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project
## 6.2 Freeway Impacts

Existing Plus Project freeway impacts were analyzed using the significance criteria described in Chapter 5. A comparison of Existing and Existing Plus Project basic freeway segments during the PM peak period is provided in Table 6-2.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Existing</th>
<th>Existing Plus Project</th>
<th>Project-Added Trips</th>
<th>Volume¹</th>
<th>Speed (mph)</th>
<th>LOS²</th>
<th>Volume¹</th>
<th>Speed (mph)</th>
<th>LOS²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northbound U.S. 101</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Tiburon Boulevard to Tamalpais Drive</td>
<td>7,024</td>
<td>&lt;30</td>
<td>F³</td>
<td>23</td>
<td>7,047</td>
<td>&lt;30</td>
<td>F³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Tamalpais Drive to Industrial Way</td>
<td>7,598</td>
<td>&lt;30</td>
<td>F³</td>
<td>11</td>
<td>7,609</td>
<td>&lt;30</td>
<td>F³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Industrial Way to Sir Francis Drake Boulevard</td>
<td>8,044</td>
<td>&lt;30</td>
<td>F³</td>
<td>26</td>
<td>8,070</td>
<td>&lt;30</td>
<td>F³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sir Francis Drake Boulevard to I-580</td>
<td>4,350</td>
<td>&gt;60</td>
<td>A</td>
<td>26</td>
<td>4,376</td>
<td>&gt;60</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southbound U.S. 101</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I-580 to Sir Francis Drake Boulevard</td>
<td>4,965</td>
<td>&gt;60</td>
<td>A</td>
<td>21</td>
<td>4,986</td>
<td>&gt;60</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Sir Francis Drake Boulevard to Fifer Avenue</td>
<td>5,183</td>
<td>&gt;60</td>
<td>A</td>
<td>21</td>
<td>5,204</td>
<td>&gt;60</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Fifer Avenue to Tamalpais Drive</td>
<td>5,417</td>
<td>&gt;60</td>
<td>A</td>
<td>13</td>
<td>5,430</td>
<td>&gt;60</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Tamalpais Drive to Tiburon Boulevard</td>
<td>5,441</td>
<td>&gt;60</td>
<td>A</td>
<td>20</td>
<td>5,461</td>
<td>&gt;60</td>
<td>A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- **Bold** denotes LOS F operations
- 1. Volume data provided by Caltrans’ PeMS database (accessed May 2017)
- 2. Based on Highway Capacity Manual (HCM) 2000 methodology for basic freeway segments
- 3. During the p.m. peak hour, conditions on northbound U.S. 101 in Corte Madera are impacted by downstream congestion at the U.S. 101/Sir Francis Drake interchange that causes traffic to queue back and significantly reduce freeway speeds. Since the HCM methodology for mainline freeway analysis does not account for downstream bottlenecks, the LOS for these segments of U.S. 101 was determined based on spatial speed data (i.e., PeMS) obtained from Caltrans.


The addition of Project trips would result in a mainline volume increase of less than one percent of the freeway capacity for all segments analyzed. This incremental change in volume would not affect traffic...
speeds substantially. Therefore, the Proposed Project would not change freeway traffic patterns in the surrounding area, since additional Project trips would not change mainline speeds. It is projected that bottlenecking would continue to occur in the northbound direction between Tamalpais Drive and Sir Francis Drake Boulevard, causing that segment of U.S. 101 to continue to operate at LOS F conditions, as well as the segments south of this area to Tiburon Boulevard.

Because the Project would not cause any freeway segment to deteriorate from LOS E or better conditions to LOS F, nor, for a segment that currently operates at LOS F, result in an addition of trips that would be equal to or greater than one percent of the freeway's capacity (i.e., more than 88 peak hour trips on any segment in any direction), the Proposed Project's impacts to freeway operations are considered **less-than-significant** for the weekday PM peak period and mitigations are not required.

### 6.3 TRANSIT IMPACTS

Research conducted by UC Berkeley SafeTREC researchers\(^2\) on travel to and from shopping districts in the San Francisco Bay Area indicate that transit is the primary mode to suburban shopping centers for approximately 1 percent of respondents surveyed. The suburban shopping centers surveyed for the study have fairly high densities of residential population and moderate densities of jobs within 0.5 miles of the centers. The Village Shopping Center is located east of US 101, and has a much smaller density of residential population and jobs within 0.5 miles.

