Transportation Authority of Marin

HIGHWAY 101 INTERCHANGE & APPROACHING ROADWAY STUDY

East Blithedale Avenue/Tiburon Boulevard (SR 131)

EXISTING CONDITIONS, CONSTRAINTS, & OPPORTUNITIES REPORT

HNTB

Parisi
TRANSPORTATION CONSULTING

JULY 2022

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INTRODUCTION

This report on the East Blithedale Avenue/Tiburon Boulevard (SR 131) Interchange forms one of a series of reports being prepared under the Transportation Authority of Marin's (TAM) Highway 101 Interchange and Approaching Roadway Study that examines the existing conditions, deficiencies, and constraints of 12 selected interchanges on Highway 101 in Marin County. The reports also identify opportunities for improvement under a program of near- and long-term projects that aim to improve operations and safety for all users.

The planning study is funded through Measure AA – the reauthorized ½-cent transportation sales tax that was approved by Marin voters in 2018. The overarching goal of the Transportation Sales Tax Renewal Expenditure Plan is to "reduce congestion and reduce greenhouse gas emissions, maintain and improve local transportation infrastructure, and provide high quality transportation options for people of all ages who live, work, and travel in Marin County."

Each interchange was evaluated to determine the existing conditions of the roadway, such as nonstandard features or outmoded design and flooding, traffic conditions, pedestrian/bicyclist circulation and intermodal connectivity, and environmental conditions, including vulnerability to sea level rise (SLR). The study looked at previous planning studies for these interchanges as well as any recent or proposed nearby development, including the new Sonoma–Marin Area Rail Transit (SMART) passenger rail line which aligns closely with Highway 101.

EXISTING CONDITIONS

There are a number of existing physical and operational deficiencies associated with the interchange, including less than standard shoulder widths on ramps and less than standard lane widths on the northbound and southbound loop on-ramps and on the overcrossing.

Pavement conditions on within the interchange varied. Within the California Department of Transportation's (Caltrans) right of way, it is rated fair/good. At East Blithedale Avenue and Kipling Drive, it varies between at risk or failed/poor. At Redwood Highway Frontage Road, it is rated at risk.

Between 2014-2018, a total of 129 reported collisions took place in the interchange. The 129 reported collisions resulted in 48 minor injuries. About 45% of the collisions were the result of a rear ending of another vehicle, broadly indicating a combination of high speeds with congestion. Another 42% of collisions were sideswipe and broadside collision types.

Weekday AM peak period traffic congestion is most pronounced in the eastbound direction approaching the interchange from Mill Valley. Some congestion often occurs in the westbound direction as well, approaching from the Tiburon peninsula. The intersection of Tiburon Blvd/Redwood Highway Frontage Road received an AM level of service of D.

During the weekday PM peak period, traffic congestion is most pronounced along eastbound East Blithedale Avenue approaching the interchange, as well as eastbound Tiburon Boulevard through the interchange. The intersection of Tiburon Blvd/Redwood Highway Frontage Road received a PM level of service of D.

Executive Summary

IMPROVEMENT CONCEPTS

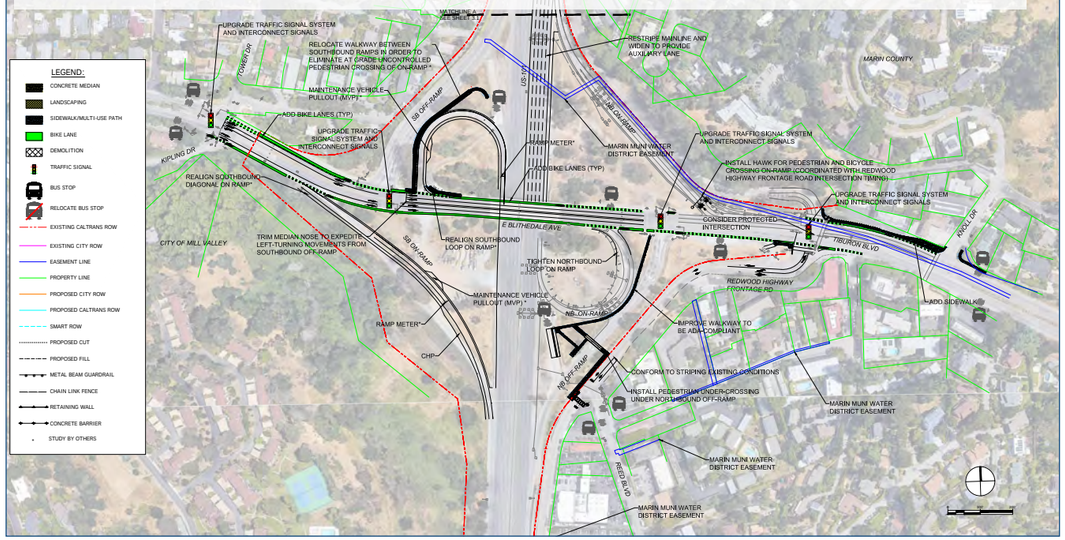
Proposed improvements seek to address deficiencies and to upgrade the conditions for vehicular traffic, transit users, pedestrians, and bicyclists. The improvements vary from readily implementable solutions, such as new crosswalks, curb ramp replacements, restriping, new bike facilities, upgrading sidewalk and existing transit stops, improved multimodal connectivity, and widened bridges. Many of the improvements recommended by this study will strengthen the interchange's relationship with the surrounding area and new developments, and they will improve the operation and safety of these interchanges for all users, allowing smoother travel to, from, and across Highway 101 and local roads.

Concepts are presented as near- and long-term improvements based on the ease of implementation.

The near-term concept focuses on improving connectivity for all modes, reducing conflicts, improving traffic operations, and providing upgraded signalized intersections on E. Blithedale Avenue/Tiburon Boulevard within the project study area. Restriping is proposed between Kipling Drive to Redwood Highway along E. Blithedale Avenue providing for eastbound and westbound Class II bike lanes. Existing walkways leading to the northbound and southbound bus stop will be improved to be Americans with Disabilities Act (ADA) compliant. A pedestrian under-crossing is proposed at the northbound off-ramp to connect transit users from the northbound bus stop and Redwood Highway Frontage Road. Additional safety improvements include curb tightening at the southbound and northbound loop on-ramps and improvements to sidewalk connectivity. The northbound U.S. 101 is proposed to be restriped to provide for an auxiliary lane for northbound on-ramp traffic to merge onto the mainline.

The long-term concept will carry forward some of the near-term proposals with the exceptions as noted. The existing overcrossing is proposed to be widened to allow for three eastbound travel lanes.

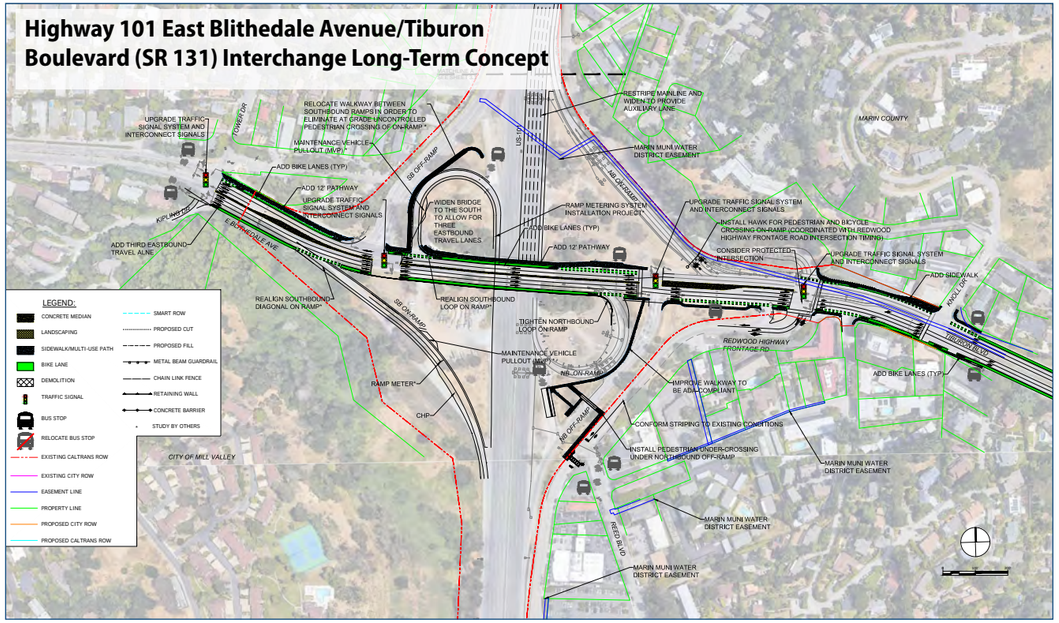
Highway 101 East Blithedale Avenue/Tiburon Boulevard (SR 131) Interchange Near-Term Concept



The improvement concepts have been shared with the local jurisdictions and transit agency representatives, who have had an opportunity to review and comment on the concepts presented.

Refer to Attachment I for the exhibit associated with the near- and long-term concepts.

Highway 101 East Blithedale Avenue/Tiburon Boulevard (SR 131) Interchange Long-Term Concept



Executive Summary

IMPLEMENTATION

As part of this study, each of the 12 interchanges will undergo evaluation and prioritization with the goal of identifying the most appropriate projects to move forward into project development.

It is anticipated that the improvements proposed under both the near- and long-term concepts would follow the typical three-phase California Department of Transportation (Caltrans) project development process for approval of work within the state's right of way.

- Project Initiation Document (PID) (Project Study Report-Project Development Support)
- Project Approval/Environmental Document (PA&ED)
- Plans, Specifications, and Estimates (PS&E)

Elements of the project could be implemented in a phased manner by either TAM or the City of San Rafael to meet funding opportunities.

Additionally, elements of the project could be incorporated into projects sponsored by Caltrans, such as a long-range ramp-squaring project identifiedby the System Planning Group.

NEXT STEPS

1. TAM Board to select projects(s) to move forward into project development in consultation with agency stakeholders.
2. TAM and the local jurisdiction will coordinate with the Metropolitan Transportation Commission (MTC) to have the project included in the current Regional Transportation Plan (RTP).
3. TAM and the local jurisdiction will secure funding for the PID and enter into a cooperative agreement with Caltrans for project development.
4. TAM will work with the local jurisdiction and a Project Development Team to prepare the PID for Caltrans approval to proceed to the PA&ED Phase for a locally funded project. Alternatively, the local jurisdiction can identify elements that can be implemented via a Caltrans encroachment permit process or on the approaching roadway outside Caltrans right of way.
5. TAM and the local jurisdiction will seek funding for subsequent phases of the project. If there is insufficient funding available, it may be possible to phase the improvements.

Introduction

This report on the East Blithedale Avenue/Tiburon Boulevard (SR 131) Interchange forms one of a series of reports being prepared under TAM's Highway 101 Interchange and Approaching Roadway Study that examines the existing conditions, deficiencies, and constraints of 12 selected interchanges on Highway 101 in Marin County. The reports also identify opportunities for improvement under a program of near- and long-term projects that aim to improve operations and safety for all users.

The reports provide the basis for establishing performance measures against which improvement concepts can be evaluated and prioritized in a subsequent phase of the study.

The planning study is funded through Measure AA – the reauthorized ½-cent transportation sales tax that was approved by Marin voters in 2018. The overarching goal of the Transportation Sales Tax Renewal Expenditure Plan is to "reduce congestion and reduce greenhouse gas emissions, maintain and improve local transportation infrastructure, and provide high quality transportation options for people of all ages who live, work, and travel in Marin County." The Plan allocates 3% of the revenue for a 30-year program of improvements to interchanges and freeway access routes on Highway 101 to reduce congestion, improve local traffic flow, and address flooding impacts within the county. These funds will serve to leverage larger regional, state, and federal funds.

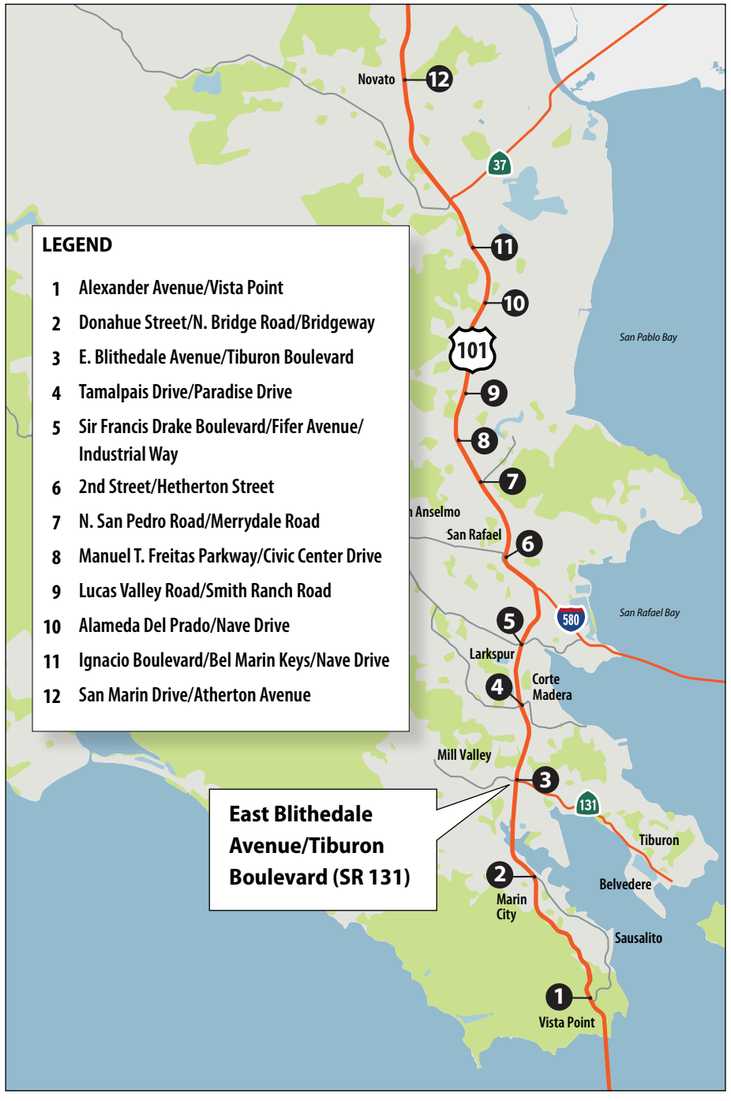
Throughout Marin County, Highway 101 serves as the primary north-south roadway and is a key link between communities. Accessing Highway 101 in Marin is a major source of congestion on local roads, which reduces the connectivity of communities across Marin. Interchanges vary in age and in needs for improvements. As communities around Marin have grown over the last 30-40 years, interchanges built in the 1950s and 1960s have not been altered to meet demands of vehicles, transit, bicyclists, and pedestrians. Many do not meet current design or operational standards.

In addition to the vehicular traffic these interchanges serve, many also provide bus stops for Marin Transit and Golden Gate Transit, which offer local and regional bus services but have poor connectivity with local land uses or for transfer between transit providers. Provisions for bike and pedestrian access are also typically poor, with missing, discontinuous, or generally unsafe paths of travel and a general lack of connectivity with the local pedestrian and bike networks.

The 12 interchanges identified for improvement within this study span the cities of Sausalito, Larkspur, San Rafael, and Novato; town of Corte Madera; and unincorporated areas of Marin County. The southernmost interchange is located just north of the Golden Gate Bridge at Alexander Avenue, and the northernmost interchange is located in Novato at Atherton Avenue.

Each interchange was evaluated to determine the existing conditions of the roadway, such as nonstandard features or outmoded design and flooding, traffic conditions, pedestrian/bicyclist circulation and intermodal connectivity, and environmental conditions, including vulnerability to SLR. The study looked at previous planning studies for these interchanges as well as any recent or proposed nearby development, including the new SMART passenger rail line which aligns closely with Highway 101.

This study addresses alleviating these nonstandard features and upgrading the conditions for vehicular traffic, transit users, pedestrians, and bicyclists. Proposed improvements vary from readily implementable solutions, such as new crosswalks, curb ramp replacements and restriping to new bike facilities, improved multimodal connectivity, and widened bridges. Many of the improvements recommended by this study will strengthen the interchange's relationship with the surrounding area and new developments, and they will improve the operation and safety of these interchanges for all users, allowing smoother travel to, from, and across Highway 101 and local roads.



Project Location and Background

The interchange at East Blithedale Avenue/Tiburon Boulevard (SR 131) is located at U.S. 101 postmile 5.69 between the City of Mill Valley and the unincorporated district of Strawberry in Marin County. It can be accessed by the Alton Sutton Manor, Reed, and Bel Aire neighborhoods. It is in an urban environment and characterized by low- and medium-density housing and shopping centers.

This interchange is heavily used by motorists accessing the City of Mill Valley or the Town of Tiburon. It is one of two interchanges providing freeway connectivity to U.S. 101 for the City of Mill Valley and is the only interchange for the Town of Tiburon to connect to U.S. 101.

U.S. 101 divides the roadway where East Blithedale is located west and Tiburon Boulevard is located east. The northbound off-ramp is a diagonal ramp which intersects at Tiburon Boulevard at a signalized intersection, allowing motorists to reach both directions. Westbound Tiburon Boulevard motorists accessing northbound U.S. 101 have access to a diagonal ramp, and eastbound Tiburon Boulevard motorists will use a loop ramp. The southbound off-ramp is a diagonal ramp which intersections on East Blithedale Avenue at a signalized intersection, allowing motorists to reach both directions. Motorists accessing southbound U.S. 101 via Eastbound East Blithedale Avenue will have access to a southbound diagonal on-ramp. Motorists accessing southbound U.S. 101 via westbound East Blithedale Avenue will have access to the southbound loop on-ramp.

The East Blithedale Ave/Tiburon Boulevard Undercrossing, officially named the Route 131/101 Separation Undercrossing (Bridge No. 27-0069), was constructed in 1956. This bridge was seismically retrofitted in 1995. There are two travel lanes in each direction of travel with minimal shoulders and a sidewalk on the north side of the bridge.

Sidewalks are located on the north side of East Blithedale Avenue/Tiburon Boulevard, connecting pedestrians in the east-west direction over U.S. 101. There are no sidewalks on the south side between Kipling Drive and the northbound loop on-ramp entrance. Pedestrians wanting to connect from the north side of East Blithedale to areas like Strawberry Village must traverse across the interchange to access unmarked pedestrian paths at the ramps.

Uncontrolled crosswalk across the loop on-ramp to southbound Highway 101; crosswalk serves bus stop adjacent to the highway.

Bus stops serving Golden Gate Transit and Marin Transit are located within the loop ramps and within the vicinity of the interchange on East Blithedale/ Tiburon Boulevard. These bus stops are sheltered,with short travel lanes connecting the diagonal off-ramps and loop on-ramps, allowing buses to stop for riders and traverse back onto the highway. Transit riders access these bus stops via pedestrian paths connected to East Blithedale Avenue and Tiburon Boulevard. Depending on the transit rider's path of travel, they may be required to cross the ramps to reach their destination. These crossings are unsignalized and marked with high visibility crosswalks located within the ramp where vehicles are traveling at high speeds.

The east side of U.S. 101 on East Blithedale was recently repaved and restriped. A westbound Class III bike lane is provided from Redwood Frontage Road to the northbound on-ramp where bicyclists are then required to navigate through northbound on-ramp traffic to access the shoulder on the bridge to continue west on East Blithedale. This Class III bike lane connects to a Class II bike lane between N Knoll Road and Redwood Frontage Road. Less experienced bicyclists headed westbound are allowed to use the sidewalk located between Redwood Highway Frontage Road and the northbound diagonal on-ramp and cross on-ramp traffic to continue west.

Previous Studies

There have been several studies completed for the East Blithedale and Tiburon interchange. The following studies were conducted.

- Central and Southern Marin Transit Study dated June 25, 2009
- Tiburon and East Blithedale Pedestrian and Bike Study dated May 2016

A Marin 101 Auxiliary Lane Study was conducted proposing a northbound diagonal with two-lanes. This design was incorporated into Caltrans Ramp Metering project that was recently completed.

The Caltrans *US 101 North Comprehensive Multimodal Corridor Plan* (2020) observed that a lack of on-ramp storage impacted local streets at the Blithedale Ave/Tiburon Boulevard loop on-ramp. The longest queues extended beyond the loop ramp onto Tiburon Boulevard. The corridor plan proposed a range of project improvements for the U.S. 101 corridor.

- A short-term project currently under development by MTC/Caltrans to install ramp metering for all remaining locations on Highway 101 in Marin County. This project has been environmentally cleared.
- A short-term project currently by Caltrans to install ramp metering for all of U.S. 101 in Marin County.
- A short-term project under study and listed in the RTP proposes bike facility improvements, addressing path of travel to regional bus stops requiring users to cross high speed on- and off-ramps in unmarked crossings to access stops.
- A short-term project is under study to reconstruct the interchange by reconfiguring the interchange to a diamond, eliminating high-speed ramp entries and prioritizing bikes across Blithedale Ave/Tiburon Blvd.

Potential solutions for the interchange were identified in TAM's Highway 101 Interchange Fact Sheet (2017), including:

- Increasing the capacity of the Tiburon Boulevard/Redwood Highway Frontage Road intersection by providing a second northbound left-turn lane and an additional westbound thru lane
- Adding an additional lane to the northbound diagonal on-ramp
- Providing more capacity to the northbound loop on-ramp
- Widening the Highway 101 overcrossing to accommodate a third eastbound traffic lane between Kipling Drive and South Knoll Road
- Relocating and/or improving the bus stops and bus access
- Installing on-ramp meters to improve overall operational efficiency of Highway 101
- Improving intersection coordination
- Providing bikeways
- Improving sidewalks and filling in missing gaps

In 2018, the Marin County Travel Safety Plan recommended the following safety improvements:

- Signal improvements
- Pedestrian crossing improvements, including the installation of high-visibility crosswalks, directional curb ramps, pedestrian countdown heads, reduced curb radii, and removal of pork chop islands
- Bicycle facility improvements, including the installation of "bicycles may use full lane" signs

Looking east towards Tiburon Boulevard from a curb ramp and crosswalk across the loop on-ramp to southbound Highway 101.

Future Development

There are no known future developments in the East Blithedale Avenue/ Tiburon Boulevard Interchange.