Based on the above data, the Project would generate approximately 10 transit trips during the weekday mid-afternoon or PM peak period. Marin Transit Routes 17, 22, and 36 make two stops each during the p.m. peak hour in both the northbound and southbound direction (i.e., six northbound buses and six southbound buses) at bus stops located just west of the Village in the vicinity of the U.S. 101/Paradise Drive-Paradise Drive interchange. Addition of the projected 10 transit trips from the proposed project to these three routes would result in an average of one trip per bus. The addition of an average of one trip per bus to these routes would not constitute a significant unanticipated increase in transit ridership. The December 2016 Monthly Monitoring Report for Marin Transit indicates that Routes 17, 22, and 36 are underperforming routes that did not meet their productivity targets (i.e., passengers per hour or passengers per trip). This is an indication that sufficient capacity exists on these routes to accommodate the level of new transit trips that would be generated by the proposed project. As such, the Project’s impacts to transit services and facilities are considered **less-than-significant** for the weekday PM and mid-afternoon peak periods and no transit mitigations are required.

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\(^2\) *How Common is Pedestrian Travel To, From, and Within Shopping Districts?*, Robert J. Schneider, PhD, University of California, Berkeley, Safe Transportation Research and Education Center, November 2011.
6.4 PEDESTRIAN IMPACTS

Research conducted by UC Berkeley SafeTREC researchers on pedestrian travel to and from shopping districts in the San Francisco Bay Area indicate that walking is the primary mode to suburban shopping centers for approximately 5 percent of respondents surveyed. The suburban shopping centers surveyed for the study have fairly high densities of residential population and moderate densities of jobs within 0.5 miles of the centers. The Village is located east of US 101, and has a much smaller density of residential population and jobs within 0.5 miles.

The nearest transit stop is located approximately 1,400 feet from the Project site, which is served by transit that arrives every 20 minutes during peak service times. Pedestrian trips utilize the sidewalks on Redwood Highway and Tamalpais Drive as they provide direct access to transit facilities from the Project site. Existing sidewalks connecting the Village Shopping Center to the transit stop and nearby uses are sized adequately to accommodate pedestrian traffic generated by the proposed project.

The Project proposes to construct a paved parking lot in the location of a gravel lot to the northeast of the main Village parking lot. The improved gravel lot, which would be paved and striped to accommodate up to 455 parking spaces, is located across Redwood Highway from the Village and is currently used for special events and overflow parking during peak shopping periods. The Project would not add additional crosswalks to Redwood Highway.

The reduction in parking spaces in the current Village parking lot, in conjunction with improvements to the gravel lot, would result in a substantial increase in pedestrian trips across Redwood Highway due to the Proposed Project. The improved gravel lot would retain the two driveways that currently serve the existing gravel lot. Pedestrians crossing Redwood Highway between the improved gravel lot and the Village stores would have two options. For those pedestrians that park in the northern portion of the improved gravel lot, the most direct route to the Village stores is to walk to the northernmost driveway and cross Redwood Highway using an existing marked crosswalk at an existing traffic signal. The improved gravel lot plans show a north-south drive aisle located immediately east of the driveway access, creating a 4-way intersection that pedestrians must traverse as they walk between their parking space and the driveway. This presents a potential conflict between pedestrians and motorists that could make multiple turn movements. This condition would represent a potential hazard for pedestrians and is considered a significant impact.

For pedestrians that park in the southern portion of the improved gravel lot, the most direct route to the Village stores is to walk to the southernmost driveway and cross Redwood Highway at an unsignalized mid-
block location. This route requires pedestrians to walk across the landscaped area on the west side of Redwood Highway and through the primary Village parking lot. This route is currently used enough by pedestrians that several worn paths can be seen through the landscaped area. The southerly crossing location of Redwood Highway has no marked crosswalks. It is located on a curved section of Redwood Highway, where visibility of pedestrians crossing Redwood Highway by motorists is limited by the roadway alignment and landscaping. This condition would represent a potential hazard for pedestrians and is considered a significant impact.

**Mitigation Measure TR-1**

1A – Northern Driveway to Improved Gravel Lot - Modify the proposed improvement plans for the improved gravel lot to provide for low speed vehicular entry and exit at the northern driveway, a 75 foot minimum driveway “throat length”\(^4\) that eliminates the intersection with the north-south vehicular cross aisle, and direct, visible pedestrian paths that are separated from vehicular traffic to link the parking lot interior with the adjacent signalized crosswalk.

1B – Southern Driveway to Improved Gravel Lot – Restrict driveway access to right-in, right-out movements and eliminate the southbound left turn lane by extending the existing median to the northwest. Provide fencing inside the curb line of the median to prevent pedestrians from crossing at this location. The fencing should extend from the northwestern extent of the new median (at the location of the beginning of the median taper for the northbound Redwood Highway left turn lane at the north Village entrance) and continue south for approximately 50 feet past the driveway entrance. Provide signage both within the improved gravel lot and at the southernmost driveway to direct pedestrians to cross Redwood Highway at the traffic signal at the northernmost driveway to the improved gravel lot. Provide striping across the driveway and signage adjacent to the driveway to enhance the crossing’s visibility to both drivers and Bay Trail users.