Existing Conditions and Constraints

OVERVIEW

The following pages present an overview of the interchange study area's existing infrastructure, transportation, and environmental conditions and constraints. Data are from field observations as well as a number of national, state, and local sources, and they provide an important understanding of the interchange area.

Photo Exhibit

Photographs were taken during visits to the interchange area in early 2021. These capture existing conditions at various locations throughout the interchange area.

Infrastructure

A review of current infrastructure was undertaken to describe structures, utilities, drainage, right of way, and pavement conditions. Data considered for this section came from Caltrans, MarinMap, and MTC.

Nonstandard Design Features

Existing features within the interchange area were evaluated against the current Caltrans Highway Design Manual as well as local and ADA standards. Four types of nonstandard features were highlighted: nonstandard features on the highway, nonstandard features on the local roadway, ADA compliance, and nonstandard bike/pedestrian features.

Multimodal Infrastructure

Multimodal infrastructure was assessed through in-field reviews of facilities throughout the interchange area. The review noted the interchange configuration and the number of roadway lanes, and it included the location and condition of bike and pedestrian facilities, including sidewalks, Class I shared-use paths, Class II bike lanes, and any informal paths (e.g., dirt walking routes). The location of public transit stops and any connectivity gaps for people traveling to or from the stops were also noted for the purpose of the assessment.

Transit Routes

Marin Transit and Golden Gate Transit routes serving the interchange area as of early 2019 (pre-COVID) were identified. Distinction was made between local and freeway-only service routes. This section includes a brief discussion of transit stop amenities and accessibility issues.

Transit Ridership

Onboardings and alightings for each public transit stop within the interchange area were analyzed using Marin Transit (2017) and Golden Gate Transit (2020) ridership data provided by the respective transit agencies. For Golden Gate Transit routes, a growth factor was used to estimate pre-COVID ridership numbers based on the data provided. The resulting map shows onboardings, alightings, and total estimated daily passengers for each transit stop.

Weekday Peak Hour Traffic Volumes

Weekday AM and PM peak hour traffic volume turning movements are displayed for each intersection within the intersection area. These data are mostly from pre-COVID conditions (2017 to early 2019), but some counts were taken in Fall 2019 and adjusted to reflect a pre-COVID scenario.

Weekday AM & PM Peak Period Congestion

Year 2019 congestion data from INRIX was displayed for hourly periods during the AM and PM weekday peak periods. These data were assessed to determine which parts of the interchange area typically experience notably high or low vehicle congestion.

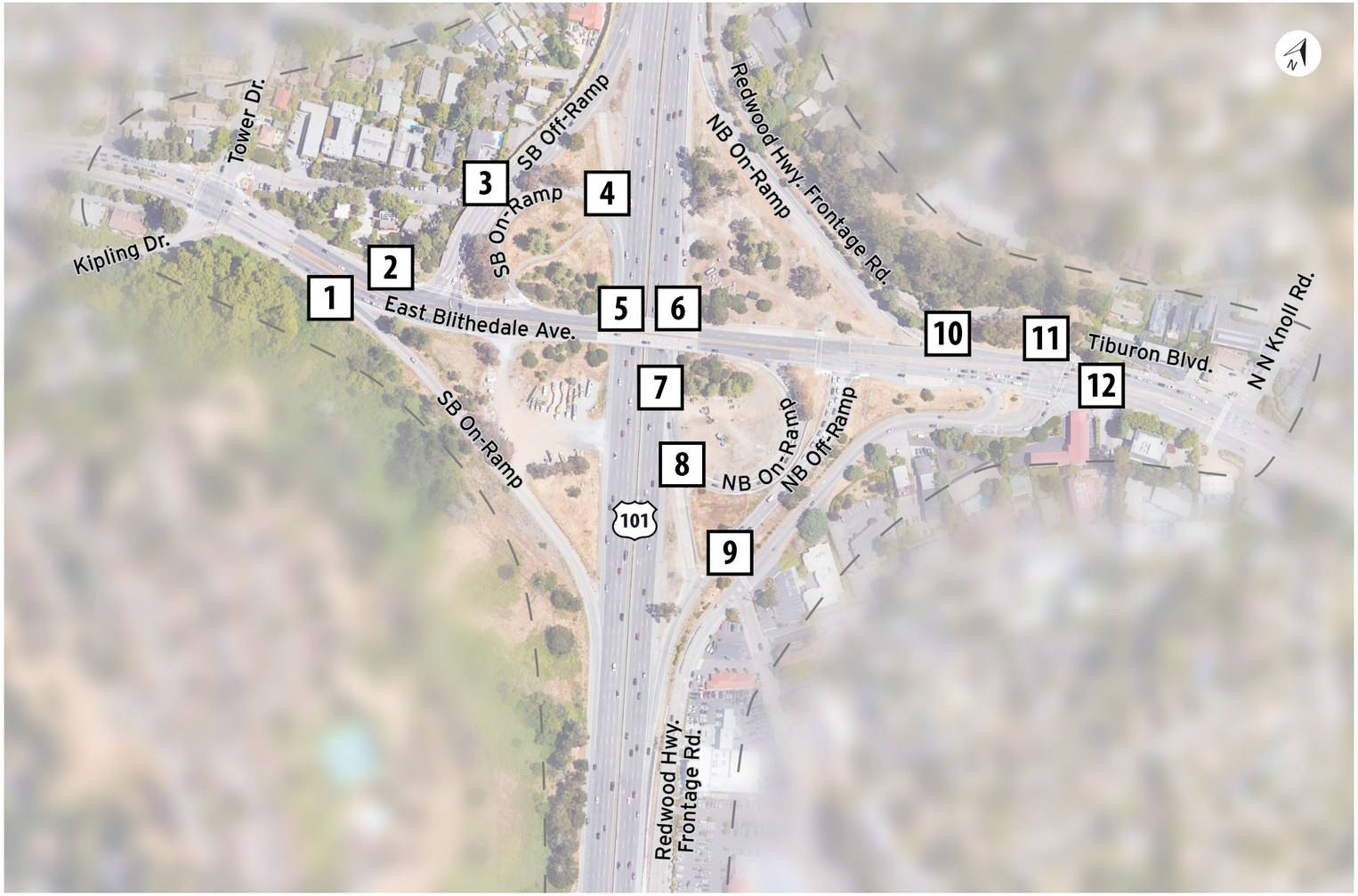
Crash Type & Severity

Five years of crash data (2014-2018) from SWITRS were analyzed within the project study area local roads and ramps. Particular note was taken of crashes involving pedestrians or bicyclists. The Crash Type exhibit notes the locations of crashes by type (i.e., head-on, sideswipe, etc.). The Crash Severity map displays the location of fatal crashes, crashes resulting in severe injury, and crashes resulting in minor injury. The exhibits include a brief discussion of primary collision factor trends.

Environmental Constraints

A desktop review considered environmental conditions and constraints within the interchange area. This review noted cultural resources, hazardous waste/materials, biological resources including water quality, susceptibility to SLR, and land use/growth. The data reviewed were from a number of sources, including the Golden Gate National Parks Conservancy, MarinMap, and GeoTracker. The environmental disciplines also reviewed the following databases: Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS), National Wetlands Inventory (NWI), California Natural Diversity Database (CNDDB), and the San Francisco Bay Conservation and Development Commission (BCDC) mapping tool Adapting to Rising Tides (ART) Bay Shoreline Flood Explorer.

PHOTO EXHIBIT



Source: Parisi Transportation Consulting 2021

LEGEND

Study Boundary

\# Photo Number; see next two pages

Two-lane diagonal on-ramp to northbound Highway 101; photo taken during field review.

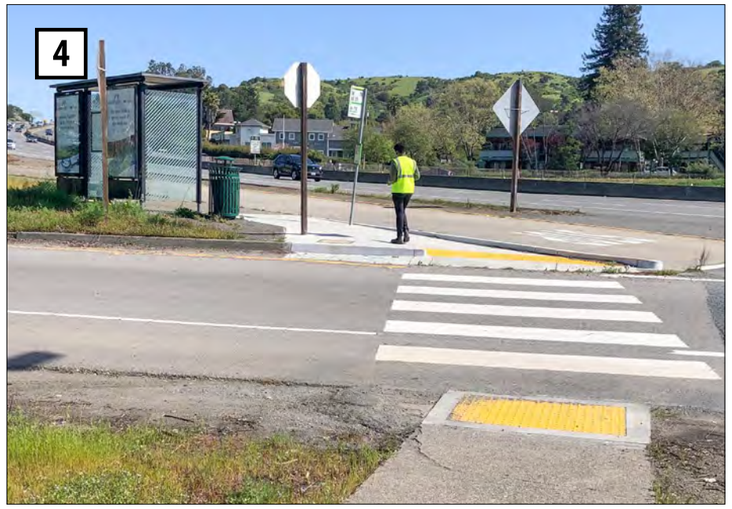
Looking west across Redwood Highway Frontage Road at off-ramp from northbound Highway 101; photo taken during field review.

PHOTO EXHIBIT

Traffic congestion along eastbound East Blithedale Avenue extending from the Highway 101 interchange to Camino Alto..

Pedestrians walking along sidewalk on the north side of East Blithedale Avenue west of the Highway 101 interchange.

Traffic backed-up along the off-ramp from southbound Highway 101; vehicles are queued into the highway's mainline travel lanes.

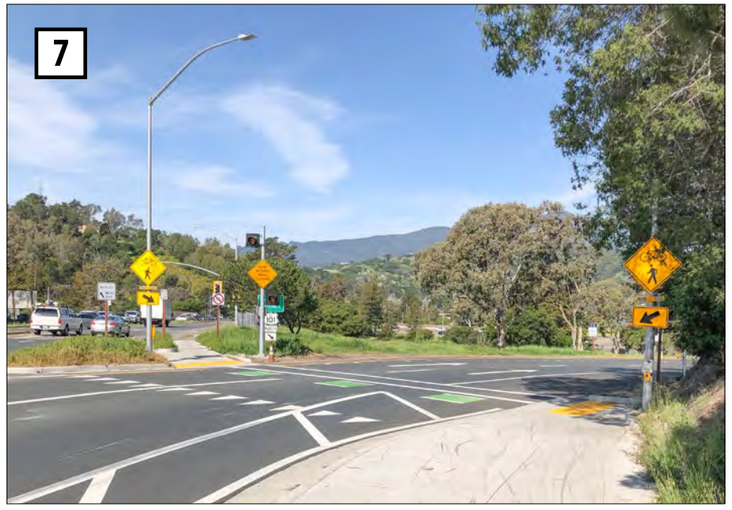


Marked crosswalk across loop on-ramp from westbound Tiburon Boulevard onto southbound Highway 101; crosswalk serves on-highway bus stop.

Eastbound traffic on Tiburon Boulevard queued across the Highway 101 overcrossing.

Looking west on the north side of the Highway 101 overcrossing; pedestrians use a narrow sidewalk, and the existing shoulder is too narrow to serve as a bike lane.

PHOTO EXHIBIT



Walkway and bikeway approaching the two-lane northbound diagonal on-ramp; users can activate a rectangular rapid flashing beacon when crossing the ramp.

Westbound bicyclists traveling along Tiburon Boulevard just upstream of the northbound on-ramp to Highway 101.

Uncontrolled crosswalk across Tiburon Boulevard at North Knoll Road; note lack of an ADA-compliant curb ramp.

View of the Highway 101 overcrossing from the east side of the highway.

Marin Transit bus departing from the northbound on-highway bus stop located between the interchange's northbound off-ramp and loop on-ramp.

Looking southwest at the northbound off-ramp; pedestrians cross this off-ramp at the foreground of the photo.

INFRASTRUCTURE

Geometric Conditions and Nonstandard Features

The existing geometric conditions and features were evaluated for the East Blithedale Avenue/Tiburon Boulevard interchange within the project study area. The project objective was to assess the existing condition for the ramps and the local roadways leading to and from the ramps within the project study area. The Highway 101 mainline was not evaluated as part of this study. The existing conditions were evaluated against the current Caltrans Highway Design Manual, Marin County, ADA criteria, and Marin Transit standards.

Within the interchange, there exist bus stops servicing Golden Gate Transit and Marin Transit that require transit riders to cross the ramps to access. Northbound transit riders currently cross at an undefined crossing on the northbound diagonal off-ramp. Southbound transit riders cross a high visible crosswalk at the loop on-ramp just before vehicles enter the freeway.

Refer to the Nonstandard Design Features exhibit for the detailed locations where these less than standard roadway features exist.

Structures Conditions

The East Blithedale Avenue Overpass, officially named the Route 131/101 Separation Bridge (Bridge No. 27-0069), was constructed 1956. The structure type is steel girder and bent 4 is supported on a spread footing. This bridge was seismically retrofitted in1995. The bridge has a sufficiency rating of 70.9. The East Blithedale Avenue bridge has less than standard bridge vertical clearance of 15.16 feet over Highway 101, which is less than the standard of 16.5 feet over a highway per Caltrans Highway Design Manual.

A bridge requiring replacement is not judged solely on the age of the bridge and it's sufficiency rating. There are other factors to consider, such as the bridge's ability to meet standards with further improvement (e.g., bridge widening or the benefit to cost of repairing the bridge versus a full bridge replacement). Consideration for bridge replacement will need to be reviewed on a bridge-by-bridge basis.

Identified Maintenance Needs

The project team completed a review of the current Caltrans Bridge Inspection Report and there were no recommended work for the Route 131/101 Separation Bridge.

It is noted that the existing paint on the steel girders may contain lead.

Refer to the Nonstandard Design Features exhibit for the detailed locations where these less than standard structural features exist.

Pavement Condition Index

The East Blithedale Avenue/Tiburon Boulevard interchange pavement conditions were collected via the MTC Vital Signs website for street pavement condition. MTC provides a pavement condition index (PCI) for local streets within the Bay Area, dated 2018.

The existing pavement conditions were given a PCI range as categorized:

- Failed/Poor (0-49)
- At Risk (50-59)
- Fair/Good (60-79)
- Very Good/Excellent (80-100)

For locations where information was not provided, a visual check was performed on Google Earth and validated in the field. This was also completed to corroborate data against more current conditions. The PCIs for the interchange study area are rated as follows:

- Within Caltrans right of way (between Kipling Drive and Redwood Highway) – fair/good (60-79)
- At East Blithedale Avenue/Kipling Drive – at risk (50-59)/failed/poor (0-49)
- Redwood Highway Frontage Road – at risk (50-59)

MTC Vital Signs, "Street Pavement Conditions" did not provide any data for this interchange.

Pavement conditions rated "fair/good" and above do not require improvements at this time. Pavement condition rated "at risk" can be considered for rehabilitation under future improvement projects to return existing roadways to good condition. Existing pavement conditions rated "failed/poor" can be considered for reconstruction under future improvement projects to restore structural integrity to the roadway.

Utilities

The project team researched existing utilities and identified all known utilities within the project study area. Utility data was gathered from local utility owners, Caltrans, and MarinMap.

The project team collected data on major utilities that are defined by Caltrans as high priority. These major utilities included electric or gas transmission lines, sanitary sewer lines larger than 24 inches in diameter, and water lines greater than 12 inches in diameter.

Refer to the Project Base Map (Attachment A) for the Existing Utility Mapping (location and type).

Drainage

The existing drainage conditions were assessed for the East Blithedale Avenue/Tiburon Boulevard interchange. Watersheds are located within Mill Valley city limits. On-site drainage areas consist of highway, surface streets, unpaved areas within ramp loops, unpaved areas next to highway shoulders, surface streets, landscaped areas, and commercial areas with parking lots. Unpaved loop areas have relatively flat relief with slopes ranging from approximately 0 - 10%.

Local drainage systems consist of culverts, drop inlets, and manholes. West of the U.S. 101 median, runoff from the unpaved loop areas is conveyed to a drainage main that runs along east Blithedale Avenue. For the areas east of U.S. 101, existing drainage traverses the study area north-south from Redwood Highway Frontage Road near Central Drive to Redwood Highway

Frontage Road near Reed Boulevard. The local drainage systems convey runoff to its outfall at Richardson Bay.

The study area includes areas that fall within Federal Emergency Management Agency (FEMA) designated Flood Zones AO, X (shaded), and X (unshaded) (see **Attachment L**). FEMA defines Zone AO as "river or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet" (FEMA, n.d.). Here, Zone AO denotes areas with a base flood depth of two feet. Within the study area, Zone AO exists in the western end of the study area on and around the intersection of Kipling Drive and East Blithedale Avenue. FEMA defines shaded Zone X as an "area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods" (FEMA, n.d.).

Shaded Zone X is located at the southern area boundary on U.S. 101. The remainder of the Study area falls within unshaded Zone X. FEMA defines unshaded Zone X as "areas of minimal flood hazard, usually depicted on Flood Insurance Rate Maps as above the 500-year flood level" (FEMA, 2020).

Design of new drainage located within Caltrans' right of way should adhere to the Caltrans Highway Design Manual published in 2020 and the standard drawings of the Caltrans Standard Plans published in 2018. Design of new drainage within local right of way should comply with standard drawings published in the Marin County Uniform Construction Standards published in 2018.

All proposed stormwater treatment facilities within Caltrans' right of way will adhere to the Caltrans National Pollutant Discharge Elimination System (NPDES) permit. Treatment facilities outside Caltrans' right of way will adhere to the Marin County Phase 1 Municipal Separate Storm Sewer System (MS4) permit for Marin County.

Refer to the Project Base Map (Attachment A) and FEMA Flood Mapping (Attachment L) for the existing drainage mapping.

Right of way

The East Blithedale Avenue/Tiburon Boulevard interchange is located within the Caltrans right of way. The Caltrans right of way extends approximately 830 feet to the east and approximately 785 feet to the west from the U.S. 101. Outside of the Caltrans right of way, the boundary for this interchange is the City of Mill Valley to the west of U.S. 101 and the Town of Tiburon to east of U.S. 101.

Refer to the Project Base Map (Attachment A) for the existing right of way mapping.

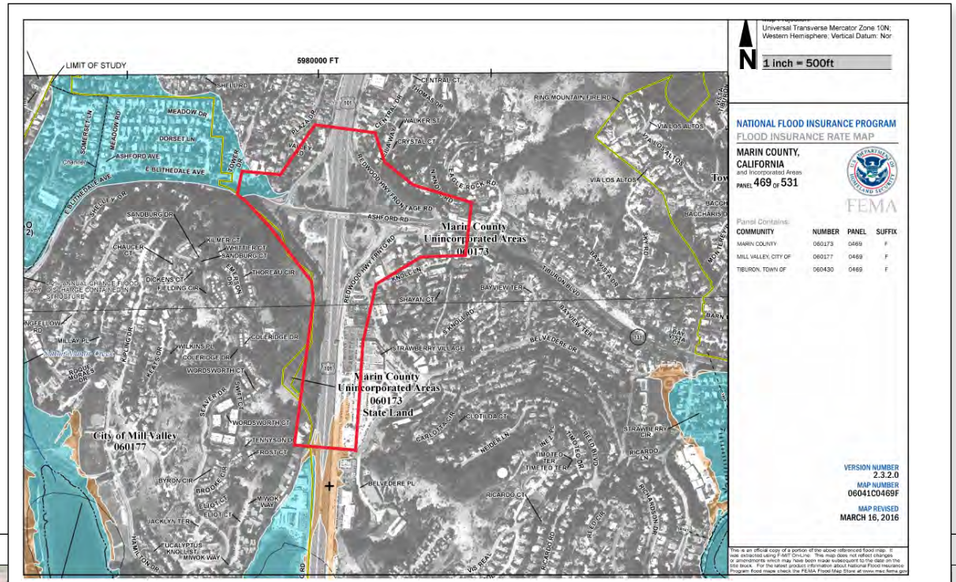
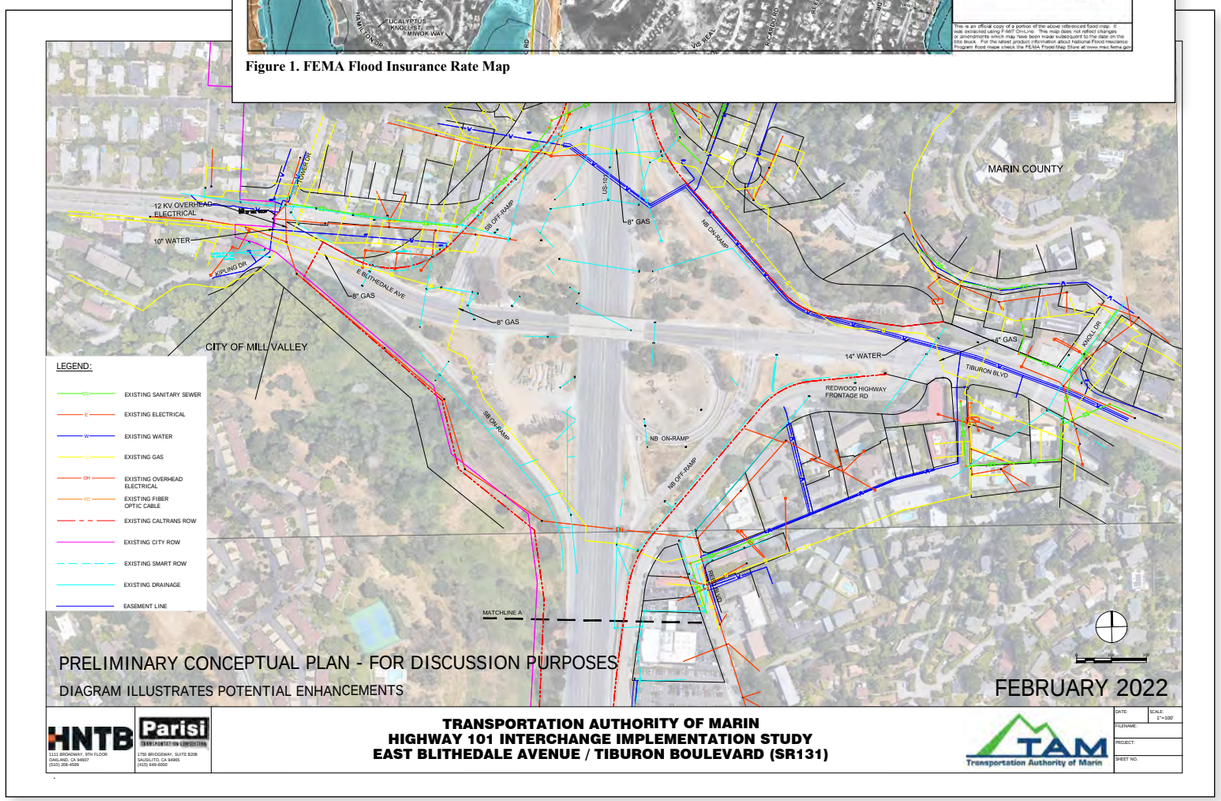


Figure 1. FEMA Flood Insurance Rate Map



NONSTANDARD DESIGN FEATURES

Source: HNTB 2022

LEGEND

- Study Boundary
- Nonstandard Features on Highway
- Nonstandard Features on Local Roadway
- ADA Non-Compliance

- There is less than standard separation between ramp entrance to ramp exit, creating less than standard weaving length at the southbound on-ramp and southbound off-ramp to Redwood Highway.
- The northbound loop on-ramp from East Blithedale has less than standard separation, providing less than standard merge length for vehicles to merge onto Highway 101.
- The southbound and northbound loop on-ramps have less than standard acceleration distance for vehicles to merge onto Highway 101.
- The northbound diagonal on-ramp and northbound Redwood Highway Frontage Road/ Tiburon Boulevard have less than standard lane widths.
- The northbound and southbound on- and off-ramps at the East Blithedale interchanges have less than standard shoulder widths.
- The northbound and southbound loop on-ramps have less than standard truck lane width.
- The East Blithedale Avenue bridge has less than standard bridge vertical clearance – 15.16 feet (standard is 16.5 feet) – over Highway 101.
- There are less than standard lane widths on East Blithedale Avenue.
- There are existing curb ramps that do not meet current ADA standards.

Refer to the Deficiency Matrix (Attachment J) for more information.

MULTIMODAL INFRASTRUCTURE

Source: Parisi Transportation Consulting 2021

LEGEND

- Study Boundary
- Traffic Signal
- Golden Gate Transit Bus Stop
- Marin Transit Bus Stop
- Class II Bike Lane
- Sidewalk

- The interchange provides access between Mill Valley to the west and Tiburon and Belvedere to the east via Tiburon Boulevard. There are no other east-west vehicle or bike routes in the vicinity of the interchange that cross Highway 101. The nearest alternate interchange is 1.7 miles to the north at Tamalpais Drive.
- The interchange is a partial cloverleaf type A, with two loop on-ramps and six diagonal ramps.
- The Highway 101 overcrossing structure was constructed in 1956.
- Tiburon Boulevard and East Blithedale Avenue generally consists of four vehicular travel lanes through the interchange, with two lanes in each direction. Shoulders across the overcrossing are about 4 feet each.
- On-ramps to both northbound and southbound Highway 101 provide free-flow conditions for drivers, allowing access Highway 101 without slowing. Off-ramp terminals from Highway 101 to East Blithedale Avenue and Tiburon Boulevard are signalized. The off-ramp from southbound Highway 101 includes four lanes of traffic, including two wide right-turn lanes to westbound East Blithedale Avenue. The off-ramp from northbound Highway 101 includes three lanes onto Tiburon Boulevard. The approximately 1,000-foot distance between the southbound on-ramp from East Blithedale Avenue and the Redwood Highway exit in Mill Valley can result in a challenging weave between vehicles entering and exiting Highway 101.
- A 6-foot-wide sidewalk is present on the north side of the Highway 101 overcrossing. Crosswalks are present on the north side of the overcrossing at each of the on- and off-ramps. There are no sidewalks on the south side of Tiburon Boulevard and East Blithedale Avenue until west of Kipling Drive.
- No bicycle facilities are present, except for a striped westbound Class II bike lane along the north side of East Blithedale Avenue, west of Tower Drive, and a newly installed westbound Class II bike lane that ends at Redwood Highway. The overcrossing represents a designated bike route in Mill Valley.
- The interchange contains a total of 10 bus stops serving 14 Golden Gate Transit and Marin Transit bus lines, including two bus stops on Highway 101.

TRANSIT ROUTES

Source: Marin Transit 2020 & Golden Gate Transit 2020

LEGEND

- Study Boundary
- Golden Gate Transit Bus Stop
- Marin Transit Bus Stop
- Golden Gate Transit Route
- Marin Transit Route
- Golden Gate Transit Route (101 Only)
- Marin Transit Route (101 Only)

- The interchange area is served by 14 different bus routes, seven Golden Gate Transit routes and seven Marin Transit routes.
- Many of the nearly 500 bus riders per day who access the interchange's bus stops are provided access by crossing uncontrolled freeway on- and off-ramps, traversing steep grades, and walking along unpaved shoulders in order to access these stops. Some of the routes to the stops are not ADA-accessible, and transfers between stops often require circuitous pedestrian routing in addition to the uncomfortable walking conditions.
- A total of eight of the bus routes make stops at the Highway 101 bus pads in the northbound direction, and six routes in the southbound direction, adjacent to the Highway 101 on- and off-ramps. Six of the lines are considered local and run along Redwood Highway, East Blithedale Avenue, and Tiburon Boulevard. The bus stops on the south side of the overcrossing serve five bus routes that travel in the eastbound/southbound direction. On the north side, the bus stop serves three bus routes that travel in the westbound direction. Transfers between the various lines presents challenges for riders, with generally long distances required and without the help of appropriate wayfinding.

TRANSIT RIDERSHIP

Source: Marin Transit 2020 & Golden Gate Transit 2020

- The interchange contains a total of 10 bus stops serving 14 Golden Gate Transit and Marin Transit bus lines, including two bus stops on the northbound and southbound Highway 101 bus pads. Seven of these lines are provided by Golden Gate Transit and the other seven by Marin Transit. This interchange is one of the top three for Marin Transit in terms of the total numbers of passengers served.
- Three of the interchange area's 10 bus stops account for over 70% of the study area's approximately 500 daily bus boardings and alightings, including the southbound U.S. 101 bus pad, the northbound U.S. 101 bus pad, and the southbound Reed Boulevard bus stop.

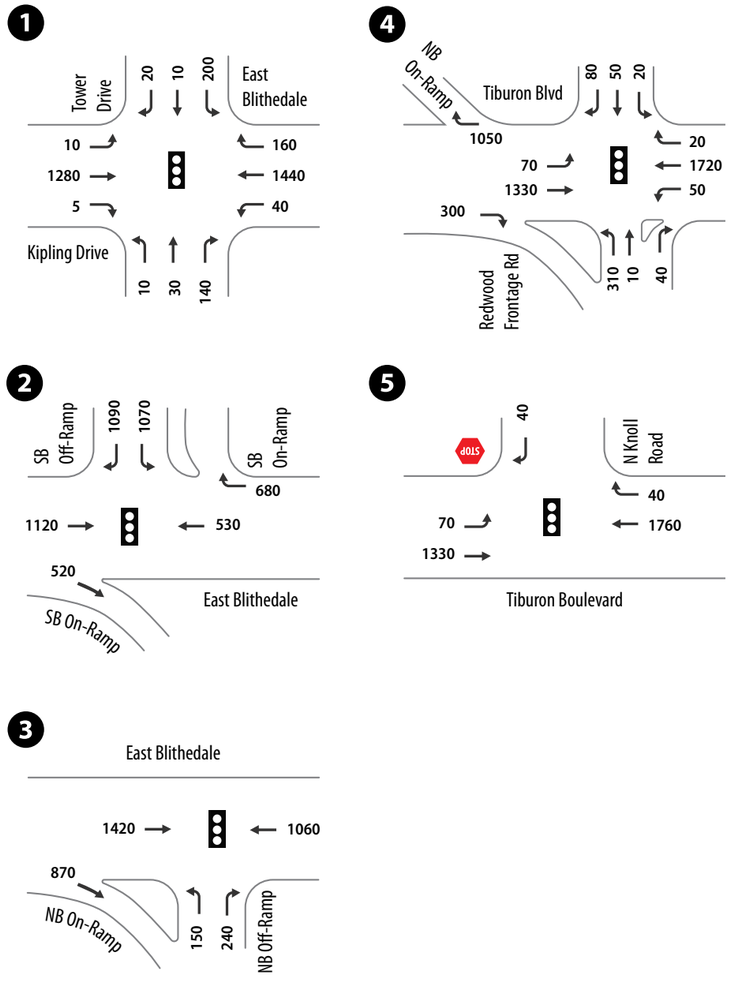
LEGEND

Study Boundary
Traffic Signal
Golden Gate Transit Bus Stop
Marin Transit Bus Stop
Class II Bike Lane
Sidewalk
Onboardings
Offboardings

WEEKDAY PEAK HOUR TRAFFIC VOLUMES

Source: Parisi Transportation Consulting 2021

AM Peak Hour

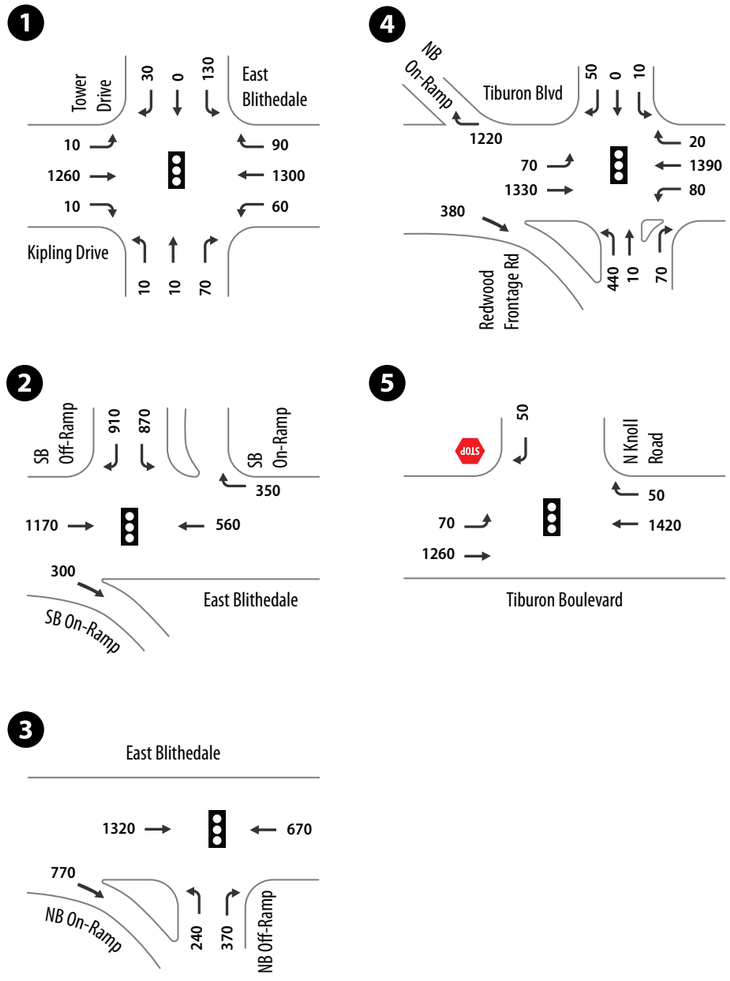


LEGEND

Study Boundary

WEEKDAY PEAK HOUR TRAFFIC VOLUMES

PM Peak Hour



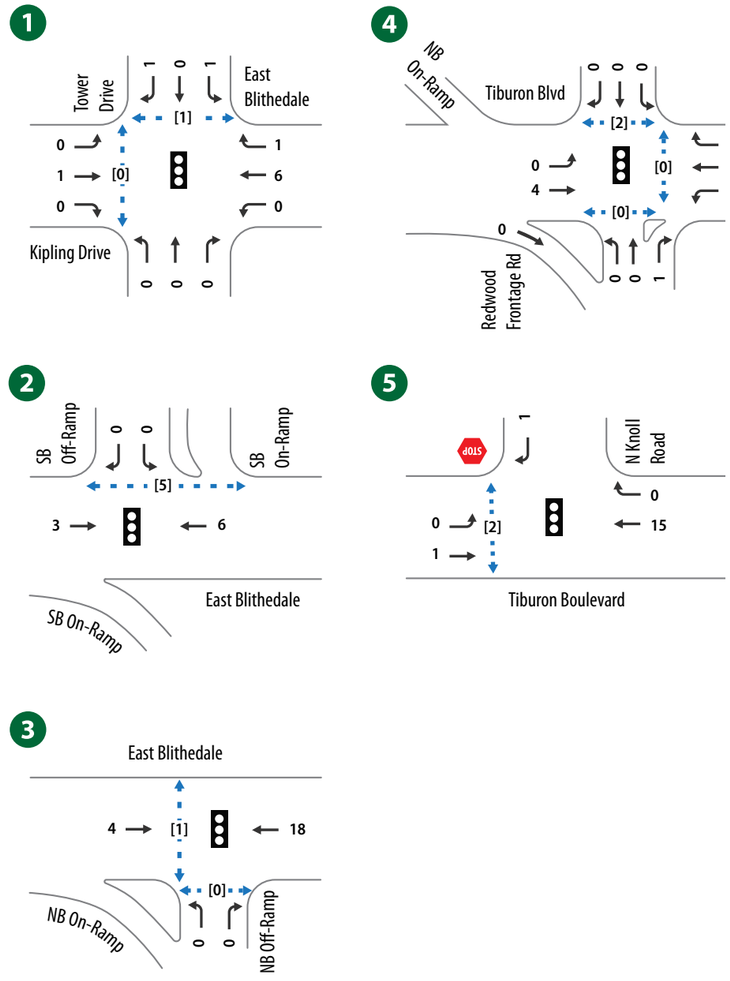
Source: Parisi Transportation Consulting 2021

LEGEND

Study Boundary

WEEKDAY PEAK HOUR PEDESTRIAN & BICYCLIST VOLUMES

AM Peak Hour



Source: Parisi Transportation Consulting 2021

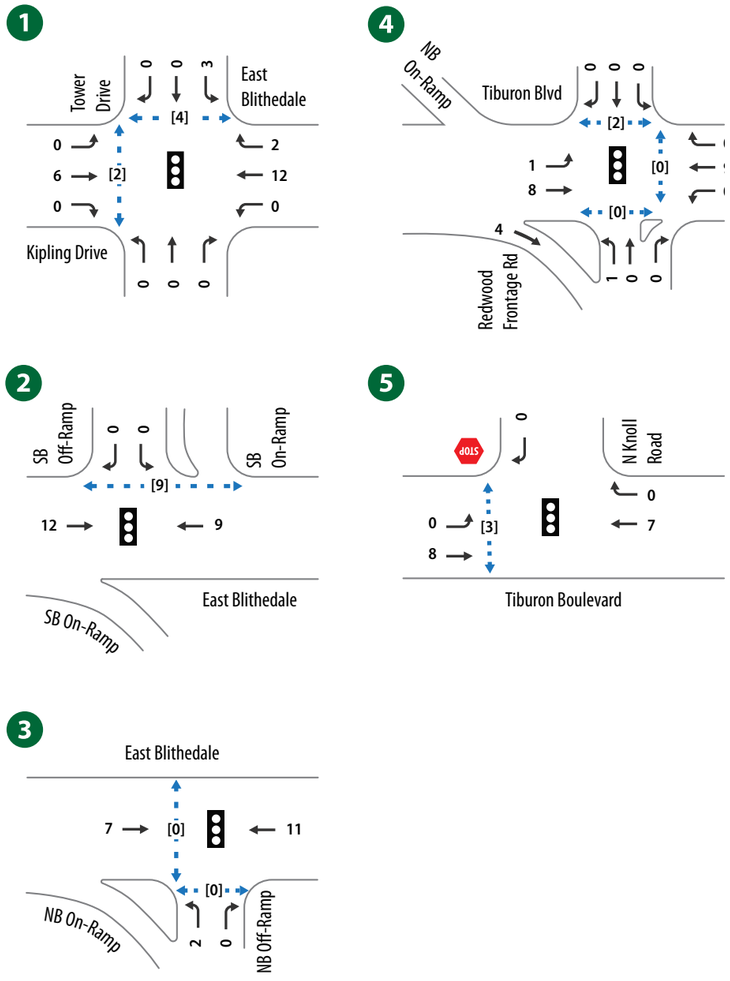
LEGEND

Study Boundary [xx] - Pedestrian xx - Bike

WEEKDAY PEAK HOUR PEDESTRIAN & BICYCLIST VOLUMES

Source: Parisi Transportation Consulting 2021

PM Peak Hour

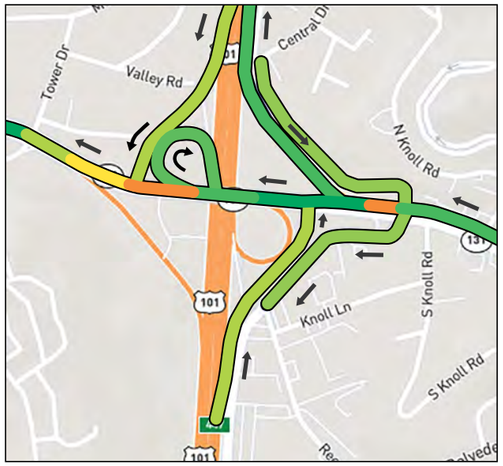


LEGEND

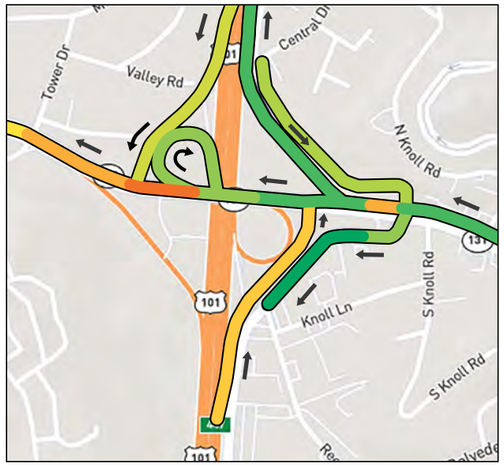
Study Boundary [xx] - Pedestrian xx - Bike

WEEKDAY AM PEAK PERIOD CONGESTION

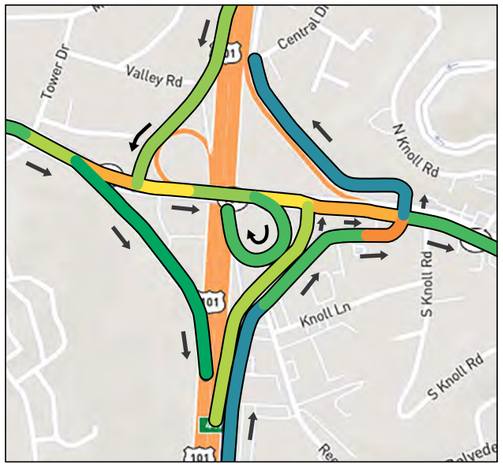
7–8 AM - Westbound & Southbound



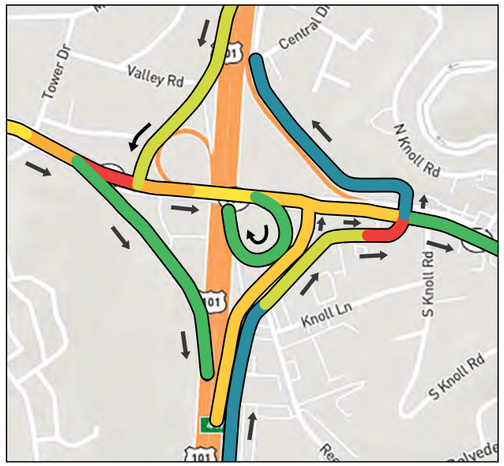
8–9 AM - Westbound & Southbound



7–8 AM - Eastbound & Northbound



8–9 AM - Eastbound & Northbound



Source: INRIX 2019

LEGEND

Study Boundary Most congested Least congested

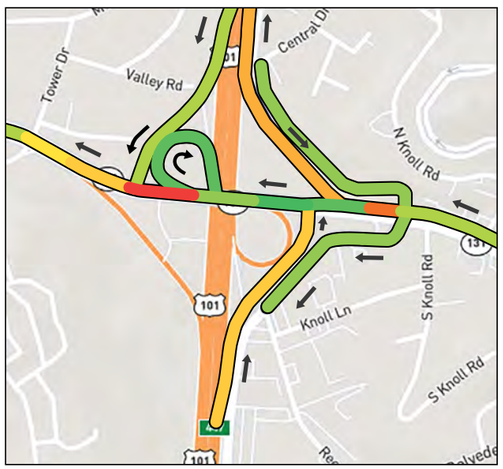
- Over 40,000 vehicles per day are served on the Tiburon Boulevard overcrossing of Highway 101.
- Weekday AM peak period traffic congestion is most pronounced in the eastbound direction approaching the interchange from Mill Valley; some congestion often occurs in the westbound direction as well, approaching from the Tiburon peninsula.
- Vehicles traveling through the traffic signal-controlled Redwood Highway Frontage Road experience the greatest level of congestion, with delays averaging over 40 seconds per vehicle.