Implementation of Mitigation Measure TR-1 would resolve any pedestrian impacts. Thus, with implementation of Mitigation Measure TR-1, the proposed project’s pedestrian impacts would be less-than-significant with mitigation.

\(^4\) The driveway “throat length” is the distance that a driver travels upon entering a site before encountering the first intersecting cross aisle within the parking lot. The length is measured from the curb of the abutting roadway to the nearest curb or roadway edge of the first cross aisle. Providing a minimum driveway throat length allows vehicles to enter, exit, or circulate on the site without interfering with each other or with through traffic on the abutting roadway. The minimum recommended driveway throat length at a signalized access driveway is 75 feet. Source: Access Management Manual, Transportation Research Board, Washington, D.C., 2003.
6.5 BICYCLE IMPACTS

The Proposed Project would provide 23 off-street bicycle parking spaces, which will be either Class II racks or Class I lockers located within landscaped areas adjacent to the storefront. This amount of bicycle parking is sufficient based on the Town’s Municipal Code5.

Based on the aforementioned research by researchers at U.C. Berkeley SafeTREC, up to one percent of trips generated by the Proposed Project would occur by bicycle. During the PM peak hour, up to 10 bicycle trips would be generated by the project. Bicycle travel would likely occur on Redwood Highway and Tamal Vista Boulevard, where bicycle facilities are present. Currently, these facilities are not heavily used and any Project-generated bicycle trips would have minor impacts on circulation.

The Corte Madera Bike Plan shows that Class II bicycle lanes are proposed along Redwood Highway adjacent to the Village, adjacent to the existing Class I shared-use path (i.e. Bay Trail). The Proposed Project would not make any changes to Redwood Highway that would conflict with this planned facility.

The Corte Madera Public Works Department plans to implement the Redwood Highway Pathway Repaving project, which will extend from San Clemente Drive to Wornum Drive. This project will rehabilitate and widen the existing Class I multi-use path, providing additional capacity for bicycle and pedestrian travel. The Proposed Project would not conflict with this planned improvement.

As such, since the Project would not remove existing facilities or conflict with planned improvements and would add a small number of bicycle trips, the Project’s impacts to bicycle facilities are considered less-than-significant for the weekday PM and mid-afternoon peak periods and no bicycle mitigations are required.

6.6 EMERGENCY ACCESS IMPACTS

The Corte Madera Fire Department station is centrally located in the Town of Corte Madera at 342 Tamalpais Drive, approximately 1 mile west of the proposed project. The Central Marin Police Authority serves Corte Madera as well as Larkspur and San Anselmo via the Twin Cities Station. The Twin Cities Station is located at 250 Doherty Drive on the border of Larkspur and Corte Madera, approximately 1.75 miles west of the proposed project.

The Project does not propose any changes to existing site access or circulation surrounding the site. The added vehicle Project trips would not result in a significant change in travel speeds on emergency response

5 Town of Corte Madera Municipal Code 18.20.040 requires 1 bicycle parking space for every 2,000 square feet
routes, based on the intersection Level of Service assessment described previously in this section. Therefore, the Project’s impacts to emergency access are considered less-than-significant for the weekday PM and mid-afternoon peak hours. No mitigations are required.

6.7 CONSTRUCTION IMPACTS

The discussion of construction impacts is based on currently available information from the project sponsor, summarized in the Project Description, and professional knowledge of typical construction practices. Buildout of the proposed project would occur over a period ranging from 15.5 to 22 months.

Construction-related activities could occur Monday through Friday, between 7:00 AM and 5:00 PM, and on Saturday and Sunday from 10:00 AM to 5:00 PM. Construction is not anticipated to occur on major legal holidays. Construction staging would occur within the project site.

The number of construction-related truck trips would range from approximately one to 155 per day, depending on the construction phase, with the greatest number of truck trips occurring during the grading phase. The truck trips would involve material delivery, material removal, and soil hauling. It is anticipated that trucks would use US 101 to travel to the site and access the study area via the US 101/Tamalpais Drive-Paradise Drive interchange and Redwood Highway. The impact of construction traffic on the interchange and Redwood Highway could result in a slight lessening of their capacities, because of slower-moving vehicles, but would not substantially affect AM or PM peak-period conditions because construction work schedules do not typically coincide with the peak commute periods.