Highway 101 East Blithedale Avenue/Tiburon Boulevard (SR 131) Interchange – AM Level of Service (LOS) Summary

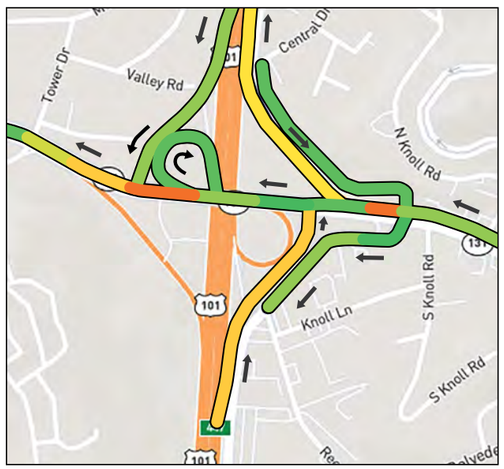
No.	Intersection	LOS	Delay(s)
1	E. Blithedale Ave./Tower Dr./Kipling Dr.	B	18.7
2	E. Blithedale Ave./Hwy. 101 Southbound Off-Ramp	C	23.6
3	Tiburon Blvd./Hwy. 101 Northbound Off-Ramp	B	12.4
4	Tiburon Blvd./Redwood Hwy. Frontage Road	D	43.4
5	Tiburon Blvd./N. Knoll Rd	C	0.8

WEEKDAY PM PEAK PERIOD CONGESTION

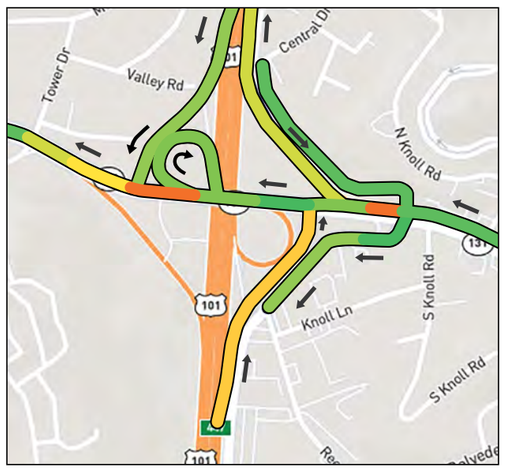
4–5 PM - Westbound & Southbound



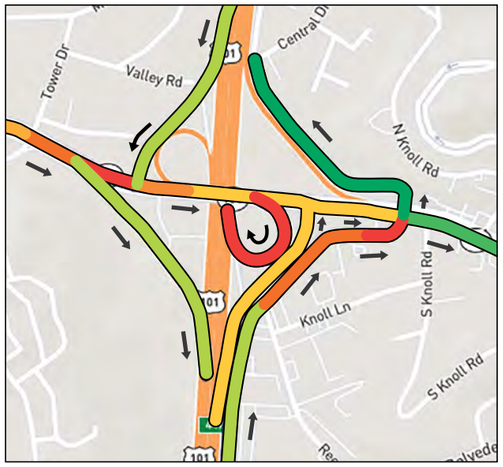
5–6 PM - Westbound & Southbound



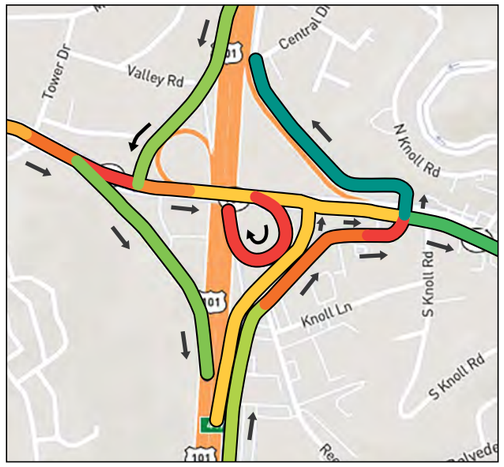
6–7 PM - Westbound & Southbound



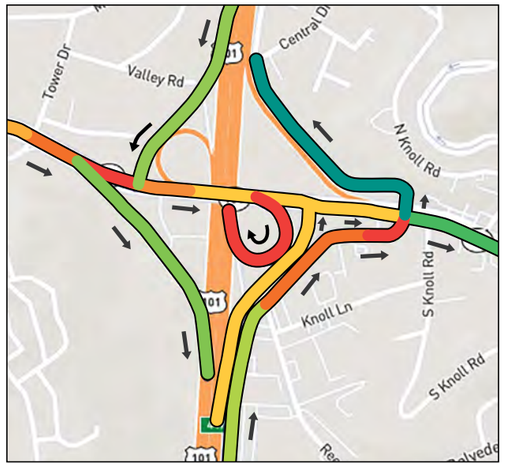
4–5 PM - Eastbound & Northbound



5–6 PM - Eastbound & Northbound



6–7 PM - Eastbound & Northbound



Source: INRIX 2019

LEGEND

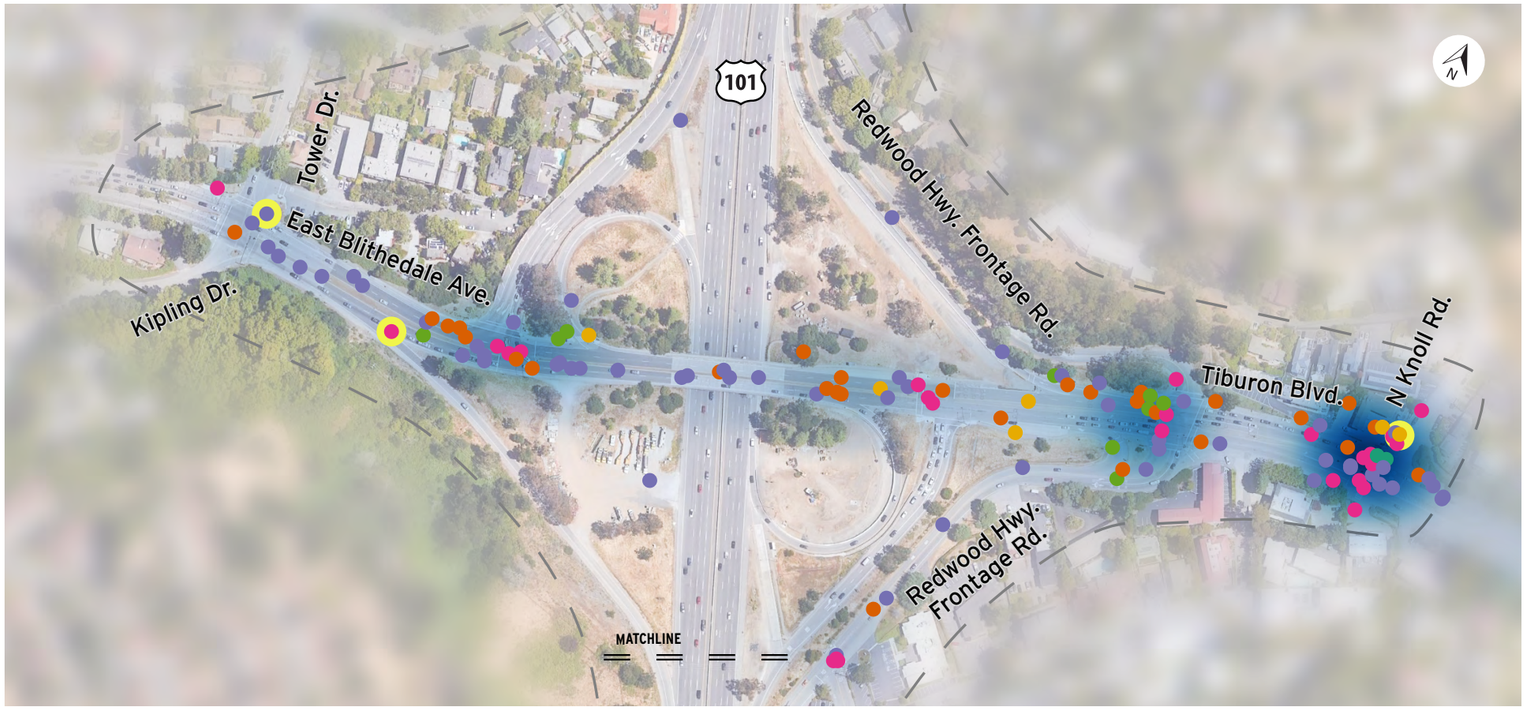
Study Boundary Most congested Least congested

- During the weekday PM peak period, traffic congestion is most pronounced along eastbound East Blithedale Avenue approaching the interchange, as well as eastbound Tiburon Boulevard through the interchange.
- Traffic from Mill Valley tends to primarily be destined for the Highway 101 ramps, thereby overloading the eastbound right-hand lane.
- Traffic turning left (east) from the southbound off-ramp adds to the congestion along the Highway 101 overcrossing, and the Redwood Highway Frontage Road intersection continues to constrain traffic flow.
- Traffic back-ups along the southbound off-ramp, the northbound off-ramp, and along northbound Redwood Highway Frontage Road are common during the weekday PM peak period.

Highway 101 East Blithedale Avenue/Tiburon Boulevard (SR 131) Interchange – PM Level of Service (LOS) Summary

No.	Intersection	LOS	Delay(s)
1	E. Blithedale Ave./Tower Dr./Kipling Dr.	B	14.9
2	E. Blithedale Ave./Hwy. 101 Southbound Off-Ramp	C	22.4
3	Tiburon Blvd./Hwy. 101 Northbound Off-Ramp	C	21
4	Tiburon Blvd./Redwood Hwy. Frontage Road	D	42.1
5	Tiburon Blvd./N. Knoll Rd	C	0.7

CRASH TYPE



Source: SWITRS 2014-2018

- Between 2014-2018, a total of 129 reported collisions took place in the interchange, including on East Blithedale Avenue, Tiburon Boulevard, Redwood Highway, and the intersections with Knoll Road and Tower Drive.
- The 129 reported collisions resulted in 48 injuries, or 37% of all collisions. All of the injury collisions were considered to be minor.
- About 45% of collisions were the result of a rear ending of another vehicle, broadly indicating a combination of high speeds with congestion. Another 42% of collisions were sideswipe and broadside collision types.
- Almost 40% of the collisions were caused by unsafe speeds, with another 34% of the collisions caused by unsafe lane changes, improper turning, and violations of the automobile right of way
- Three collisions involved a bicyclist, and all of the collisions involving bicyclists resulted in an injury. Two of these bicyclist collisions took place at or near East Blithedale Road at Tower Drive, and one at or near Tiburon Boulevard at North Knoll Road.
- While collisions took place along the entirety of East Blithedale Avenue and Tiburon Boulevard, clusters of collisions occurred at or near the Tiburon Boulevard/North Knoll Road intersection. Collisions at this location represented a broad set of crash types, including rear ends, broadsides, sideswipes, and head-on collisions. Two bicyclists were involved in collisions at or near this intersection.

LEGEND

Study Boundary

TYPE OF CRASH

- Head-On
- Side Swipe
- Rear End
- Broadside
- Hit Object
- Other

PEDESTRIAN & BICYCLE INVOLVEMENT

- Involving Bicycle
- Involving Pedestrian

CRASH SEVERITY

- In the five-year period between 2014-2018, a total of 48, or 37%, of the reported 129 collisions along the interchange resulted in injury. All of the injuries were considered to be minor.
- Three collisions involved a bicyclist, and all collisions involving bicyclists resulted in an injury.
- A disproportionate number of collisions resulting in injury occurred at or near the Tiburon Boulevard intersection with North Knoll Road.
- Of the collisions that resulted in injury, 58% were the result of unsafe speed. Another 15% were due to violations of the automobile right of way.

Source: SWITRS 2014-2018

LEGEND

Study Boundary

TYPE OF CRASH
- Minor Injury
- Severe Injury

PEDESTRIAN & BICYCLE INVOLVEMENT
- Involving Bicycle
- Involving Pedestrian

ENVIRONMENTAL CONSTRAINTS

Cultural Resources

Soil types within the interchange and its surroundings are highly sensitive for buried cultural resources, which is supported by documented resources within a quarter-mile radius. Ground disturbing activities could adversely impact previously documented and/or undiscovered prehistoric and historic period archaeological resources.

Changes to visual elements within the interchange could affect undocumented built environment resources.

Technical studies will be required to comply with the California Environmental Quality Act (CEQA) and National Environmental Protection Act (NEPA). Native American consultation is also recommended early in project planning to gather further information on the nature and location of tribal cultural resources.

Hazardous Waste/Materials

Despite the presence of historical releases, there is a low risk for encountering hazardous waste within the interchange. However, aerially deposited lead originating from past vehicle emissions could be a source of contamination within the interchange. Proper disposal of any contaminated soil could add to the overall project cost and potentially delay construction.

An initial site assessment is recommended to further evaluate potential sources of hazardous contamination.

Biological Resources/Water Quality

Habitat for special-status animal species potentially occurs within and near the interchange. Field surveys would be needed to confirm the presence of any special-status species. If present, agency coordination would be required to identify any impacts and permitting may be required.

Sea Level Rise Susceptibility

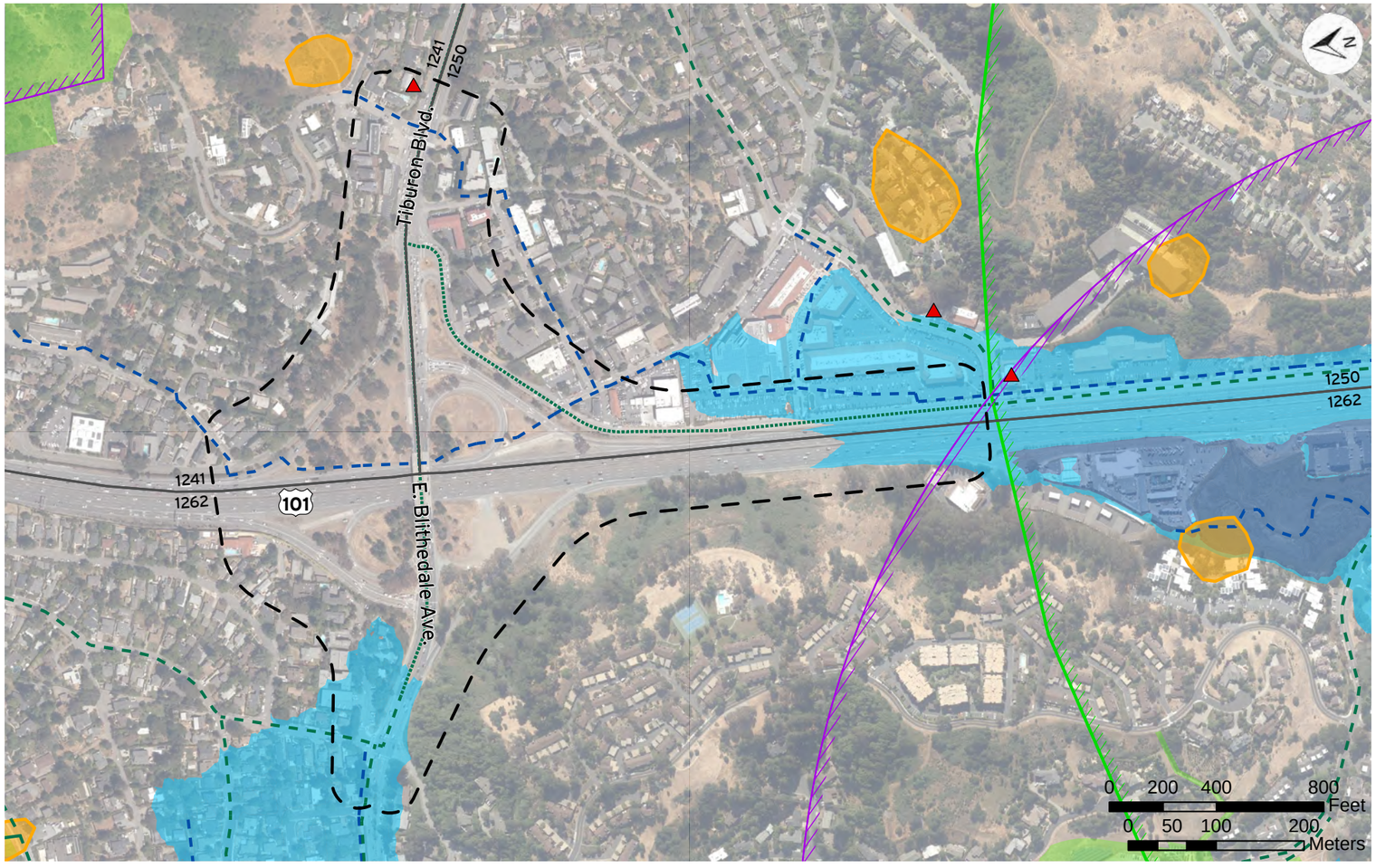
The interchange is not susceptible to SLR inundation during 100-year storm events before 2050 (1 in 200 high emissions scenario equating to two feet of SLR). However, local road networks are susceptible during 100-year storm events before 2030 (1 in 200 high emissions scenario equating to a 0.5 foot rise in sea level). SLR adaptation measures may be needed for project elements proposed on local roadways.

Land Use/Growth

Minority and low-income Environmental Justice communities are likely present in Census Tract 1262. Potential project impacts to these communities would need to be evaluated to determine if disproportionally high and adverse impacts would occur.

Based on review of applicable city general plans, there is a low likelihood that interchange improvements would induce growth.

ENVIRONMENTAL CONSTRAINTS



Sources: Golden Gate National Parks Conservancy, MarinMap, CNDDB, ART, NRHP, NHD, GeoTracker, DTSC.

- Environmental Justice communities are located in Census Tract 1262.
- There is high sensitivity for buried cultural resources.
- There is low risk of encountering hazardous waste contamination.
- There is potential for special-status animal species.
- The interchange is not susceptible to sea level rise. Local roadways may be inundated before 2030.

LEGEND

- Study Boundary
- Trail
- Park
- Hazardous Waste
- Proposed Bike Facility
- Existing Bike Facility
- Built Historical Resources
- Census Tract
- Environmentally Sensitive Area
- Fish Barrier
- Special-Status Plant
- Special-Status Animal
- Perennial Stream
- Intermittent Stream/Culvert
- Critical Habitat
- 36" Sea Level Rise (2052 H++)
- 108" Sea Level Rise (2092 H++)

STAKEHOLDER AGENCY AND PUBLIC OUTREACH

Stakeholder Outreach

At the onset of the project, TAM contacted representatives from the Public Works and Planning departments of the jurisdictions along the project corridor; Marin Transit; Golden Gate Bridge, Highway, and Transportation District; and Caltrans to advise them of the project and solicit a point of contact from each agency. Follow-up meetings were scheduled to seek input on issues of concern, to inform the team of planned projects within the vicinity, and to obtain project information relevant to the study. Jurisdictional stakeholders were also apprised of the evaluation process to select a 12th interchange for study and to gain their concurrence.

TAM Executive Committee and Board Briefings

Briefings were also made to the TAM Administration, Projects & Planning Executive Committee, and the TAM Board for selection of the 12th interchange and to establish the project goals and objectives for evaluation purposes.

Online Survey

An online survey was conducted between March 17 and April 16, 2021, to solicit input from Marin County residents and travelers on the project study interchange locations.

The survey was launched to support the development and refinement of the program's goals and objectives and to gather thoughts and priorities on transportation modes and deficiencies related to interchange improvements and access.

The online survey was distributed widely throughout Marin County through the following mechanisms:

- TAM social media feeds via Facebook and Twitter
- TAM project website
- TAM Traveler Newsletter
- TAM electronic mailer/e-blast
- Partner Agencies and Jurisdictions electronic mailer/e-blast – Organizations/Jurisdictions included in the distribution of the survey included California Walk & Bicycle Technical Advisory Committee, (Caltrans), Marin Transit, Golden Gate Transit, SMART Transit, and cities and towns in Marin County
- Community Groups electronic mailer/e-blast – Organizations included in the distribution of the survey were Marin Bicycle Coalition, San Rafael Canal Alliance, and others
- Paid Facebook advertisement targeting Spanish-speaking audiences
- TAM press release

A total of 2,758 participants were engaged with the survey, which was conducted in Spanish and English.

The online survey asked a series of questions mostly in multiple choice format with the last question allowing participants to provide additional input. These questions were:

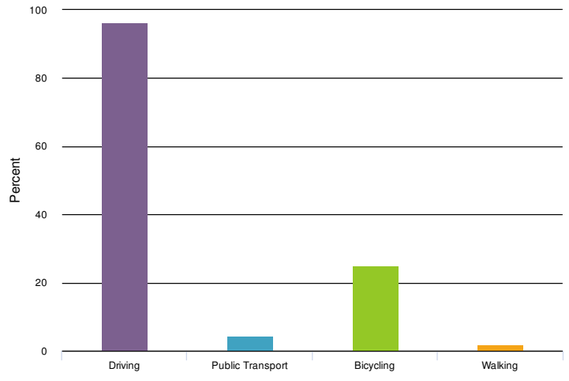
1. How do you normally travel through this interchange? Select up to 2.
   a. Driving
   b. Public Transport
   c. Bicycling
   d. Walking
2. What are the main purposes you use this interchange for? Select up to 2.
   a. Commuting to/from work
   b. School
   c. Shopping
   d. Recreation
   e. Other (please specify)
3. Please rank the following priorities (listed below) for this interchange based on their importance to you. (Priorities were ranked not important, lower importance, no opinion, somewhat important, most important.)
   a. Reduce traffic congestion
   b. Make it easier to drive to and ride from this interchange
   c. Improve the quality and access to bus stops near this interchange
   d. Increase Park and ride capacity
   e. Make it safer to walk around this interchange
   f. Make it safer to bike around this interchange
   g. Improve lighting and security
   h. Improve environmental sustainability (e.g. protection from flooding and sea level rise)
4. Is there anything else you'd like to let us know about traveling on or around this interchange?

Refer to the Online Survey Comments (Attachment K) for a summary of the comments received for the East Blithedale Avenue/Tiburon Boulevard (SR 131) Interchange..

	Not Important	Lower Importance	No Opinion	Somewhat Important	Most Important
Reduce traffic congestion	2.2%	2.4%	2.0%	12.9%	80.5%
Make it easier to drive to and from this interchange	5.4%	6.0%	5.6%	26.4%	56.5%
Improve the quality and access to bus stops near this interchange	24.8%	15.3%	32.9%	15.9%	11.2%
Increase Park and Ride capacity	32.0%	12.6%	34.9%	12.4%	8.1%
Make it safer to walk around this interchange	15.6%	13.9%	21.5%	29.5%	19.5%
Make it safer to bike around this interchange	11.4%	9.8%	14.9%	29.1%	34.89%
Improve lighting and security	17.1%	17.3%	32.1%	21.2%	12.3%
Improve environmental sustainability and resiliency (e.g., protection from flooding and sea level rise)	27.4%	16.3%	25.5%	17.7%	13.2%

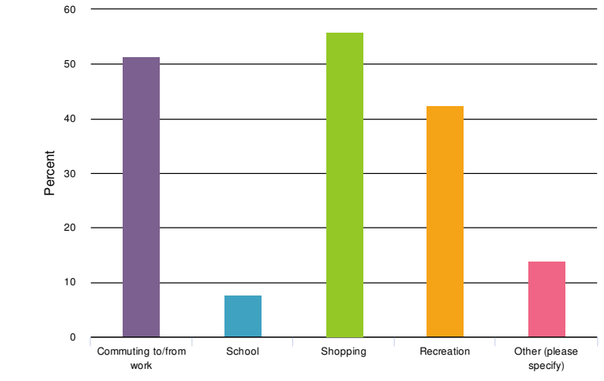
EAST BLITHEDALE AVENUE/TIBURON BOULEVARD (SR 131)

How do you normally travel through this interchange? Select up to two



Value	Percent	Responses
Driving	96.4%	487
Public Transport	4.4%	22
Bicycling	25.0%	126
Walking	1.8%	9

What are the main purposes you use this interchange for? Select up to two



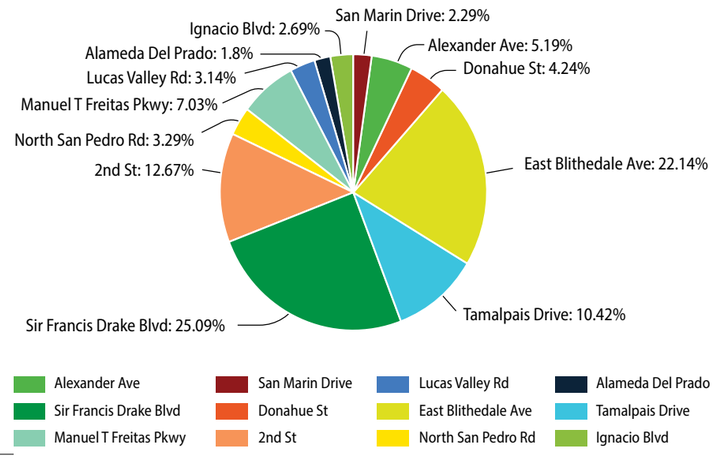
Value	Percent	Responses
Commuting to/from work	51.3%	259
School	7.7%	39
Shopping	56.0%	283
Recreation	42.4%	214
Other (please specify)	13.9%	70

A total of 307 participants provided additional input for the East Blithedale Avenue/Tiburon Boulevard (SR 131) Interchange. Responses from those surveyed are summarized below:

- Traffic congestion
- Emergency egress from Mill Valley
- Traffic operations (i.e., traffic lane designation and turn lane storage)
- Provide a separate bike/pedestrian structure to provide additional bridge width for lane reassignments on overpass
- Traffic signal timing (coordination of timing between different jurisdictions)
- Traffic capacity on overpass (eastbound)
- Widen existing bridge for additional lanes
- Bike lane continuity on overpass
- Provide a safe bike facility
- Provide a separate bike facility
- Access to bus stops by pedestrians and bicyclists

Corridor Summary

The chart below describes the breakdown by interchange for the 2,758 surveyed. The interchange receiving the most input was Sir Francis Drake Blvd with 25.09%, followed by East Blithedale Ave with 22.14%. The third and fourth ranked interchanges in terms of input received were Second Street with 12.67% and Tamalpais Drive with 10.42%. The remaining interchanges received less than 10% of the total input received.



meta-chart.com

Opportunities and Concept Development

PRELIMINARY INTERCHANGE AREA CONCEPTS

This section describes the improvement opportunities identified for the East Blithedale Avenue/Tiburon Boulevard (SR 131) Interchange to address operational deficiencies and safety for all users of the interchange and approaching roadways. These improvements will alleviate existing nonstandard conditions by upgrading existing facilities for vehicular traffic, transit users, pedestrians, and bicyclists.

Concepts aim to address safety for all modes and will provide the following upgrades within the project study area:

- Curb ramps upgraded to meet current ADA requirements.
- Existing traffic signals upgraded and interconnected, where beneficial.
- High visibility crosswalks installed at pedestrian crossings.
- Class II and IV bike lanes painted green.
- Existing sidewalks widened to a 6-foot-wide minimum.
- Minimum 11-foot-wide travel lanes provided.

These features may not necessarily be identified on the concept plans, but they have been accounted for in the project's conceptual cost. The concepts developed take into consideration the deficiencies noted in the preceding sections, data collected from field observations, and an understanding of the interchange from discussions with the local jurisdictions and transit agency representatives.

In addition, the concepts take into consideration planned developments and project improvements in the vicinity of the interchange and projected traffic conditions to the year 2040.

For this interchange, the study has assessed the following projects that have been studied or are currently under consideration:

- Caltrans' Ramp Metering System project that proposes to install ramp metering at all remaining locations on Highway 101 in Marin County.
- A short-term project currently under development by MTC/Caltrans to install ramp metering for all remaining locations on Highway 101 in Marin County. This project has been environmentally cleared.

Concepts have been developed as near- and long-term concepts, which are based primarily on ease of implementation using the following guidelines:

- Near-term projects generally include improvements that may not necessarily be complicated in design, are lower cost, and require a less rigorous project approval process. For example, these improvements can be squaring off curb returns or lane reassignment within the current right of way to provide for a Class II bike lane and sidewalk widening.
- Long-term projects generally include improvements that are more complicated in design, entail significant capital investment, have right of way requirements, and require a more involved project development and approval process. For example, long-term improvements could be a proposal for a bridge widening/replacement or modification to freeway entry and exit points that will require Caltrans and Federal Highway Administration (FHWA) review and approval.

Note that the near-term design features are generally included in the long-term project, allowing for phased implementation to meet funding availability.

The improvement concepts have been shared with the local jurisdictions and transit agency representatives, who have had an opportunity to review and comment on the concepts presented.

Each concept has been assessed for utility impacts, right of way requirements, and potential for environmental impacts. Conceptual cost estimates have been prepared for the near- and long-term concepts.

Examples of Potential Near-Term and Long-Term Improvements

Near-Term	Long-Term
Lane reconfiguration and reassignments	Separated bike/pedestrian paths
Resolve discontinuities in bike lanes	Separate bike/pedestrian overcrossings
Resolve paths of travel and ADA	Structure widening
Signalization and crossing protections	Roundabouts
Tighten curb returns/shorten sidewalks	New interchange configuration
Ramp metering	Significant right of way acquisitions
Access to transit and interconnectivity	Significant environmental impacts

Near-Term Concept

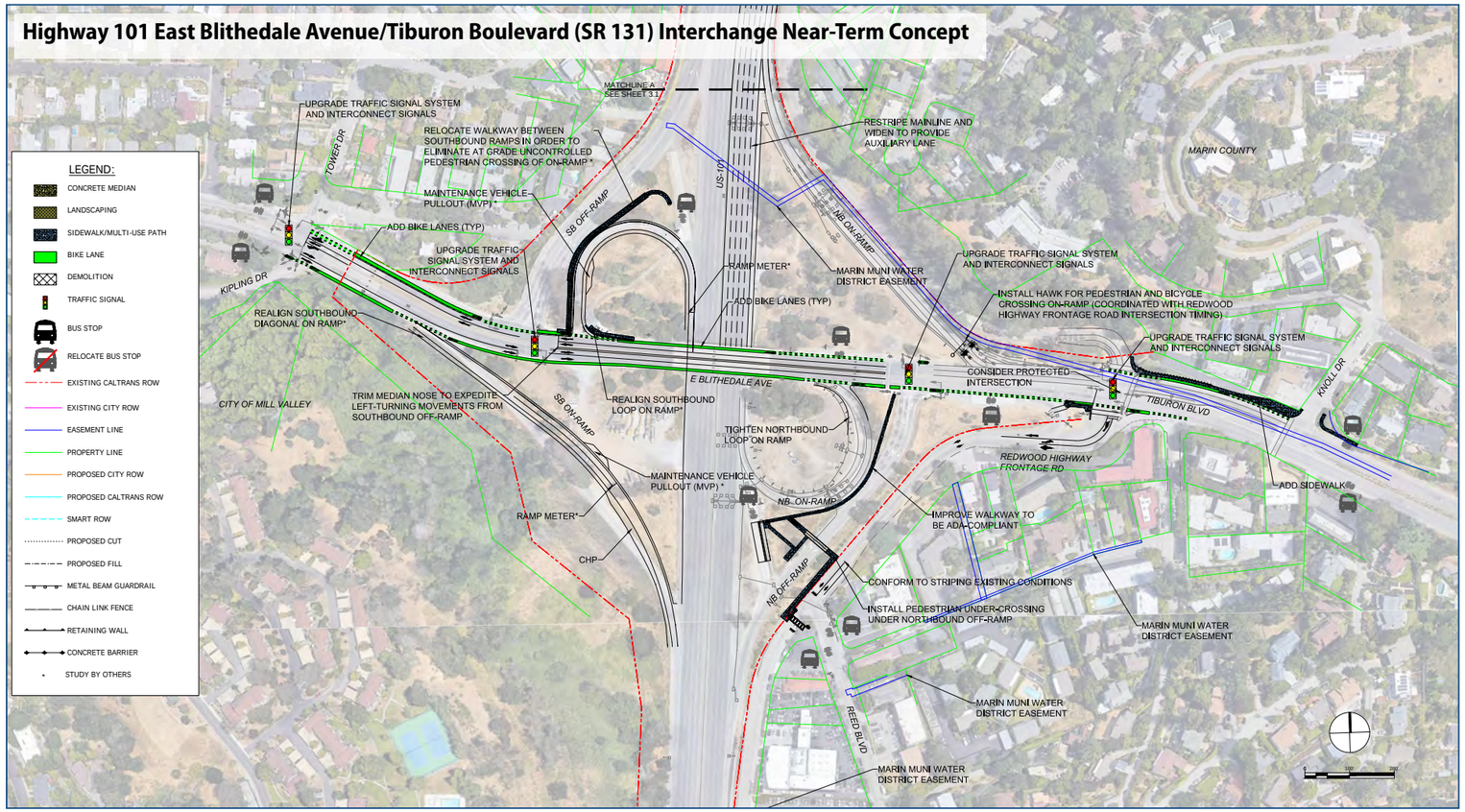
The near-term concept focuses on improving connectivity for all modes.

On the northbound U.S. 101 mainline, the study proposes to restripe the segment of mainline between the northbound loop on-ramp to approximately 500' north of the northbound diagonal on-ramp entrance to mainline. The restriping will provide an auxiliary lane for the northbound loop on-ramp, allowing drivers to merge onto the mainline. This auxiliary lane will merge drivers with the drivers entering from the northbound diagonal on-ramp before conforming to the mainline.

The northbound and southbound loop on-ramp entrances at the East Blithedale / Tiburon Boulevard overcrossing will be reconfigured with tightening of the curb radii to reduce speed of turning vehicles entering the ramp. The tightening of the curb radii will also shorten the pedestrian crosswalk distance and improve driver visibility to the pedestrians.

At the local street, East Blithedale / Tiburon Boulevard is proposed to be restriped to provide two thru lanes and Class II bike lanes in the eastbound and westbound direction between Kipling Drive to just east of Knoll Drive.

Improvements to the existing pedestrian connectivity and accessibility will also be proposed at this interchange. These improvements include ADA- related upgrades to the existing sidewalk that currently connects users from East Blithedale / Tiburon Blvd to the northbound bus stop. ADA-related upgrades include making the cross slope of the sidewalk no more than 2% and providing 6' width. This pathway alternatively connects users to the Strawberry Shopping area via a proposed ADA-compliant pedestrian undercrossing proposed at the northbound off-ramp. This will greatly improve the existing condition where pedestrians are dangerously traversing across the northbound off-ramp to access the northbound bus stop. In addition, a new sidewalk is proposed on the north side of Tiburon between the Redwood Highway Frontage Road and Knoll Road to connect users in the east and west direction.



The existing bus stop locations within the interchange will remain unchanged. Accessibility to the existing bus stop locations are improved with the near-term concept. In addition to the already mentioned accessibility improvements to the northbound bus stop, the southbound bus stop's access will be improved with a new ADA-compliant pathway running alongside the southbound loop on-ramp connecting users from East Blithedale.

Refer to Attachment I for the exhibit associated with the near-term concept.

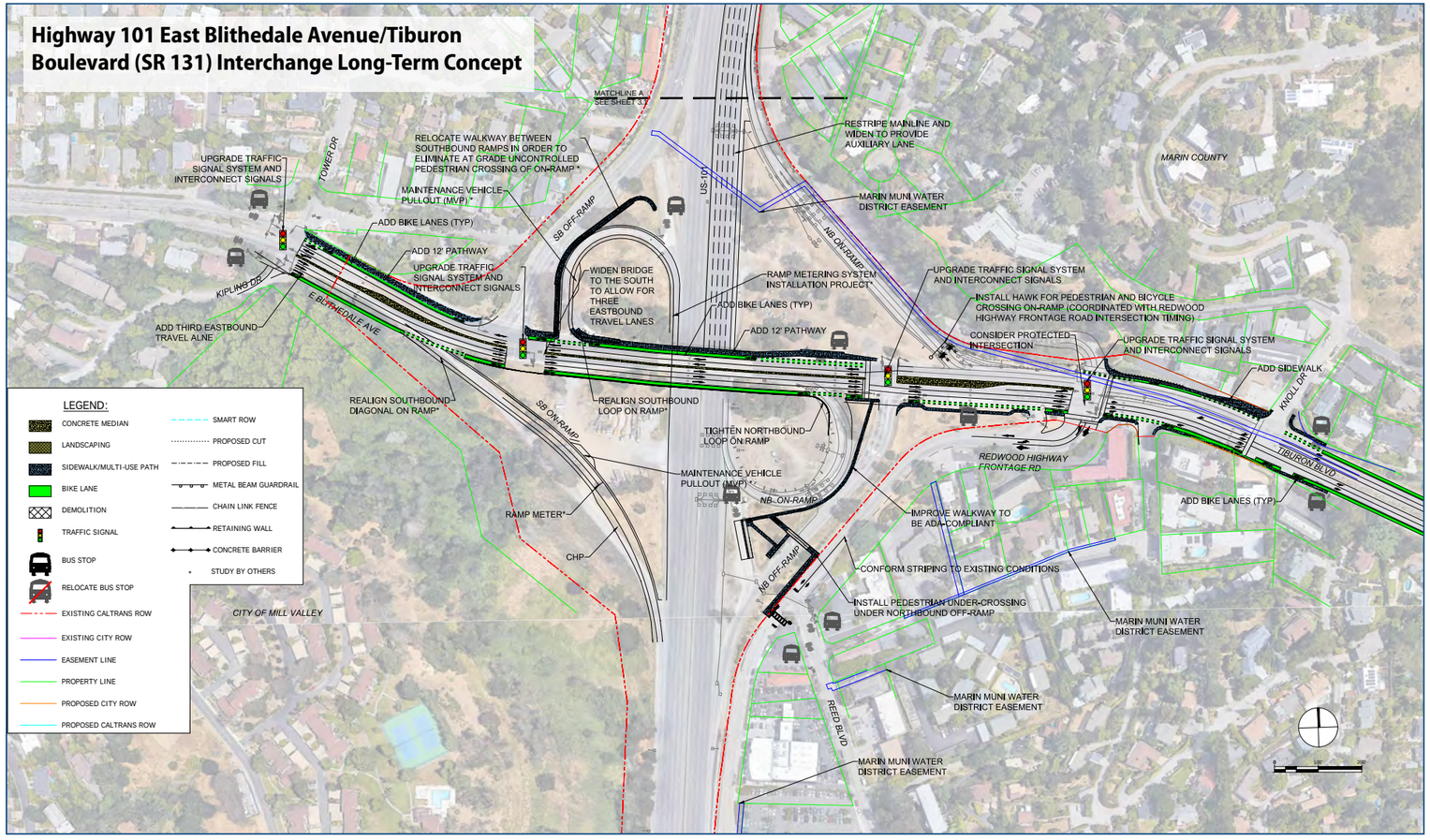
Long-Term Concept

The long-term concept will include some of the near-term improvements proposed supplemented with additional improvements and exceptions as noted.

The existing overcrossing at East Blithedale / Tiburon Boulevard will be proposed to be widened to provide for a third eastbound lane. The third eastbound lane will extend from Kipling Drive to Knoll Drive and conform at Knoll Drive. The widening of the overcrossing will also maintain the existing profile and vertical clearance over the mainline.

Accessibility to existing bus stop locations are improved under this concept. Sidewalks are proposed to connect Redwood Highway Frontage Rd to the existing bus stops located near Knoll Drive for the eastbound and westbound direction.

An alternative long-term concept is also proposed to widen the E. Blithedale overpass to provide for a third eastbound lane. The southbound on-ramp is also proposed to be realigned to form a new four-legged intersection with the southbound off-ramp on E. Blithedale Avenue. The southbound bus stop is proposed to be relocated to near the entrance of the realigned southbound on-ramp with a new bus pull out. The southbound off-ramp will be restriped to provide a two right turn only lanes, a shared left thru lane and a left turn only lane.

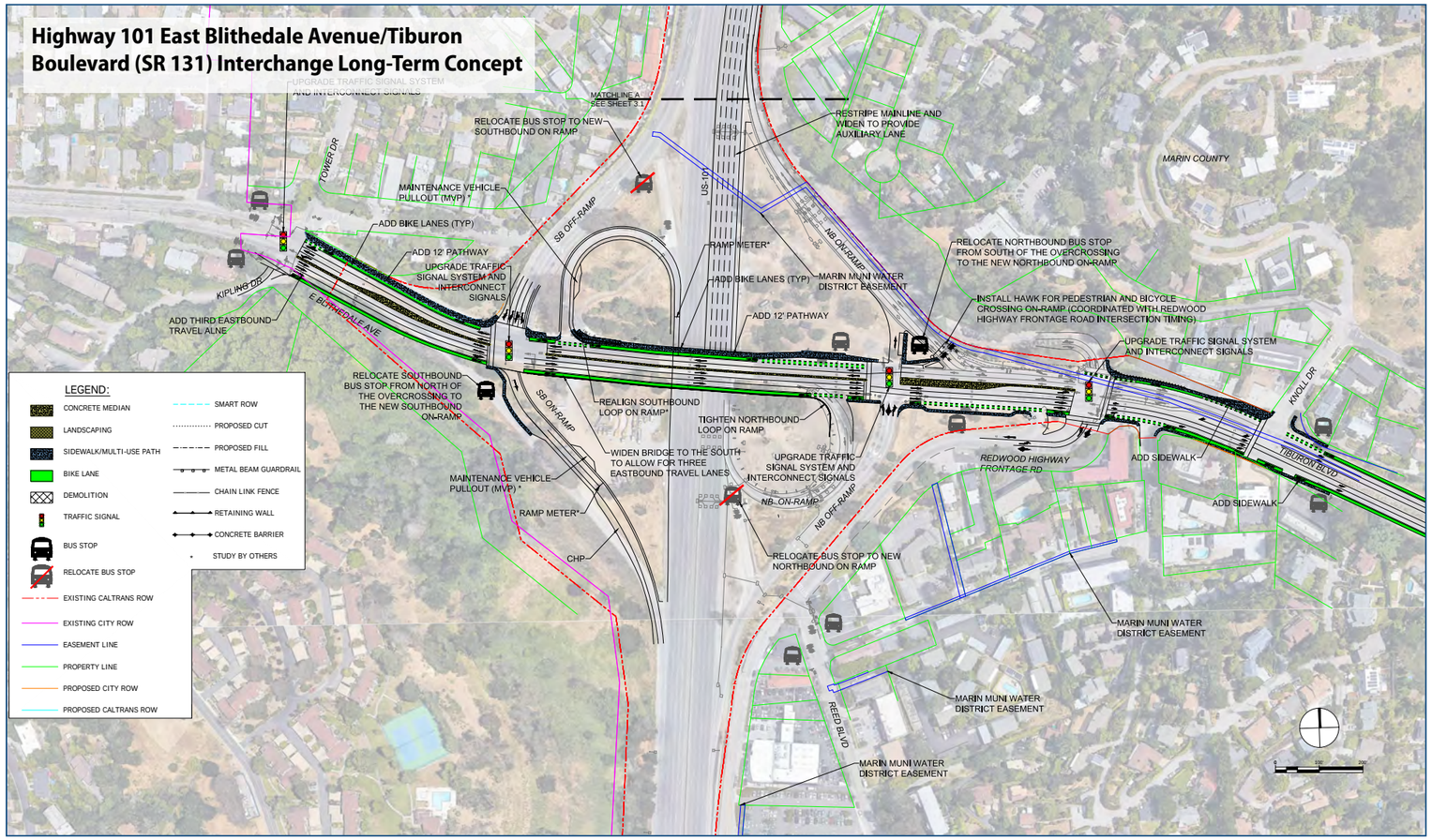


Refer to Attachment I for the exhibit associated with the long-term concept.

Alternate Long-Term Concept

An alternative long-term concept proposes to relocate the existing bus stops currently located near the NB and SB loop on-ramps.

The northbound bus stop is proposed to relocate to the entrance of the NB diagonal on-ramp. The signalized intersection with the northbound off-ramp on E. Blithedale Avenue is modified to provide for a bus-only pass thru lane allowing buses to connect from the NB off-ramp to the diagonal NB on-ramp. The signal will be modified to accommodate this bus only movement. The NB diagonal off-ramp is also restriped to allow for thru movement for buses only.



Refer to Attachment I for the exhibit associated with the alternate long-term concept.

Utility Requirements

Attachment C provides the utility conflict matrix summarizing the impacts for the near- and long-term concepts. A recommended disposition is provided for each utility for this phase of work. It is recommended that these utilities be further evaluated in subsequent design phases as the design is further refined.

A summary of the major utilities identified and affected by the concepts are noted below.

Utility impacts common to the near- and long-term concepts is:

- At the vicinity of Knoll Drive, a 12 kilovolt (kV) line is identified to be affected and will require protecting in place.

Utility impacts identified only for the long-term concepts are:

- At the vicinity of Kipling Drive, a 12 kV, 8" gas are identified to be affected and will require protecting in place.
- At the vicinity of Knoll Drive, a 4" gas is identified to be affected and will require protecting in place.

Right of Way Requirements

The project collected GIS right of way information from MarinMap, Caltrans and right of way record maps, and the assessor's map to assess the right of way requirements for the alternatives developed. The findings are summarized in Attachment D listing the right of way requirements for the near- and long-term concepts. The right of way requirements will be further refined in subsequent design phases.

Environmental Consideration

Benefit to Environmental Justice Communities

According to Census data, minority and low-income Environmental Justice communities are present within the project area. Both the near- and long-term improvements would benefit these communities by improving access to existing transit services. In addition, multimodal improvements (bike lanes, sidewalks, signals, etc.) would encourage the use of alternative modes of transportation and improve connectivity across U.S. 101, reducing its barrier effect.