The number of construction workers at the project site would be approximately 10 to 200 per day. The maximum number of construction workers would be present onsite during the building construction phase. The addition of the worker-related vehicle trips would not substantially affect transportation conditions because the majority of employee construction trips occur prior to the morning and evening peak hours when traffic is heaviest. Additionally, impacts on local intersections would be substantially less than those generated by operations of the proposed project and are temporary in nature. Construction workers who drive to the site would be accommodated in the construction staging areas.

Therefore, on a network-wide level the construction of the proposed project, including site preparation and building construction, and delivery activities, would generate a variety of construction-related vehicles but would not result in a significant impact to the broader roadway network.

However, near the project site, construction activities would include localized disruptions to the transportation network near the project site, including the possibility of temporary lane closures, sidewalk closures, and bikeway closures. This would be a significant impact.
Construction of the improved gravel lot could impact the Bay Trail path on the east side of Redwood Highway that serves bicycle and pedestrian travel. This would be a significant impact.

Construction staging plans provided by the applicant do not include a provision that the improved gravel lot (with the provision of up to 455 paved parking spaces) would be complete when construction staging and demolition activities would occur within the existing parking lot at the Village. If the improved gravel lot is not completed prior to other construction activities, these activities would reduce the parking supply of the existing lot from what is currently available, which could cause additional traffic circulation on local roadways as visitors seek to find parking. A portion of the improved gravel lot would also be used as a staging area for construction activities, which would temporarily reduce the supply of parking provided by the improved gravel lot. If these staging activities occur during periods of peak parking demand (such as during the winter holidays), there would be less parking supplied than what would typically be available to meet the parking demand at the Village and thus there may be increased traffic circulation on the surrounding roadways. Therefore, the potential increase in traffic circulation due to a loss of parking supply that may not meet current demand levels as a result of construction activities would be a significant impact.

Mitigation Measure TR-2

As part of the design review process for the proposed project, the applicant shall prepare a detailed Construction Traffic Control Plan and submit it for review and approval to the Town Department of Public Works. The applicant and the Town shall consult with Marin Transit and local emergency service providers for their input prior to approving the Plan. The plan shall ensure that acceptable operating conditions on local bicycle and pedestrian facilities, local roadways, and freeway facilities are maintained during construction. At a minimum, the plan shall include:

1. The number of daily truck trips during each construction phase
2. The time of day of arrival and departure of trucks, and identification of a staging area that is adequate to accommodate all waiting trucks without impacting traffic on local streets
3. Any limitations on the size and type of trucks
4. Truck circulation routes
5. Days and times of any planned street or lane closures
6. Plan showing location of advance warning signage for any street or lane closures
7. For any street or lane closures, plan showing safe and efficient access routes for emergency vehicles
8. Driveway access plan that provides safe vehicular, pedestrian, and bicycle movements (e.g., steel plates, minimum distances of open trenches, and provide vehicle pick up and drop off areas)
9. Days, times, and locations for any manual traffic control
10. Provisions for pedestrian safety
11. The number of construction employees by phase
12. Plan showing location of employee parking by phase

Mitigation Measure TR-3

The Bay Trail path on the east side of Redwood Highway, that serves bicycle and pedestrian travel, shall be open at all times during project construction. If a closure of the Bay Trail path is required for any construction phase, a continuous path shall be maintained around the closure until construction is completed in order to provide continuous travel for users of the Bay Trail. A flagger will be stationed at either end of the construction (northern and southern driveway) to assist Bay Trail users in safely navigating the closure. Work at the gravel lot shall be phased to minimize closure of the Bay Trail to the fewest number of days as feasible. If construction causes any damage to the existing Bay Trail path, as determined by the Town Department of Public Works, it shall be reconstructed and/or repaired during the final construction phase.

Mitigation Measure TR-4

The applicant shall prepare and submit a detailed parking management plan to the Public Works Director that specifies when (and by how many spaces) the parking supply at the Village would be reduced during construction activities (both in the existing lot and in the improved gravel lot, when completed). If the parking supply during the specified construction periods would be less than the current demand during the same time period (assuming a 90 percent occupancy factor), the applicant shall implement travel and/or parking management strategies to address any parking shortfall for the duration of the shortfall such as (a) valet parking, (b) an off-site parking area with a sufficient number of parking spaces to meet the deficit in supply and shuttle service between the off-site parking area and the Village, (c) incentives to reduce vehicle travel by employees, and/or (d) special shopper shuttle buses.