Ability to Gain Project Approvals

Soil types within the project area are highly sensitive for buried cultural resources. Both the near- and long-term improvements would potentially have substantial and deep excavation within the interchange that could impact previously undiscovered prehistoric and historic period.

Cost Estimate

The project cost for the near- and long-term improvements are summarized below, inclusive of right of way and support costs:

		Escalated Total Project Cost
1	East Blithedale near-term	$17,700,000
2	East Blithedale long-term	$38,000,000
3	East Blithedale long-term - Alternative	$29,100,000

The escalated project cost assumes the project for near- and long-term improvements will start construction in five years with the estimated start to be April 2026 at an annual escalation rate of 3.5%. The project cost is conceptual and will be further refined in subsequent phases.

Refer to Attachment B for backup support for the conceptual cost.

Funding

The Highway 101 Interchange and Approaching Roadway Study is funded through Measure AA – the reauthorized ½-cent transportation sales tax that was approved by Marin voters in 2018. The funding will be used to leverage regional, state, and federal funds for a program of improvements that will be determined through the TAM Board in coordination with Caltrans and the local jurisdictional stakeholders.

Regional and state transportation funding opportunities increased with passage of the Bay Area's Regional Measure 3 in June 2018 and California's Senate Bill 1 (SB1) in 2017. Federal funding is anticipated to play a larger role with recent passage of the Infrastructure Investment and Jobs Act (IIJA) in 2021. In addition, the Highway 101 interchange improvement projects are anticipated to be competitive to a number of grant programs that promote regional and state goals for sustainability and equity, access and mobility, congestion management, clean air, and climate action, such as the Active Transportation Program (ATP), the Transportation Fund for Clean Air (TFCA), and the Climate Action Plan for Transportation Infrastructure (CAPTI).

This interchange might also be eligible for funds through local traffic mitigation impact fees levied on adjacent planned land use developments.

PROJECT IMPLEMENTATION

As part of this study, each of the 12 interchanges will undergo evaluation and prioritization with the goal of identifying the most appropriate projects to move forward into project development.

It is anticipated that the improvements proposed under both the near- and long-term concepts would follow the typical three-phase Caltrans project development process for approval of work within the state's right of way.

- PID (Project Study Report-Project Development Support)
- PA&ED
- PS&E

Project Initiation

The first step in the process is for funding to be obtained for preparation of the PID for the selected project(s). This would likely be sponsored by TAM under Measure AA – the reauthorized ½-cent transportation sales tax that was approved by Marin voters in 2018 – or with assistance from other local and regional funding sources.

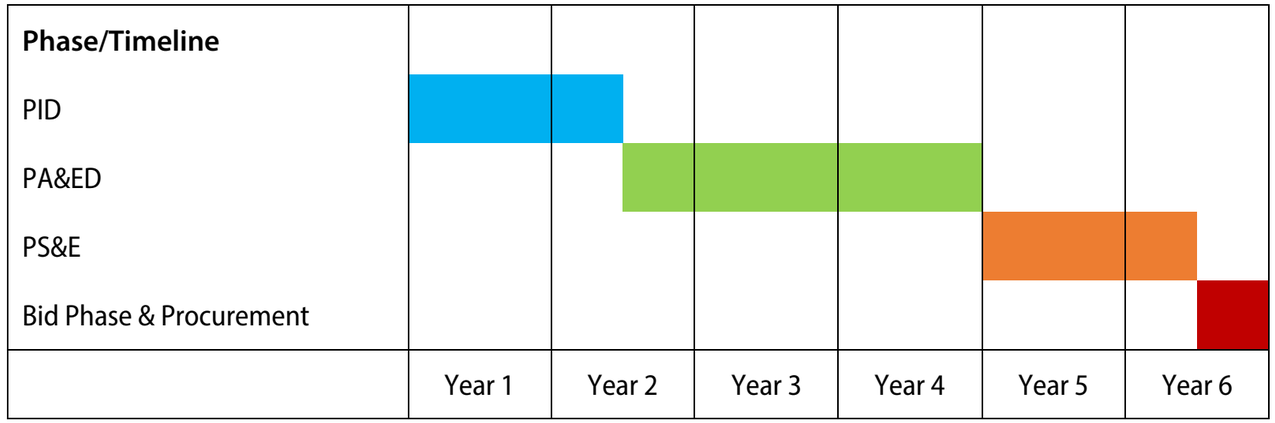
The document would refine and scope the project, or project alternatives, and define the level of effort needed for the environmental phase, including the level of environmental document anticipated and what supporting technical studies would be required. Coordination is required with MTC to ensure the project is entered into the current RTP (Plan Bay Area 2050) and with Caltrans to ensure they have appropriate resources scheduled to support the project.

Phased Implementation

Elements of the project could be implemented in a phased manner by either TAM, the City of Mill Valley, or the Town of Tiburon to meet funding opportunities. For example, improvements outside of Caltrans' right of way could be implemented without entailing the Caltrans project development process, or smaller scale improvements could progress through the Caltrans encroachment permit process once environmental clearance was obtained. Additionally, elements of the project could be incorporated into projects sponsored by Caltrans, such as the long-range ramp-squaring project identified by the System Planning Group.

Timeline

The following chart provides a representative timeline for project development.



Next Steps

1. TAM Board to select a projects(s) to move forward into project development in consultation with agency stakeholders.
2. TAM and the local jurisdiction will coordinate with MTC to have the project included in the current RTP.
3. TAM and the local jurisdiction will secure funding for the PID and will enter into a cooperative agreement with Caltrans for project development.
4. TAM will work with the local jurisdiction and a Project Development Team to prepare the PID for Caltrans approval to proceed to the PA&ED Phase for a locally funded project. Alternatively, TAM can work with the local jurisdiction and a Project Development Team to identify design features that can be implemented through the Caltrans encroachment permit process or on the approaching roadways outside of Caltrans' right of way.
5. TAM and the local jurisdiction will seek funding for subsequent phases of the project. If there is insufficient funding available, it may be possible to phase the improvements.

EAST BLITHEDALE AVENUE/ TIBURON BOULEVARD (SR 131)

ATTACHMENTS

A. Project Base Map

B. Cost Estimates (Near-Term and Long-Term)

C. Utility Impact Matrix

D. Right of Way Requirement Matrix

E. Existing and 2040 Traffic Volumes

F. Collision Data

G. Transit Ridership Data

H. Synchro Output

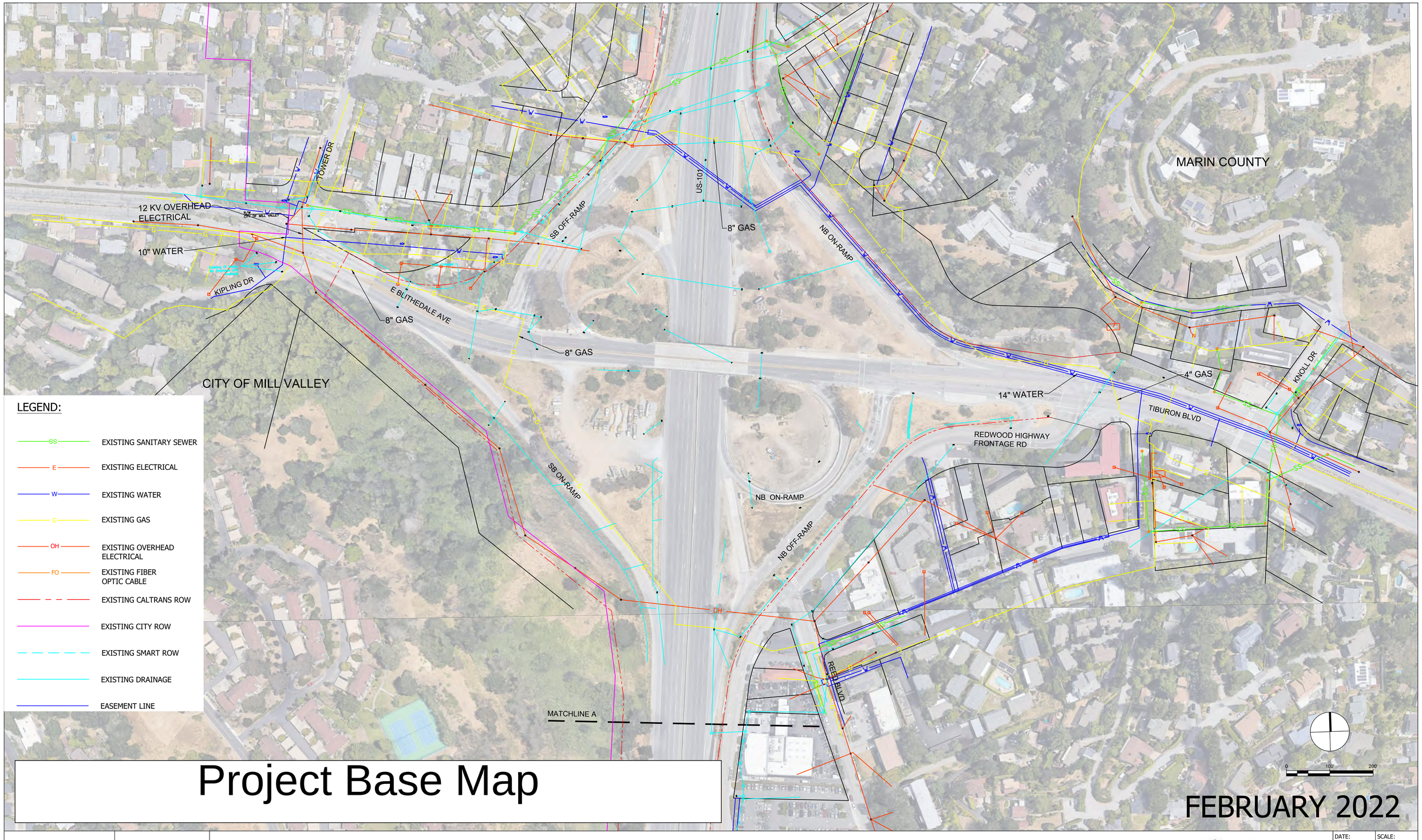
I. Preliminary Conceptual Plans

J. Deficiency Matrix

K. Online Survey Comments

L. Existing FEMA Map

A. Project Base Map



LEGEND:

- SS — EXISTING SANITARY SEWER
- E — EXISTING ELECTRICAL
- W — EXISTING WATER
- G — EXISTING GAS
- OH — EXISTING OVERHEAD ELECTRICAL
- FO — EXISTING FIBER OPTIC CABLE
- EXISTING CALTRANS ROW
- EXISTING CITY ROW
- EXISTING SMART ROW
- EXISTING DRAINAGE
- EASEMENT LINE

Project Base Map

FEBRUARY 2022

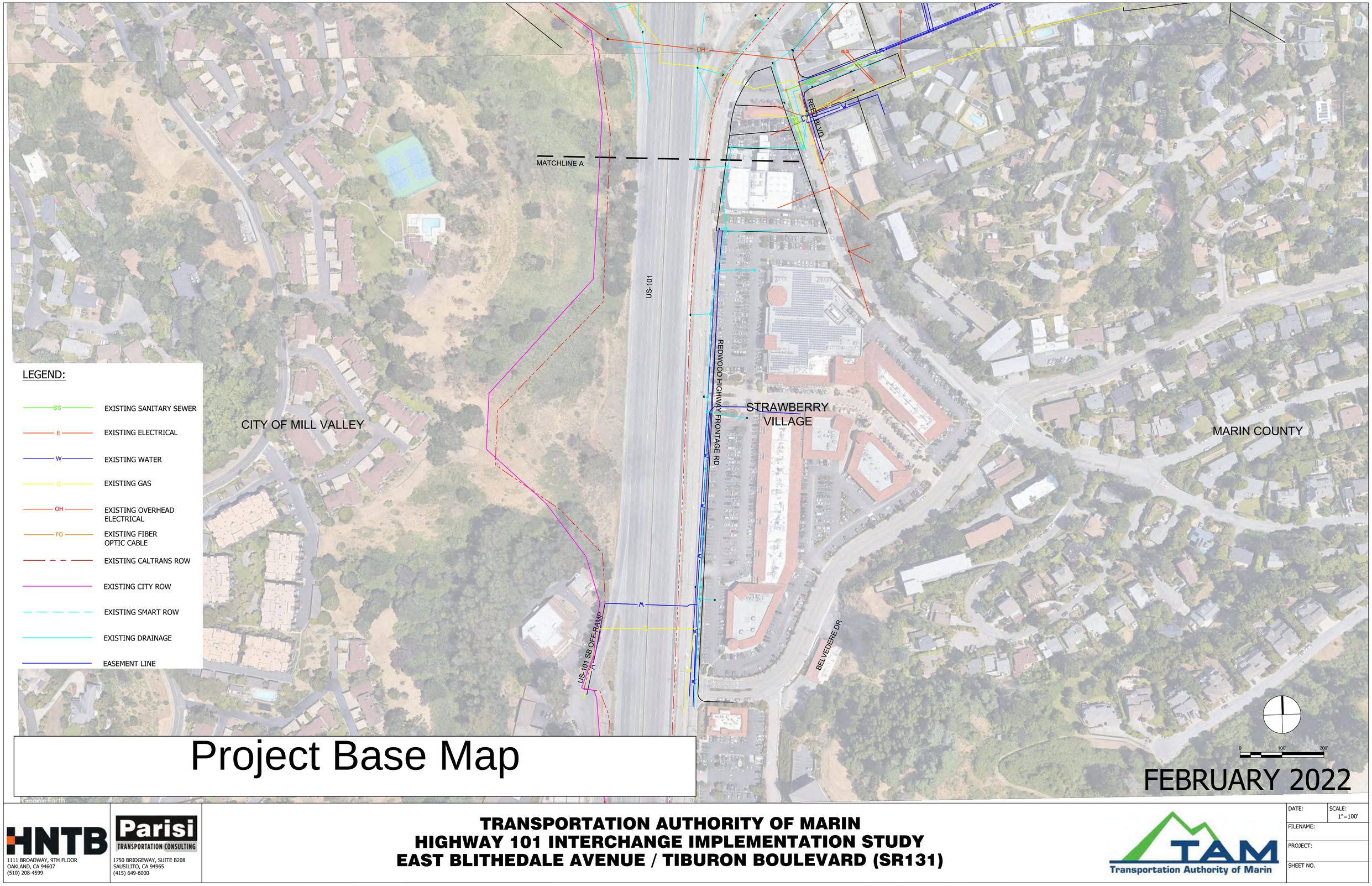
HNTB
1111 BROADWAY, 9TH FLOOR
OAKLAND, CA 94607
(510) 208-4599

Parisi TRANSPORTATION CONSULTING
1750 BRIDGEWAY, SUITE B208
SAUSILITO, CA 94965
(415) 649-6000

TRANSPORTATION AUTHORITY OF MARIN
HIGHWAY 101 INTERCHANGE IMPLEMENTATION STUDY
EAST BLITHEDALE AVENUE / TIBURON BOULEVARD (SR131)

TAM Transportation Authority of Marin

DATE:	SCALE: 1"=100'
FILENAME:	
PROJECT:	
SHEET NO.	



Project Base Map

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TRANSPORTATION AUTHORITY OF MARIN
HIGHWAY 101 INTERCHANGE IMPLEMENTATION STUDY
EAST BLITHEDALE AVENUE / TIBURON BOULEVARD (SR131)

TAM Transportation Authority of Marin

DATE:	SCALE: 1"=100'
FILENAME:	
PROJECT:	
SHEET NO.	

B. Cost Estimates (Near-Term and Long-Term)

Project Cost Estimate

Project Owner:	Transportation Authority of Marin
Project Description:	Hwy 101 Interchange and Approach Roadway Improvement Program
Location:	East Blithedale Ave / Tiburon Blvd (SR 131) - Near Term Improvements
Type of Estimate:	Conceptual Level Cost Estimate
Prepared by:	HNTB

SUMMARY OF PROJECT OUTLAY COSTS

		Current Year Cost	Escalated Cost
I	ROADWAY	$ 5,396,166	$ 6,299,657
II	STRUCTURES	$ 4,245,800	$ 4,956,683
III	RIGHT OF WAY	$ 710,346	$ 829,280
	TOTAL CAPITAL OUTLAY COST	**$ 10,352,312**	**$ 12,085,619**
IV	PRELIMINARY ENGINEERING/ENVIRONMENTAL	$ 771,357	$ 826,297
V	DESIGN ENGINEERING	$ 964,197	$ 997,943
VI	DESIGN SERVICES DURING CONSTRUCTION	$ 289,259	$ 289,259
VII	CONSTRUCTION MANAGEMENT	$ 1,446,295	$ 1,549,307
	TOTAL SUPPORT COST	**$ 3,471,108**	**$ 3,662,807**
	DIRECT PROJECT COST	**$ 13,823,419**	**$ 15,748,426**
VIII	AGENCY MANAGEMENT	$ 1,446,295	$ 1,904,494
	TOTAL PROJECT COST	**$ 15,269,714**	**$ 17,652,920**

Project Cost Estimate

Project Owner: Transporation Authority of Marin
Project Description: Hwy 101 Interchange and Approach Roadway Improvement Program
Location: East Blithedale Ave / Tiburon Blvd (SR 131) - Near Term Improvements

Item code	Description	Unit	Quantity	Unit Price ($)	Cost	
I. Roadway						
01 Earthwork						
1.1	Clearing & Grubbing	LS	1	10,000.00	$ 10,000	
1.2	Roadway Excavation	CY	0	65.00	$ -	
				Subtotal for Item 01 Earthwork	**$ 10,000**	
02 Pavement Structural Section						
2.1	Remove Curb and Gutter	LF	100	25.00	$ 2,500	
2.2	Remove Concrete Sidewalk	SF	550	5.00	$ 2,750	
2.3	Remove Asphalt Concrete Pavement	SF	0	5.00	$ -	
2.4	Remove Concrete Island	SF	0	10.00	$ -	
2.5	Remove Concrete Slope Paving	SF	0	50.00	$ -	
2.6	Pavement Section	SF	32,000	11.00	$ 352,000	
2.7	Microsurfacing	SF	310,000	1.00	$ 310,000	
2.8	Curb and Gutter	LF	650	65.00	$ 42,250	
2.9	Sidewalk / Multi-Use Path	SF	12,300	5.00	$ 61,500	
2.10	Concrete Island/Median	SF	400	25.00	$ 10,000	
				Subtotal for Item 02 Pavement Structural Section	**$ 781,000**	
03 Drainage						
3.1	Drainage (assume % of Roadway Cost Items 1 through 2)		1%		$ 7,910.00	
				Subtotal of Item 03 Drainage	**$ 7,910**	
04 Specialty Items						
4.1	Metal Beam Guard Railing	LF	0	65.00	$ -	
4.2	ADA Curb Ramps	EA	10	4,700.00	$ 47,000	
4.3	Concrete Barrier	LF	1,200	300.00	$ 360,000	
4.4	Retaining Wall (Caltrans Type 1) (H=4'-10')	SQFT	600	160.00	$ 96,000	
4.5	Retaining Wall (Caltrans Type 1) (H=10'-20')	SQFT	0	190.00	$ -	
4.6	Remove Metal Beam Guard Railing	LF	0	20.00	$ -	
4.7	Remove Concrete Barrier	LF	0	50.00	$ -	
				Subtotal for Items 04 Specialty Items	**$ 503,000**	
05 Environmental						
5.1	Landscape and Irrigation	SF	0	35.00	$ -	
5.2	Environmental Mitigation (assume % of Total Cost of Items 1 through 5.1)		20%		$ 260,382	
				Subtotal for Item 05 Environmental	**$ 260,382**	
06 Traffic						
06a Traffic Items						
6a.1	Traffic Signal Upgrade	EA	4	350,000.00	$ 1,400,000	
6a.2	Pedestrian Hybrid Beacon (PHB)	EA	0	175,000.00	$ -	
6a.3	Rapid Reflective Flashing Beacons (one pair)	EA	0	25,000.00	$ -	
6a.4	Traffic Signal Priority	EA	0	150,000.00	$ -	
6a.5	Traffic Operations Systems (Ramp Metering)	EA	0	350,000.00	$ -	
6a.6	Traffic Signal (New)	EA	0	500,000.00	$ -	
				Subtotal for Item 06a Traffic Items	**$ 1,400,000**	
					Subtotal Sections 1 through 6a	**$ 2,962,292**
06b Additional Traffic Items						
6b.1	High Visibility Crosswalk (cost by width of roadway)	LF	220	36.00	$ 7,920	
6b.2	Highway Signage Structure	EA	0	1,000,000.00	$ -	
6b.3	Signing and Striping	LS	1	200,000.00	$ 200,000	
6b.4	Remove Signing and Striping		1%		$ 29,623	
6b.5	Roadway Lighting		2%		$ 59,246	
6b.6	Stage Construction and Traffic Handling	LS	1	200,000.00	$ 200,000	
				Subtotal for Item 06b Traffic Items	**$ 496,789**	
					Subtotal Sections 1 through 6	**$ 3,459,081**
07 Minor Items						
7.1	American with Disabilities Act Items		1%		$ 34,590.81	
7.2	Bike Path Items		1%		$ 34,591	
7.3	Other Minor Items		8%		$ 276,726	
				Subtotal of Item 07 Minor Items	**$ 345,908**	
08 Roadway Mobilization						
8.1	Roadway Mobilization		10%		$ 345,908	
				Subtotal for Item 08 Roadway Mobilization	**$ 345,908**	
09 Roadway Contingency						
9.1	Roadway Contingency (assume % of total cost of Section Items 01-08)		30%		$ 1,245,269	
				Subtotal for Item 09 Roadway Contingency	**$ 1,245,269**	
					Subtotal for Items 1-9 (Roadway)	**$ 5,396,166**

Project Cost Estimate

Project Owner: Transporation Authority of Marin
Project Description: Hwy 101 Interchange and Approach Roadway Improvement Program
Location: East Blithedale Ave / Tiburon Blvd (SR 131) - Near Term Improvements

Item code	Description	Unit	Quantity	Unit Price ($)	Cost	
II. Structures						
10 Structures						
10.1	Bridge Demolition	SF	0	60.00	$ -	
10.2	New Bridge Structure	SF	0	500.00	$ -	
10.3	Bridge Widening	SF	0	600.00	$ -	
10.4	Pedstrian Overcrossing (including ramp)	SF	0	550.00	$ -	
10.5	Pedestrian Undercrossing (including ramp)	SF	660	600.00	$ 396,000	
10.6	Tunnel	SF	0	1,200.00	$ -	
10.7	Structure modification (eg. curb tightening)	SF	4,100	700.00	$ 2,870,000	
			Subtotal for Item 10 Structures		**$ 3,266,000**	
10.8	Structure Contingency	30%			$ 979,800.00	
					Subtotal for Structures	**$ 4,245,800**
	TOTAL CONSTRUCTION COST (TCC) - SUM OF ITEMS 1-10 (ROADWAY AND STRUCTURES)					**$ 9,641,966**
III. Right of Way						
III.1	Right of Way Acquisition	SF	0	65.00	$ -	
III.2	TCE	SF	30,000	15.00	$ 450,000	
III.3	Utility Relocation (assume % of total cost of Section 01-10)	1%			$ 96,420	
			Subtotal for Item 11 Right of Way		**$ 546,420**	
III.4	Right of Way Contingency	30%			$ 163,925.90	
					Subtotal for Right of Way	**$ 710,346**
Engineering and Management Costs						
			TCC	**Duration (Year)**	**Unescalatd Risk Loaded**	**Escalated (per year of TCC)**
						(escalation rate = 3.5%)
IV	**Preliminary Engineering/Environmental**	8%	***$ 9,641,966***	*2*	$ 771,357.28	$ 826,297.20
V	**Design Engineering**	10%	***$ 9,641,966***	*1*	$ 964,196.60	$ 997,943.48
VI	**Design Services During Construction**	3%	***$ 9,641,966***	*2*	$ 289,258.98	$ 289,258.98
VII	**Construction Management**	15%	***$ 9,641,966***	*2*	$ 1,446,294.90	$ 1,549,307.25
VIII	**Agency Management**	15%	***$ 9,641,966***	*8*	$ 1,446,294.90	$ 1,904,494.19
Escalation						
		Value				
	Date of Estimate (Month/Year)	11/5/2021				
	Anticipated Project Inititation Document Start (1-year duration)	April 2022				
	Anticipated year to begin construction (Month Year)	April 2026				
	Estimated construction duration (in years)	2				
	Years of Escalation (to start of construction)	4.5				
	Annual Escalation Rate, percentage	3.5%				
	Total Escalation	117%				
					Current Year Cost	**Escalated**
			Escalated Roadway Cost		**$ 5,396,166**	**$ 6,299,657**
			Escalated Structure Cost		**$ 4,245,800**	**$ 4,956,683**
			Escalated Right of Way Cost		**$ 710,346**	**$ 829,280**

Project Cost Estimate

Project Owner: Transportation Authority of Marin
Project Description: Hwy 101 Interchange and Approach Roadway Improvement Program
Location: East Blithedale Ave / Tiburon Blvd (SR 131) - Long Term Improvements
Type of Estimate: Conceptual Level Cost Estimate
Prepared by: HNTB

SUMMARY OF PROJECT OUTLAY COSTS

		Current Year Cost	Escalated Cost
I	ROADWAY	$ 10,073,185	$ 11,759,758
II	STRUCTURES	$ 10,875,800	$ 12,696,756
III	RIGHT OF WAY	$ 1,222,624	$ 1,427,330
	TOTAL CAPITAL OUTLAY COST	**$ 22,171,608**	**$ 25,883,844**
IV	PRELIMINARY ENGINEERING/ENVIRONMENTAL	$ 1,675,919	$ 1,795,286
V	DESIGN ENGINEERING	$ 2,094,898	$ 2,168,220
VI	DESIGN SERVICES DURING CONSTRUCTION	$ 628,470	$ 628,470
VII	CONSTRUCTION MANAGEMENT	$ 3,142,348	$ 3,366,161
	TOTAL SUPPORT COST	**$ 7,541,634**	**$ 7,958,137**
	DIRECT PROJECT COST	**$ 29,713,243**	**$ 33,841,981**
VIII	AGENCY MANAGEMENT	$ 3,142,348	$ 4,137,872
	TOTAL PROJECT COST	**$ 32,855,590**	**$ 37,979,853**

Project Cost Estimate

Project Owner: Transporation Authority of Marin
Project Description: Hwy 101 Interchange and Approach Roadway Improvement Program
Location: East Blithedale Ave / Tiburon Blvd (SR 131) - Long Term Improvements

Item code	Description	Unit	Quantity	Unit Price ($)	Cost	
I. Roadway						
01 Earthwork						
1.1	Clearing & Grubbing	LS	1	10,000.00	$ 10,000	
1.2	Roadway Excavation	CY	0	65.00	$ -	
			Subtotal for Item 01 Earthwork		**$ 10,000**	
02 Pavement Structural Section						
2.1	Remove Curb and Gutter	LF	2,100	25.00	$ 52,500	
2.2	Remove Concrete Sidewalk	SF	12,200	5.00	$ 61,000	
2.3	Remove Asphalt Concrete Pavement	SF	0	5.00	$ -	
2.4	Remove Concrete Island	SF	11,000	10.00	$ 110,000	
2.5	Remove Concrete Slope Paving	SF	0	50.00	$ -	
2.6	Pavement Section	SF	64,300	11.00	$ 707,300	
2.7	Microsurfacing	SF	310,000	1.00	$ 310,000	
2.8	Curb and Gutter	LF	6,300	65.00	$ 409,500	
2.9	Sidewalk / Multi-Use Path	SF	33,200	5.00	$ 166,000	
2.10	Concrete Island/Median	SF	11,000	25.00	$ 275,000	
			Subtotal for Item 02 Pavement Structural Section		**$ 2,091,300**	
03 Drainage						
3.1	Drainage (assume % of Roadway Cost Items 1 through 2)		1%		$ 21,013.00	
			Subtotal of Item 03 Drainage		**$ 21,013**	
04 Specialty Items						
4.1	Metal Beam Guard Railing	LF	0	65.00	$ -	
4.2	ADA Curb Ramps	EA	19	4,700.00	$ 89,300	
4.3	Concrete Barrier	LF	1,200	300.00	$ 360,000	
4.4	Retaining Wall (Caltrans Type 1) (H=4'-10')	SQFT	600	160.00	$ 96,000	
4.5	Retaining Wall (Caltrans Type 1) (H=10'-20')	SQFT	0	190.00	$ -	
4.6	Remove Metal Beam Guard Railing	LF	0	20.00	$ -	
4.7	Remove Concrete Barrier	LF	0	50.00	$ -	
			Subtotal for Items 04 Specialty Items		**$ 545,300**	
05 Environmental						
5.1	Landscape and Irrigation	SF	0	35.00	$ -	
5.2	Environmental Mitigation (assume % of Total Cost of Items 1 through 5.1)		20%		$ 533,523	
			Subtotal for Item 05 Environmental		**$ 533,523**	
06 Traffic						
06a Traffic Items						
6a.1	Traffic Signal Upgrade	EA	4	350,000.00	$ 1,400,000	
6a.2	Pedestrian Hybrid Beacon (PHB)	EA	0	175,000.00	$ -	
6a.3	Rapid Reflective Flashing Beacons (one pair)	EA	0	25,000.00	$ -	
6a.4	Traffic Signal Priority	EA	0	150,000.00	$ -	
6a.5	Traffic Operations Systems (Ramp Metering)	EA	0	350,000.00	$ -	
6a.6	Traffic Signal (New)	EA	0	500,000.00	$ -	
			Subtotal for Item 06a Traffic Items		**$ 1,400,000**	
					Subtotal Sections 1 through 6a	**$ 4,601,136**
06b Additional Traffic Items						
6b.1	High Visibility Crosswalk (cost by width of roadway)	LF	500	36.00	$ 18,000	
6b.2	Highway Signage Structure	EA	1	1,000,000.00	$ 1,000,000	
6b.3	Signing and Striping	LS	1	200,000.00	$ 200,000	
6b.4	Remove Signing and Striping		1%		$ 46,011	
6b.5	Roadway Lighting		2%		$ 92,023	
6b.6	Stage Construction and Traffic Handling	LS	1	500,000.00	$ 500,000	
			Subtotal for Item 06b Traffic Items		**$ 1,856,034**	
					Subtotal Sections 1 through 6	**$ 6,457,170**
07 Minor Items						
7.1	American with Disabilities Act Items		1%		$ 64,571.70	
7.2	Bike Path Items		1%		$ 64,572	
7.3	Other Minor Items		8%		$ 516,574	
			Subtotal of Item 07 Minor Items		**$ 645,717**	
08 Roadway Mobilization						
8.1	Roadway Mobilization		10%		$ 645,717	
			Subtotal for Item 08 Roadway Mobilization		**$ 645,717**	
09 Roadway Contingency						
9.1	Roadway Contingency (assume % of total cost of Section Items 01-08)		30%		$ 2,324,581	
			Subtotal for Item 09 Roadway Contingency		**$ 2,324,581**	
					Subtotal for Items 1-9 (Roadway)	**$ 10,073,185**

Project Cost Estimate

Project Owner: Transporation Authority of Marin
Project Description: Hwy 101 Interchange and Approach Roadway Improvement Program
Location: East Blithedale Ave / Tiburon Blvd (SR 131) - Long Term Improvements

Item code	Description	Unit	Quantity	Unit Price ($)	Cost	
II. Structures						
10 Structures						
10.1	Bridge Demolition	SF	0	60.00	$ -	
10.2	New Bridge Structure	SF	0	500.00	$ -	
10.3	Bridge Widening	SF	8,500	600.00	$ 5,100,000	
10.4	Pedstrian Overcrossing (including ramp)	SF	0	550.00	$ -	
10.5	Pedestrian Undercrossing (including ramp)	SF	660	600.00	$ 396,000	
10.6	Tunnel	SF	0	1,200.00	$ -	
10.7	Structure modification (eg. curb tightening)	SF	4,100	700.00	$ 2,870,000	
			Subtotal for Item 10 Structures		**$ 8,366,000**	
10.8	Structure Contingency	30%			$ 2,509,800.00	
					Subtotal for Structures	**$ 10,875,800**
	TOTAL CONSTRUCTION COST (TCC) - SUM OF ITEMS 1-10 (ROADWAY AND STRUCTURES)					**$ 20,948,985**
III. Right of Way						
III.1	Right of Way Acquisition	SF	1,100	65.00	$ 71,500	
III.2	TCE	SF	30,000	15.00	$ 450,000	
III.3	Utility Relocation (assume % of total cost of Section 01-10)	2%			$ 418,980	
			Subtotal for Item 11 Right of Way		**$ 940,480**	
III.4	Right of Way Contingency	30%			$ 282,143.91	
					Subtotal for Right of Way	**$ 1,222,624**

Engineering and Management Costs						
			TCC	**Duration (Year)**	**Unescalatd Risk Loaded**	**Escalated (per year of TCC)**
						(escalation rate = 3.5%)
IV	**Preliminary Engineering/Environmental**	8%	***$ 20,948,985***	*2*	$ 1,675,918.77	$ 1,795,286.09
V	**Design Engineering**	10%	***$ 20,948,985***	*1*	$ 2,094,898.47	$ 2,168,219.91
VI	**Design Services During Construction**	3%	***$ 20,948,985***	*2*	$ 628,469.54	$ 628,469.54
VII	**Construction Management**	15%	***$ 20,948,985***	*2*	$ 3,142,347.70	$ 3,366,161.42
VIII	**Agency Management**	15%	***$ 20,948,985***	*8*	$ 3,142,347.70	$ 4,137,871.85

Escalation						
		Value				
	Date of Estimate (Month/Year)	11/5/2021				
	Anticipated Project Initiation Document Start (1-year duration)	April 2022				
	Anticipated year to begin construction (Month Year)	April 2026				
	Estimated construction duration (in years)	2				
	Years of Escalation (to start of construction)	4.5				
	Annual Escalation Rate, percentage	3.5%				
	Total Escalation	117%				
					Current Year Cost	**Escalated**
			Escalated Roadway Cost		**$ 10,073,185**	**$ 11,759,758**
			Escalated Structure Cost		**$ 10,875,800**	**$ 12,696,756**
			Escalated Right of Way Cost		**$ 1,222,624**	**$ 1,427,330**

Project Cost Estimate

Project Owner:	Transportation Authority of Marin
Project Description:	Hwy 101 Interchange and Approach Roadway Improvement Program
Location:	East Blithedale Ave / Tiburon Blvd (SR 131) - Long Term Improvements (Alternative)
Type of Estimate:	Conceptual Level Cost Estimate
Prepared by:	HNTB

SUMMARY OF PROJECT OUTLAY COSTS

		Current Year Cost	Escalated Cost
I	ROADWAY	$ 9,905,973	$ 11,564,549
II	STRUCTURES	$ 10,361,000	$ 12,095,762
III	RIGHT OF WAY	$ 1,204,891	$ 1,406,629
	TOTAL CAPITAL OUTLAY COST	**$ 21,471,864**	**$ 25,066,940**
IV	PRELIMINARY ENGINEERING/ENVIRONMENTAL	$ 1,621,358	$ 1,736,839
V	DESIGN ENGINEERING	$ 2,026,697	$ 2,097,632
VI	DESIGN SERVICES DURING CONSTRUCTION	$ 608,009	$ 608,009
VII	CONSTRUCTION MANAGEMENT	$ 3,040,046	$ 3,256,573
	TOTAL SUPPORT COST	**$ 7,296,110**	**$ 5**
	DIRECT PROJECT COST	**$ 28,767,974**	**$ 25,066,945**
VIII	AGENCY MANAGEMENT	$ 3,040,046	$ 4,003,160
	TOTAL PROJECT COST	**$ 31,808,020**	**$ 29,070,105**

Project Cost Estimate

Project Owner: Transporation Authority of Marin
Project Description: Hwy 101 Interchange and Approach Roadway Improvement Program
Location: East Blithedale Ave / Tiburon Blvd (SR 131) - Long Term Improvements (Alternative)

Item code	Description	Unit	Quantity	Unit Price ($)	Cost	
I. Roadway						
01 Earthwork						
1.1	Clearing & Grubbing	LS	1	10,000.00	$ 10,000	
1.2	Roadway Excavation	CY	0	65.00	$ -	
				Subtotal for Item 01 Earthwork	**$ 10,000**	
02 Pavement Structural Section						
2.1	Remove Curb and Gutter	LF	2,100	25.00	$ 52,500	
2.2	Remove Concrete Sidewalk	SF	12,100	5.00	$ 60,500	
2.3	Remove Asphalt Concrete Pavement	SF	0	5.00	$ -	
2.4	Remove Concrete Island	SF	10,500	10.00	$ 105,000	
2.5	Remove Concrete Slope Paving	SF	0	50.00	$ -	
2.6	Pavement Section	SF	68,000	11.00	$ 748,000	
2.7	Microsurfacing	SF	310,000	1.00	$ 310,000	
2.8	Curb and Gutter	LF	6,300	65.00	$ 409,500	
2.9	Sidewalk / Multi-Use Path	SF	29,000	5.00	$ 145,000	
2.10	Concrete Island/Median	SF	11,000	25.00	$ 275,000	
				Subtotal for Item 02 Pavement Structural Section	**$ 2,105,500**	
03 Drainage						
3.1	Drainage (assume % of Roadway Cost Items 1 through 2)		1%		$ 21,155.00	
				Subtotal of Item 03 Drainage	**$ 21,155**	
04 Specialty Items						
4.1	Metal Beam Guard Railing	LF	0	65.00	$ -	
4.2	ADA Curb Ramps	EA	24	4,700.00	$ 112,800	
4.3	Concrete Barrier	LF	0	300.00	$ -	
4.4	Retaining Wall (Caltrans Type 1) (H=4'-10')	SQFT	600	160.00	$ 96,000	
4.5	Retaining Wall (Caltrans Type 1) (H=10'-20')	SQFT	0	190.00	$ -	
4.6	Remove Metal Beam Guard Railing	LF	0	20.00	$ -	
4.7	Remove Concrete Barrier	LF	0	50.00	$ -	
				Subtotal for Items 04 Specialty Items	**$ 208,800**	
05 Environmental						
5.1	Landscape and Irrigation	SF	0	35.00	$ -	
5.2	Environmental Mitigation (assume % of Total Cost of Items 1 through 5.1)		20%		$ 469,091	
				Subtotal for Item 05 Environmental	**$ 469,091**	
06 Traffic						
06a Traffic Items						
6a.1	Traffic Signal Upgrade	EA	4	350,000.00	$ 1,400,000	
6a.2	Pedestrian Hybrid Beacon (PHB)	EA	0	175,000.00	$ -	
6a.3	Rapid Reflective Flashing Beacons (one pair)	EA	0	25,000.00	$ -	
6a.4	Traffic Signal Priority	EA	2	150,000.00	$ 300,000	
6a.5	Traffic Operations Systems (Ramp Metering)	EA	0	350,000.00	$ -	
6a.6	Traffic Signal (New)	EA	0	500,000.00	$ -	
				Subtotal for Item 06a Traffic Items	**$ 1,700,000**	
					Subtotal Sections 1 through 6a	**$ 4,514,546**
06b Additional Traffic Items						
6b.1	High Visibility Crosswalk (cost by width of roadway)	LF	0	36.00	$ -	
6b.2	Highway Signage Structure	EA	1	1,000,000.00	$ 1,000,000	
6b.3	Signing and Striping	LS	1	200,000.00	$ 200,000	
6b.4	Remove Signing and Striping		1%		$ 45,145	
6b.5	Roadway Lighting		2%		$ 90,291	
6b.6	Stage Construction and Traffic Handling	LS	1	500,000.00	$ 500,000	
				Subtotal for Item 06b Traffic Items	**$ 1,835,436**	
					Subtotal Sections 1 through 6	**$ 6,349,982**
07 Minor Items						
7.1	American with Disabilities Act Items		1%		$ 63,499.82	
7.2	Bike Path Items		1%		$ 63,500	
7.3	Other Minor Items		8%		$ 507,999	
				Subtotal of Item 07 Minor Items	**$ 634,998**	
08 Roadway Mobilization						
8.1	Roadway Mobilization		10%		$ 634,998	
				Subtotal for Item 08 Roadway Mobilization	**$ 634,998**	
09 Roadway Contingency						
9.1	Roadway Contingency (assume % of total cost of Section Items 01-08)		30%		$ 2,285,994	
				Subtotal for Item 09 Roadway Contingency	**$ 2,285,994**	
					Subtotal for Items 1-9 (Roadway)	**$ 9,905,973**

Project Cost Estimate

Project Owner: Transporation Authority of Marin
Project Description: Hwy 101 Interchange and Approach Roadway Improvement Program
Location: East Blithedale Ave / Tiburon Blvd (SR 131) - Long Term Improvements (Alternative)

Item code	Description	Unit	Quantity	Unit Price ($)	Cost	
II. Structures						
10 Structures						
10.1	Bridge Demolition	SF	0	60.00	$ -	
10.2	New Bridge Structure	SF	0	500.00	$ -	
10.3	Bridge Widening	SF	8,500	600.00	$ 5,100,000	
10.4	Pedstrian Overcrossing (including ramp)	SF	0	550.00	$ -	
10.5	Pedestrian Undercrossing (including ramp)	SF	0	600.00	$ -	
10.6	Tunnel	SF	0	1,200.00	$ -	
10.7	Structure modification	SF	4,100	700.00	$ 2,870,000	
			Subtotal for Item 10 Structures		**$ 7,970,000**	
10.8	Structure Contingency		30%		$ 2,391,000.00	
					Subtotal for Structures	**$ 10,361,000**
	TOTAL CONSTRUCTION COST (TCC) - SUM OF ITEMS 1-10 (ROADWAY AND STRUCTURES)					**$ 20,266,973**
III. Right of Way						
III.1	Right of Way Acquisition	SF	1,100	65.00	$ 71,500	
III.2	TCE	SF	30,000	15.00	$ 450,000	
III.3	Utility Relocation (assume % of total cost of Section 01-10)		2%		$ 405,339	
			Subtotal for Item 11 Right of Way		**$ 926,839**	
III.4	Right of Way Contingency		30%		$ 278,051.84	
					Subtotal for Right of Way	**$ 1,204,891**

Engineering and Management Costs						
			TCC	**Duration (Year)**	**Unescalatd Risk Loaded**	**Escalated (per year of TCC)**
						(escalation rate = 3.5%)
IV	**Preliminary Engineering/Environmental**	8%	***$ 20,266,973***	*2*	$ 1,621,357.80	$ 1,736,839.01
V	**Design Engineering**	10%	***$ 20,266,973***	*1*	$ 2,026,697.25	$ 2,097,631.66
VI	**Design Services During Construction**	3%	***$ 20,266,973***	*2*	$ 608,009.18	$ 608,009.18
VII	**Construction Management**	15%	***$ 20,266,973***	*2*	$ 3,040,045.88	$ 3,256,573.14
VIII	**Agency Management**	15%	***$ 20,266,973***	*8*	$ 3,040,045.88	$ 4,003,159.88

Escalation					
		Value			
	Date of Estimate (Month/Year)	11/5/2021			
	Anticipated Project Initiation Document Start (1-year duration)	April 2022			
	Anticipated year to begin construction (Month Year)	April 2026			
	Estimated construction duration (in years)	2			
	Years of Escalation (to start of construction)	4.5			
	Annual Escalation Rate, percentage	3.5%			
	Total Escalation	117%			
				Current Year Cost	**Escalated**
			Escalated Roadway Cost	**$ 9,905,973**	**$ 11,564,549**
			Escalated Structure Cost	**$ 10,361,000**	**$ 12,095,762**
			Escalated Right of Way Cost	**$ 1,204,891**	**$ 1,406,629**

C. Utility Impact Matrix

Utility Conflict Matrix

Project Owner: Transportation Authority of Marin
Project No. : P20062
Project Description: Utility Conflict Assessment
Highway or Route: US 101- Marin County

Note: refer to subsheet for utility conflict cost analysis.