Implementation of Mitigation Measures TR-2, TR-3, and TR-4 would resolve any project-related construction impacts. Thus, with implementation of Mitigation Measures TR-2, TR-3, and TR-4, the proposed project’s construction impacts would be less-than-significant with mitigation.
7 CUMULATIVE CONDITIONS

Cumulative conditions reflect the buildout of all forecast development in the Town of Corte Madera as approved under the General Plan Alternative 4 scenario. The General Plan Alternative 4 scenario included the following land use assumptions:

- 185,000 square feet of retail expansion at the Village
- 300 residential dwelling units at the Village
- 10,000 square feet of retail at the Gateway Village Mixed Use (located on the northeast corner of the intersection of Tamal Vista Boulevard and Wornum Drive)
- 180 residential dwelling units at the Gateway Village Mixed Use

Therefore, the Cumulative Plus Project (Alternative 4) condition contains the Proposed Project as described in Chapter 1, as well as other forecasted retail and residential expansion in the Town with implementation of the General Plan. There are no planned or approved changes to the roadway network in the study area at the time of the study, so intersection geometries and freeway capacities were assumed to remain the same as under Existing conditions. It was assumed that signal timing plans would be adjusted over time to accommodate growth in traffic volumes.

7.1 TRAFFIC IMPACTS

7.1.1 Cumulative Volumes

Cumulative intersection volume forecasts for the PM peak period are based on forecasts developed for the Corte Madera General Plan Cumulative Alternative 4 scenario. Existing traffic volumes for some movements are higher than what was forecasted under full buildout of the General Plan. For these movements, the difference in volume between the General Plan's Cumulative No Project scenario and Cumulative Plus Project (Alternative 4) scenario was added to the existing count volume. For intersections that were not included in the General Plan, growth rates from the General Plan forecasts for adjacent intersections were applied to existing counts to produce Cumulative Plus Project volumes.

The mid-afternoon period was not analyzed under the General Plan. Volumes for this period were derived by applying the same growth rates to mid-afternoon period volumes as developed in the General Plan for the PM peak hour. **Figure 7-1** displays the Cumulative Plus Project PM and mid-afternoon peak hour traffic volumes for all study intersections.
### Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus Project

<table>
<thead>
<tr>
<th>Site Description</th>
<th>Figure 7-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Redwood Hwy/Wornum Drive</td>
<td><img src="image1" alt="Diagram" /></td>
</tr>
<tr>
<td>2. NW Entrance/Tamalpias Dr/Redwood Hwy</td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
<tr>
<td>3. Northeast Entrance/Redwood Hwy</td>
<td><img src="image3" alt="Diagram" /></td>
</tr>
<tr>
<td>4. Redwood Hwy/Middle Entrance</td>
<td><img src="image4" alt="Diagram" /></td>
</tr>
<tr>
<td>5. Redwood Hwy/South Entrance</td>
<td><img src="image5" alt="Diagram" /></td>
</tr>
<tr>
<td>6. San Clemente Dr/Tamalpias Dr/Redwood Hwy</td>
<td><img src="image6" alt="Diagram" /></td>
</tr>
<tr>
<td>7. US 101 NB Off-Ramp/Tamalpias Dr</td>
<td><img src="image7" alt="Diagram" /></td>
</tr>
<tr>
<td>8. US 101 South/Tamalpias Dr</td>
<td><img src="image8" alt="Diagram" /></td>
</tr>
<tr>
<td>9. Town Center Entrance/Tamalpias Dr</td>
<td><img src="image9" alt="Diagram" /></td>
</tr>
<tr>
<td>10. Madera Boulevard/Sanford Street/Tamalpias Dr</td>
<td><img src="image10" alt="Diagram" /></td>
</tr>
<tr>
<td>11. Driveway/Tamal Vista Blvd/Fifer Ave</td>
<td><img src="image11" alt="Diagram" /></td>
</tr>
<tr>
<td>12. Tamal Vista Blvd/Wornum Drive</td>
<td><img src="image12" alt="Diagram" /></td>
</tr>
<tr>
<td>13. Nellen Ave/Wornum Drive</td>
<td><img src="image13" alt="Diagram" /></td>
</tr>
<tr>
<td>14. Redwood Hwy/Industrial Way</td>
<td><img src="image14" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- **Legend**
  - Turn Lane
  - PM (Mid-Afternoon) Peak Hour Traffic Volume
  - Traffic Signal
  - Stop Sign

---

**Figure 7-1**

Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus Project
7.1.2 Cumulative Intersection Results

Intersection operations under Cumulative Plus Project (Alternative 4) conditions are summarized in Table 7-1 below. Detailed LOS analysis results are provided in Appendix B.

Under Cumulative Plus Project conditions, 13 of the 14 study intersections would operate at LOS D or better conditions during the PM and mid-afternoon peak hours. At these intersections, the proposed project, in combination with past, present, and reasonably foreseeable development in Corte Madera under the General Plan Alternative 4 would have an impact to cumulative intersection operations that would be less-than-significant.

The intersection of Tamalpais Drive / Redwood Highway / San Clemente Drive would operate at LOS E conditions during the weekday PM period. Therefore, the Proposed Project, along with other reasonably foreseeable development in Corte Madera under the General Plan Alternative 4, would have an impact to cumulative intersection operations that would be significant at this intersection.
### TABLE 7-1: CUMULATIVE PLUS PROJECT INTERSECTION LOS AND DELAY

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Intersection Control¹</th>
<th>Time Period</th>
<th>Cumulative Plus Project (General Plan Alternative 4)</th>
<th>With Mitigation Measure C-TR-1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Delay²</td>
<td>LOS²</td>
</tr>
<tr>
<td>1. Redwood Highway / Wornum Drive</td>
<td>Signal</td>
<td>PM</td>
<td>15</td>
<td>B</td>
</tr>
<tr>
<td>2. Redwood Highway / Northwest Village Entrance</td>
<td>SSSC</td>
<td>PM</td>
<td>&lt;10</td>
<td>A</td>
</tr>
<tr>
<td>3. Redwood Highway / Northeast Village Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>15</td>
<td>B</td>
</tr>
<tr>
<td>4. Redwood Highway / Middle Village Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>10</td>
<td>B</td>
</tr>
<tr>
<td>5. Redwood Highway / Southeast Village Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>13</td>
<td>B</td>
</tr>
<tr>
<td>6. Tamalpais Drive / Redwood Highway / San Clemente Drive</td>
<td>Signal</td>
<td>PM</td>
<td>75</td>
<td>E</td>
</tr>
<tr>
<td>7. Tamalpais Drive / Northbound U.S. 101 Ramps</td>
<td>Signal</td>
<td>PM</td>
<td>47</td>
<td>D</td>
</tr>
<tr>
<td>8. Tamalpais Drive / Southbound U.S. 101 Ramps</td>
<td>Signal</td>
<td>PM</td>
<td>42</td>
<td>D</td>
</tr>
<tr>
<td>9. Tamalpais Drive / Town Center Entrance</td>
<td>Signal</td>
<td>PM</td>
<td>27</td>
<td>C</td>
</tr>
<tr>
<td>10. Tamalpais Drive / Madera Boulevard</td>
<td>Signal</td>
<td>PM</td>
<td>54</td>
<td>D</td>
</tr>
<tr>
<td>11. Tamal Vista Boulevard / Fifer Avenue</td>
<td>Signal</td>
<td>PM Mid-Afternoon</td>
<td>53</td>
<td>D</td>
</tr>
<tr>
<td>12. Tamal Vista Boulevard / Wornum Drive</td>
<td>Signal</td>
<td>PM Mid-Afternoon</td>
<td>29</td>
<td>C</td>
</tr>
<tr>
<td>13. Wornum Drive / Nellen Avenue</td>
<td>SSSC</td>
<td>PM Mid-Afternoon</td>
<td>&lt;10</td>
<td>A</td>
</tr>
<tr>
<td>14. Redwood Highway / Industrial Way</td>
<td>Signal</td>
<td>PM</td>
<td>21</td>
<td>C</td>
</tr>
</tbody>
</table>

Notes:
- **Bold** denotes unacceptable level of service and delay. (LOS E or F)
- 1. SSSC = Side-Street Stop Control
- 2. Delay reported as seconds per vehicle. For all intersections, a combined weighted average delay for the various movements within the intersection is reported based on the methodology in the Highway Capacity Manual 2000. This is consistent with the Town of Corte Madera’s guidance for reporting intersection LOS results from the General Plan.

Sources: Fehr & Peers, 2017
Under Alternative 4 of the General Plan, significant impacts were identified at two intersections: Tamalpais Drive / Redwood Highway / San Clemente Drive and Tamalpais Drive / U.S. 101 Northbound Off-Ramp. The General Plan EIR proposed mitigation options for improving traffic operations at the significantly impacted intersections, including General Plan EIR Mitigation Measure 1.3, which is evaluated as follows.

**Mitigation Measure C-TR-1**

The project applicant shall make a fair share contribution to implementation of the following measures.

1. **Widen eastbound Tamalpais Drive to three lanes from the Hwy 101 NB Off-Ramp through the San Clemente Drive intersection**

2. **Extend the third through lane at the San Clemente Drive intersection into one of the northbound left-turn lanes at the Redwood Hwy/Village at Corte Madera South Driveway intersection**

3. **Construct a total of 3 northbound left-turn lanes and one right-turn lane at Tamalpais Drive/San Clemente Drive**

The Village at Corte Madera is responsible for 100 percent of the cost of implementing this mitigation measure. The Corte Madera General Plan EIR presented that the full build-out of the Village under Alternative 4 would generate an additional 475 PM peak hour trips. The Proposed Project is expected to generate 108 PM peak hour trips, which represents 23 percent of the total. Therefore, the project applicant will contribute a fair share of 23 percent of the cost based on the project-specific contribution of traffic growth. To determine the dollar amount of the fair share contribution, the project applicant shall fund the preparation of an engineer’s estimate for construction of the mitigation measures, as directed and approved by the Public Works Director for the Town of Corte Madera.

As shown in **Table 7-1**, the implementation of Mitigation Measure C-TR-1 would result in cumulative intersection operations that would improve to LOS D or better. Therefore, with the implementation of Mitigation Measure C-TR-1, the cumulative traffic impact would be reduced to **less-than-significant with mitigation**.

### 7.2 FREEWAY IMPACTS

This section evaluates freeway impacts under Cumulative (General Plan Alternative 4) conditions.
7.2.1 Cumulative Freeway Volumes

Cumulative mainline freeway volumes were derived using forecasts from the Metropolitan Transportation Commission (MTC) Travel Model One and the Corte Madera General Plan. The MTC model provides Year 2015 and Year 2040 mainline model volumes, which were used to determine an annual growth factor to derive peak hour mainline freeway forecasts without the General Plan in place, which reflect Year 2025 (the cumulative horizon year of the General Plan). Cumulative No Project volumes were prepared by adding the General Plan (Alternative 4) added trips (not including the trips from the Proposed Project) to the mainline freeway forecasts derived from the MTC model. Cumulative Plus Project volumes were prepared by adding the Proposed Project volumes to the Cumulative No Project volumes.

7.2.2 Cumulative Freeway Results

Cumulative Plus Project freeway impacts were analyzed using the significance criteria defined in Chapter 5. A comparison of Existing and Cumulative Plus Project (General Plan Alternative 4) freeway basic freeway segments during the PM peak hour is provided in Error! Reference source not found..

Compared to Existing conditions, freeway volumes under Cumulative Plus Project conditions would grow by less than five percent. This relatively small growth resulted in minor changes to freeway operations in the Cumulative Plus Project condition. This growth resulted in small decreases in speed in the southbound direction, but no change in Level of Service during the PM peak hour. Therefore, operating conditions are expected to be similar to Existing conditions in the Cumulative scenario.

Since all southbound U.S. 101 segments would operate at LOS E or better during the PM peak hour, the Proposed Project, in combination with reasonably foreseeable development in Corte Madera under the General Plan Alternative 4 would have a cumulative contribution to impacts to freeway operation for these segments that would be less-than-significant.

The northbound U.S. 101 segments south of Industrial Way would operate at LOS F under Cumulative Plus Project conditions. The trips added by the Project and other anticipated developments from the General Plan would result in an increase in volume on these segments greater than one percent of the freeway capacity (i.e. 88 or more trips). Therefore, there would be a significant cumulative impact on these freeway segments. However, as shown in Table 7-2 below, the Proposed Project’s contribution to the increase in volume would be low, less than 30 trips relative to the total trips on the freeway in the cumulative condition. Therefore, the Project’s contribution would not be considerable and the Proposed Project would have a less-than-significant impact to the freeway.
The General Plan EIR indicated that overall growth in Corte Madera would add a number of peak hour trips that is greater than one percent of freeway segments capacity to a segment that is already operating at LOS E or worse and concluded that the cumulative freeway impact due to citywide growth would be significant. Widening northbound U.S. 101 from three to four mixed flow lanes (in addition to one HOV lane) from the Tamalpais Drive to Sir Francis Drake Boulevard interchanges would expand roadway capacity from 8,800 to 11,000 vehicles per hour, thus providing acceptable operations. However, this roadway improvement is neither planned nor funded by either TAM or Caltrans.
Implementation of Improvement Measure C-TR-2 would reduce the effect of added project trips on congestion on U.S. 101.

### TABLE 7-2: CUMULATIVE PLUS PROJECT FREeway SEGMENT VOLUME, SPEED, AND LOS (PM PEAK)

<table>
<thead>
<tr>
<th>Freeway Segment</th>
<th>Existing</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Volume¹</td>
<td>Speed (mph)</td>
</tr>
<tr>
<td></td>
<td>Volume With Project</td>
<td></td>
</tr>
<tr>
<td>Northbound U.S. 101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Tiburon Boulevard to Tamalpais Drive</td>
<td>7,024</td>
<td>&lt;30</td>
</tr>
<tr>
<td>2. Tamalpais Drive to Industrial Way</td>
<td>7,598</td>
<td>&lt;30</td>
</tr>
<tr>
<td>3. Industrial Way to Sir Francis Drake Boulevard</td>
<td>8,044</td>
<td>&lt;30</td>
</tr>
<tr>
<td>4. Sir Francis Drake Boulevard to I-580</td>
<td>4,350</td>
<td>&gt;60</td>
</tr>
<tr>
<td>Southbound U.S. 101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I-580 to Sir Francis Drake Boulevard</td>
<td>4,965</td>
<td>&gt;60</td>
</tr>
<tr>
<td>6. Sir Francis Drake Boulevard to Fifer Avenue</td>
<td>5,183</td>
<td>&gt;60</td>
</tr>
<tr>
<td>7. Fifer Avenue to Tamalpais Drive</td>
<td>5,417</td>
<td>&gt;60</td>
</tr>
<tr>
<td>8. Tamalpais Drive to Tiburon Boulevard</td>
<td>5,441</td>
<td>&gt;60</td>
</tr>
</tbody>
</table>

Notes:

- **Bold** denotes LOS E or F operations
- 1. Volume data provided by Caltrans’ PeMS database (accessed May 2017).
- 2. Based on HCM 2000 methodology for basic freeway segments
- 3. Volume without the Project reflects existing conditions plus those trips that are added as part of other developments anticipated in the General Plan Alternative 4, as well as background growth from outside of Corte Madera (as forecasted by MTC Travel Model One)
- 4. Project-added trips from Restoration Hardware.
- 5. HCM methodology does not consider localized bottlenecks and therefore LOS results were adjusted based on PeMS spatial speed data.

Sources: Fehr & Peers, 2017
Improvement Measure C-TR-2

As part of the design review process, the project applicant shall develop a TDM Program and submit it to the Town Department of Public Works for review and approval. The Town will monitor the TDM Program on an annual basis. The TDM Program would be designed to reduce daily and peak hour vehicle trips, as forecasted for the project in this transportation impact assessment, by 5 percent.

The project applicant shall be responsible for funding and overseeing the delivery of trip reduction/TDM proposed programs and strategies to achieve the above reduction in peak hour trips for the Proposed Project, which may include, but are not limited to, the following:

(1) Establishment of employee carpool, buspool, or vanpool programs;
(2) Alternative work week and flex-time schedules that shift employee trips off of the evening commute period;
(3) Cash allowances, passes, or other public transit subsidy and purchase incentives;
(4) Guaranteed ride-home program;
(5) Bicycle programs including bike purchase incentives, storage, and maintenance programs.
(6) Bus shuttles to nearby Sonoma-Marin Area Rail Transit (SMART) rail station and Larkspur Ferry Terminal

7.3 TRANSIT IMPACTS

Most visitors to the Village arrive via automobile and a small number of employees take transit to commute to the Village. The General Plan seeks to foster increased transit use and a greater emphasis on transit in planning for future transportation options. In the long term, this could include increased frequency of bus services with transit priority and transit-oriented development practices.

If transit service is not enhanced to keep pace with demand, such as through increased frequency and reliability of service within the Town, increased demand for transit service may result in significant impacts. In addition, expanded service hours would necessitate increased transit subsidies, which would likely need to come from local sources.

At this time, the project’s contribution to cumulative impacts to transit services and facilities are considered less-than-significant and mitigations are not required.
7.4 PEDESTRIAN AND BICYCLE IMPACTS

Most visitors to the Village travel via automobile. As described earlier, a small number of employees at the Village use transit to commute.

The General Plan seeks to promote walking within Corte Madera by improving walking and bicycling conditions, increasing pedestrian and bicyclist safety, and creating a land use context supportive of non-motorized travel. The General Plan identifies Implementation Program CIR-2.1.a for implementing a Class I shared-use bicycle and pedestrian path along Paradise Drive to the Tiburon City limit (consistent with the Bay Trail plan), which could also include a pedestrian/bicycle bridge over U.S. 101 at the Tamalpais Drive interchange. The General Plan also identifies Implementation Programs CIR-1.7.b, CIR-1.7.c, CIR-3.1.b, and CIR-3.1.d to enhance walking and bicycle facilities around the Town.

Therefore, the General Plan’s (and by extension, the Proposed Project’s) contribution to cumulative impacts to pedestrian and bicycle facilities are considered less-than-significant and mitigations are not required.

7.5 EMERGENCY ACCESS IMPACTS

While neither the General Plan nor the Proposed Project proposes any changes to existing site access or circulation surrounding the Village, the addition of cumulative vehicle trips are expected to decrease travel speeds on emergency response routes such that emergency vehicles may be significantly delayed (as identified in Section 7.1). As discussed in Section 8.1, the General Plan EIR identifies Mitigation Measure 1.3 (defined as Mitigation Measure C-TR-1 in this TIS) to address cumulative impacts. Therefore, the General Plan’s Alternative 4 (and therefore, the Proposed Project’s) contribution to cumulative impacts to emergency access are considered less-than-significant.