Utility Conflict Matrix Developed/Revised By: WRECO
Date: 10/27/2021
Reviewed By:
Date:

Utility Owner and/or Contact Name	Conflict ID	Location	Utility Type	Size and/or Material	Utility Conflict Description	Recommended Disposition
PG&E	24	E Blithedale LT & NT (5981342.62, 2157306.81) 67 LF	Electric	12kV	sidewalk improvement by Knoll Dr	Confirm depth. Protect in place

Key:
[List of acronyms used in the utility conflict matrix]

Utility Conflict Matrix

Project Owner: Transportation Authority of Marin
Project No. : P20062
Project Description: Utility Conflict Assessment
Highway or Route: US 101- Marin County

Utility Conflict Matrix Developed/Revised By: WRECO
Date: 10/27/2021
Reviewed By:
Date:

Note: refer to subsheet for utility conflict cost analysis.

Utility Owner and/or Contact Name	Conflict ID	Location	Utility Type	Size and/or Material	Utility Conflict Description	Recommended Disposition
PG&E	20	E Blithedale LT (5979232.78,2157717.20) 64 LF	Electric	12kV (OH)	median island by Kipling Dr	Relocate PG&E power pole outside of roadway
PG&E	21	E Blithedale LT (5979294.55,2157726.91) 156 LF	Gas	8"	sidewalk improvement by Kipling Dr	Confirm depth. Protect in place
PG&E	22	E Blithedale LT (5979448.43,2157636.16) 16 LF	Electric	12kV	sidewalk improvement by Kipling Dr	Confirm depth. Protect in place
PG&E	23	E Blithedale LT (5979429.04, 2157645.09) 146 LF	Gas	8"	sidewalk improvement by Kipling Dr	Confirm depth. Protect in place
PG&E	24	E Blithedale LT & NT (5981342.62, 2157306.81) 67 LF	Electric	12kV	sidewalk improvement by Knoll Dr	Confirm depth. Protect in place
PG&E	25	E Blithedale LT (5981172.51, 2157243.81) 30 LF	Gas	4"	sidewalk improvement by Knoll Dr	Confirm depth. Protect in place

Key:
[List of acronyms used in the utility conflict matrix]

D. Right of Way Requirement Matrix

Right of Way Requirement Matrix

Project Owner: Transportation Authority of Marin
Project No. : P20062
Project Description: Right of Way Requirement Investigation
Highway or Route: US 101 - Marin County

ROW Requirement Matrix Developed/Revised By: WRECO
Date: 12/6/2021
Reviewed By:
Date:

Note: Refer to attachment for ROW requirement mapping

APN	Address	Location	Owner	Property Type	Partial ROW Acquisition (SF)	Full ROW Acquisition	TCE (SF)
043-021-61	100 Tiburon Blvd, Mill Valley, CA	3- E Blithedale - LT	N/A	Commercial	700		
043-021-38	104 Tiburon Blvd, Mill Valley, CA	3- E Blithedale - LT	N/A	Commercial	352		

Key:
[List of acronyms used in the utility conflict matrix]

Right of Way Requirement Matrix

Project Owner: Transportation Authority of Marin
Project No. : P20062
Project Description: Right of Way Requirement Investigation
Highway or Route: US 101 - Marin County

ROW Requirement Matrix Developed/Revised By: WRECO
Date: 2/8/2022
Reviewed By:
Date:

Note: Refer to attachment for ROW requirement mapping

APN	Address	Location	Owner	Property Type	Partial ROW Acquisition (SF)	Full ROW Acquisition	TCE (SF)
043-021-61	100 Tiburon Blvd, Mill Valley, CA	3- E Blithedale - ALT	N/A	Commercial	700		
043-021-38	104 Tiburon Blvd, Mill Valley, CA	3- E Blithedale - ALT	N/A	Commercial	352		

Key:
[List of acronyms used in the utility conflict matrix]

E. Existing and 2040 Traffic Volumes

Highway 101 - Blithedale Interchange - Traffic Volumes Summary

3. Hwy 101 Blithedale Interchange - AM Traffic Volumes Summary - Existing

No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	E. Blithedale Ave./Tower Dr./Kipling Dr.	10	30	140	200	10	20	10	1280	5	40	1440	160
2	E. Blithedale Ave./Hwy. 101 Southbound Off-Ramp	-	-	-	1070	-	1090	-	1120	520	-	530	680
3	Tiburon Blvd./Hwy. 101 Northbound Off-Ramp	150	-	240	-	-	-	-	1420	870	-	1060	-
4	Tiburon Blvd./Redwood Hwy. Frontage Road	310	10	40	20	50	80	70	1330	300	50	1720	20
5	Tiburon Blvd./N. Knoll Rd	-	-	-	-	-	40	70	1330	-	-	1760	40

3. Hwy 101 Blithedale Interchange - PM Traffic Volumes Summary - Existing

No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	E. Blithedale Ave./Tower Dr./Kipling Dr.	10	10	70	130	0	30	10	1260	10	60	1300	90
2	E. Blithedale Ave./Hwy. 101 Southbound Off-Ramp	-	-	-	870	-	910	-	1170	300	-	560	350
3	Tiburon Blvd./Hwy. 101 Northbound Off-Ramp	240	-	370	-	-	-	-	1320	770	-	670	-
4	Tiburon Blvd./Redwood Hwy. Frontage Road	440	10	70	10	0	50	70	1330	380	80	1390	20
5	Tiburon Blvd./N. Knoll Rd	70	1260	-	-	-	50	70	1260	-	-	1420	50

3. Hwy 101 Blithedale Interchange - AM Traffic Volumes Summary - 2040

No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	E. Blithedale Ave./Tower Dr./Kipling Dr.	11	33	154	220	11	22	11	1408	6	44	1584	176
2	E. Blithedale Ave./Hwy. 101 Southbound Off-Ramp	-	-	-	1177	-	1199	-	1232	572	-	583	748
3	Tiburon Blvd./Hwy. 101 Northbound Off-Ramp	165	-	264	-	-	-	-	1562	957	-	1166	-
4	Tiburon Blvd./Redwood Hwy. Frontage Road	341	11	44	22	55	88	77	1463	330	55	1892	22
5	Tiburon Blvd./N. Knoll Rd	-	-	-	-	-	44	77	1463	-	-	1936	44

3. Hwy 101 Blithedale Interchange - PM Traffic Volumes Summary - 2040

No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	E. Blithedale Ave./Tower Dr./Kipling Dr.	11	11	77	143	0	33	11	1386	11	66	1430	99
2	E. Blithedale Ave./Hwy. 101 Southbound Off-Ramp	-	-	-	957	-	1001	-	1287	330	-	616	385
3	Tiburon Blvd./Hwy. 101 Northbound Off-Ramp	264	-	407	-	-	-	-	1452	847	-	737	-
4	Tiburon Blvd./Redwood Hwy. Frontage Road	484	11	77	11	0	55	77	1463	418	88	1529	22
5	Tiburon Blvd./N. Knoll Rd	77	1386	-	-	-	55	77	1386	-	-	1562	55

F. Collision Data

SWITRS Collision Raw Data Export Layout

ITEM NAME	DESCRIPTION	POSSIBLE VALUES
CASE_ID	The unique identifier of the collision report (barcode beginning 2002; 19 digit code prior to 2002)	
ACCIDENT_YEAR	The year when the collision occurred	
COLLISION_DATE	The date when the collision occurred (YYYYMMDD)	
COLLISION_TIME	The time when the collision occurred (24 hour time)	
PRIMARY_RD		
SECONDARY_RD		
DISTANCE		Distance converted to feet
DIRECTION		N - North E - East S - South W - West Blank - Not Stated, In Intersection
INTERSECTION		Y - Intersection N - Not Intersection Blank - Not Stated
COLLISION_SEVERITY	The injury level severity of the collision (highest level of injury in collision)	1 - Fatal 2 - Injury (Severe) 3 - Injury (Other Visible) 4 - Injury (Complaint of Pain) 0 - PDO
NUMBER_KILLED	Counts victims in the collision with collision severity of 1	0 to N for each collision
NUMBER_INJURED	Counts victims in the collision with collision severity of 2, 3, or 4	0 to N for each collision

SWITRS Collision Raw Data Export Layout

ITEM NAME	DESCRIPTION	POSSIBLE VALUES
PCF_VIOL_CATEGORY		01 - Driving or Bicycling Under the Influence 02 - Impeding Traffic 03 - Unsafe Speed 04 - Following Too Closely 05 - Wrong Side of Road 06 - Improper Passing 07 - Unsafe Lane Change 08 - Improper Turning 09 - Automobile Right of Way 10 - Pedestrian Right of Way 11 - Pedestrian Violation 12 - Traffic Signals and Signs 13 - Hazardous Parking 14 - Lights 15 - Brakes 16 - Other Equipment 17 - Other Hazardous Violation 18 - Other Than Driver (or Pedestrian 19 - 20 - 21 - Unsafe Starting or Backing 22 - Other Improper Driving 23 - Pedestrian or "Other" Under the Influence of Alcohol or Drug 24 - Fell Asleep 00 - Unknown Blank - Not Stated

SWITRS Collision Raw Data Export Layout

ITEM NAME	DESCRIPTION	POSSIBLE VALUES
TYPE_OF_COLLISION		A - Head-On B - Sideswipe C - Rear End D - Broadside E - Hit Object F - Overturned G - Vehicle/Pedestrian H - Other Blank - Not Stated
MVIW		A - Non-Collision B - Pedestrian C - Other Motor Vehicle D - Motor Vehicle on Other Roadway E - Parked Motor Vehicle F - Train G - Bicycle H - Animal I - Fixed Object J - Other Object Blank - Not Stated
PED_ACTION		A - No Pedestrian Involved B - Crossing in Crosswalk at Intersection C - Crossing in Crosswalk Not at Intersection D - Crossing Not in Crosswalk E - In Road, Including Shoulder F - Not in Road G - Approaching/Leaving School Bus Blank - Not Stated
PEDESTRIAN_ACCIDENT	Indicates whether the collision involved a pedestrian	Y or blank

SWITRS Collision Raw Data Export Layout

ITEM NAME	DESCRIPTION	POSSIBLE VALUES
BICYCLE_ACCIDENT	Indicates whether the collision involved a bicycle	Y or blank
COUNT_PED_KILLED	Counts the victims in the collision with Party Type 2 and Collision Severity 1	0 to N for each collision
COUNT_PED_INJURED	Counts the victims in the collision with Party Type 2 and Collision Severity 2. 3. or 4	0 to N for each collision
COUNT_BICYCLIST_KILLED	Counts the victims in the collision with Party Type 4 and Collision Severity 1	0 to N for each collision
COUNT_BICYCLIST_INJURED	Counts the victims in the collision with Party Type 4 and Collision Severity 2. 3. or 4	0 to N for each collision
LATITUDE		
LONGITUDE		

SWITRS Collision Raw Data Export

CASE_ID	ACCIDENT_ YEAR	COLLISION_ DATE	COLLISION_ TIME	PRIMARY_RD	SECONDARY_RD
6888446	2015	20150408	2050	RT 131	RT 101
90101643	2016	20160122	2145	105 TIBURON BOULEVARD	KNOLL ROAD
6607599	2014	20140822	22	REDWOOD HWY FRNTG RD	RT 131
6598322	2014	20140807	955	RT 131	RT 101
90423853	2017	20170328	1618	REDWOOD HIGHWAY FRONTAGE ROAD	REED BLVD
6785600	2014	20141221	1740	EAST BLITHEDALE AV	KIPLING DR
6694027	2014	20141027	1513	EAST BLITHEDALE AV	TOWER DR
6871743	2015	20150327	1300	RT 131	REDWOOD HWY FRNTG RD
90060963	2015	20151120	730	SR-131 EASTBOUND	US-101 NORTHBOUND
6821833	2015	20150210	1258	RT 131	RT 101
6787826	2015	20150113	1355	RT 131	REDWOOD HWY FRNTG RD
90150281	2016	20160330	1230	SR-131 (TIBURON BLVD.) E/B	US-101 N/B OFF-RAMP
90157290	2016	20160409	1320	SR-131 W/B	REDWOOD HWY FRNTG RD
90621976	2017	20171214	1530	TIBURON BLVD TO US-101 N/B	TIBURON BLVD
90501885	2017	20170713	815	SR 131 (TIBURON BLVD)	REDWOOD HIGHWAY FRONTAGE ROAD
90759985	2018	20180608	1140	E. BLITHEDALE AVE. W/B	US-101 S/B OFFRAMP
90726746	2018	20180507	1710	E. BLITHEDALE AVE. WB	TOWER DR
90830047	2018	20180926	1350	SR-131 E/B TO US-101 N/B	US-101 NB
90839477	2018	20181010	1615	SR-131 W/B	REDWOOD HIGHWAY FRONTAGE RD
6668542	2014	20140929	1727	RT 131	BLITHEDALE AV
6735249	2014	20141226	733	RT 131	REDWOOD HWY FRNTG RD
6821832	2015	20150210	1645	RT 131	RT 101
90587218	2017	20171027	752	E. BLITHEDALE AVE	US-101 S/B TO E. BLITHEDALE AVE.
90570036	2017	20170928	1315	SR-131 EASTBOUND	US-101 NORTHBOUND
90840643	2018	20181019	910	S KNOLL RD	KNOLL LN
6834229	2015	20150213	1545	TIBURON BL	NORTH KNOLL RD
90226201	2016	20160712	920	SR-131 W/B (TIBURON BLVD)	N. KNOLL ROAD
90604027	2017	20171115	1315	SR-131 TIBURON BLVD	N. KNOLL ROAD
90199300	2016	20160604	833	SR-131 (TIBURON BLVD)	N. KNOLL RD.

CASE_ID	DISTANCE	DIRECTION	INTERSECTION	COLLISION_SEVERITY	NUMBER_KILLED	NUMBER_INJURED	PCF_VIOL_CATEGORY	TYPE_OF_COLLISION	MVIW	PED_ACTION
6888446	135	E	N	0	0	0	1	B	C	A
90101643	150	W	N	0	0	0	3	B	C	A
6607599	184	S	N	0	0	0	5	B	C	A
6598322	120	W	N	0	0	0	6	B	C	A
90423853	175	N	N	0	0	0	6	B	C	A
6785600	50	E	N	0	0	0	7	B	C	A
6694027	472	E	N	0	0	0	7	B	C	A
6871743	528	W	N	0	0	0	7	B	C	A
90060963	75	E	N	0	0	0	7	B	C	A
6821833	105	E	N	0	0	0	7	B	C	A
6787826	50	W	N	0	0	0	7	B	C	A
90150281	60	E	N	0	0	0	7	B	C	A
90157290	10	W	N	0	0	0	7	B	C	A
90621976	2	N	N	0	0	0	7	B	C	A
90501885	0		Y	0	0	0	7	B	C	A
90759985	80	W	N	0	0	0	7	B	C	A
90726746	450	E	N	0	0	0	7	B	C	A
90830047	150	E	N	0	0	0	7	B	C	A
90839477	30	E	N	0	0	0	7	B	C	A
6668542	800	W	N	0	0	0	8	B	C	A
6735249	3	W	N	0	0	0	8	B	I	A
6821832	150	W	N	0	0	0	8	B	C	A
90587218	32	W	N	0	0	0	8	B	C	A
90570036	0		Y	0	0	0	8	B	C	A
90840643	60	N	N	0	0	0	8	B	E	A
6834229	58	W	N	0	0	0	9	B	C	A
90226201	187	W	N	0	0	0	9	B	C	A
90604027	0		N	0	0	0	21	B	C	A
90199300	115	W	N	0	0	0	1	C	E	A

CASE_ID	PEDESTRIAN_ ACCIDENT	BICYCLE_ ACCIDENT	COUNT_PED _KILLED	COUNT_PED_ INJURED	COUNT_ BICYCLIST_ KILLED	COUNT_ BICYCLIST _INJURED	LATITUDE	LONGITUDE
6888446			0	0	0	0	37.90264	-122.515
90101643			0	0	0	0	37.90256	-122.5114
6607599			0	0	0	0	37.90227	-122.51316
6598322			0	0	0	0	37.90285	-122.51714
90423853			0	0	0	0	37.90144	-122.51477
6785600			0	0	0	0	37.90349	-122.51908
6694027			0	0	0	0	37.90298	-122.51761
6871743			0	0	0	0	37.90273	-122.51574
90060963			0	0	0	0	37.90266	-122.51523
6821833			0	0	0	0	37.90262	-122.51493
6787826			0	0	0	0	37.90262	-122.51318
90150281			0	0	0	0	37.90248	-122.5138
90157290			0	0	0	0	37.90257	-122.51286
90621976			0	0	0	0	37.90266	-122.51334
90501885			0	0	0	0	37.90235	-122.51242
90759985			0	0	0	0	37.90302	-122.51772
90726746			0	0	0	0	37.90297	-122.51753
90830047			0	0	0	0	37.90261	-122.5149
90839477			0	0	0	0	37.90257	-122.51232
6668542			0	0	0	0	37.90284	-122.51516
6735249			0	0	0	0	37.90253	-122.51277
6821832			0	0	0	0	37.90275	-122.51703
90587218			0	0	0	0	37.90292	-122.51749
90570036			0	0	0	0	37.90263	-122.5142
90840643			0	0	0	0	37.90171	-122.51223
6834229			0	0	0	0	37.90243	-122.51122
90226201			0	0	0	0	37.90248	-122.51173
90604027			0	0	0	0	37.90232	-122.51141
90199300			0	0	0	0	37.90244	-122.5116

SWITRS Collision Raw Data Export

CASE_ID	ACCIDENT_ YEAR	COLLISION_ DATE	COLLISION_ TIME	PRIMARY_RD	SECONDARY_RD
90395912	2017	20170209	1810	SR-131 EASTBOUND	NORTH KNOLL ROAD
6497523	2014	20140521	840	EAST BLITHEDALE AV	RT 101
6417933	2014	20140305	1200	RT 131	RT 101
6763622	2014	20141029	1730	REDWOOD HWY FRNTG RD	RT 131
90050923	2015	20151111	1217	SR-131 E/B (TIBURON BLVD)	REDWOOD HIGHWAY FRONTAGE RD
6987950	2015	20150617	1632	RT 131	REDWOOD HWY FRNTG RD
6793611	2015	20150117	1200	RT 131	RT 101
90076775	2015	20151211	1615	SR-131 E/B	REDWOOD HWY FRNTG RD
90009832	2015	20150811	2100	REDWOOD HWY FRNTG RD	TIBURON BLVD
90211666	2016	20160627	1120	SR-131 E/B	US-101 N/B TO SR-131
90663697	2018	20180217	1435	E BLITHEDALE AVE. E/B	KIPLING DR
90852325	2018	20181030	940	E. BLITHEDALE AVE	TOWER DR
90888179	2018	20181216	2016	E. BLITHEDALE AVENUE OFF RAMP	E. BLITHEDALE AVENUE
90765988	2018	20180708	1720	SR-131 E/B	US-101 S/B TO SR-131 OFF RAMP
90850116	2018	20180923	1415	SR-131 EB	US-101
90782812	2018	20180801	1900	SR-131 EB	S. KNOLL ROAD
90849462	2018	20181023	935	SR-131 W/B	N. KNOLL ROAD
90686960	2018	20180321	830	SR-131 E/B	N. KNOLL ROAD
6918533	2015	20150425	1250	RT 131	REDWOOD HWY FRNTG RD
90514039	2017	20170528	1425	SR-131 (TIBURON BLVD.) W/B	N. KNOLL RD
90150217	2016	20160331	1200	SR-131 (TIBURON BLVD.) E/B	US-101
6607595	2014	20140818	700	RT 131	KNOLL RD
90085850	2015	20151227	1100	SR-131	US 101
6875284	2015	20150321	1355	REDWOOD HWY FRNTG RD	REED BL
90016805	2015	20150910	1155	SR-131 W/B	NORTH KNOLL RD
90184186	2016	20160510	1330	E. BLITHEDALE AVENUE	KIPLING DRIVE
90382882	2017	20170130	1430	SR 131 E/B (E. BLITHEDALE AVE.)	US 101 U/C
90417801	2017	20170318	1430	REDWOOD HWY FRNTG RD	SR-131
90495071	2017	20170702	1035	N KNOLL ROAD	SR-131

CASE_ID	DISTANCE	DIRECTION	INTERSECTION	COLLISION_SEVERITY	NUMBER_KILLED	NUMBER_INJURED	PCF_VIOL_CATEGORY	TYPE_OF_COLLISION	MVIW	PED_ACTION
90395912	20	E	N	0	0	0	1	C	C	A
6497523	0		Y	0	0	0	3	C	C	A
6417933	75	W	N	0	0	0	3	C	C	A
6763622	75	S	N	0	0	0	3	C	C	A
90050923	15	W	N	0	0	0	3	C	C	A
6987950	700	W	N	0	0	0	3	C	C	A
6793611	150	W	N	0	0	0	3	C	C	A
90076775	50	W	N	0	0	0	3	C	C	A
90009832	34	S	N	0	0	0	3	C	C	A
90211666	100	W	N	0	0	0	3	C	C	A
90663697	126	E	N	0	0	0	3	C	C	A
90852325	35	E	N	0	0	0	3	C	C	A
90888179	30	N	N	0	0	0	3	C	C	A
90765988	130	E	N	0	0	0	3	C	C	A
90850116	10	E	N	0	0	0	3	C	C	A
90782812	30	W	N	0	0	0	3	C	C	A
90849462	12	E	N	0	0	0	3	C	C	A
90686960	0		N	0	0	0	3	C	C	A
6918533	115	W	N	0	0	0	4	C	C	A
90514039	45	E	N	0	0	0	4	C	C	A
90150217	254	W	N	0	0	0	7	C	C	A
6607595	15	W	N	0	0	0	21	C	C	A
90085850	350	W	N	0	0	0	21	C	C	A
6875284	75	N	N	0	0	0	21	C	C	A
90016805	50	E	N	0	0	0	21	C	C	A
90184186	25	E	N	0	0	0	21	C	C	A
90382882	370	W	N	0	0	0	21	C	C	A
90417801	75	S	N	0	0	0	21	C	C	A
90495071	35	N	N	0	0	0	21	C	C	A

CASE_ID	PEDESTRIAN_ ACCIDENT	BICYCLE_ ACCIDENT	COUNT_PED _KILLED	COUNT_PED_ INJURED	COUNT_ BICYCLIST_ KILLED	COUNT_ BICYCLIST _INJURED	LATITUDE	LONGITUDE
90395912			0	0	0	0	37.90212	-122.51119
6497523			0	0	0	0	37.9031	-122.5168
6417933			0	0	0	0	37.9027	-122.51547
6763622			0	0	0	0	37.90236	-122.51271
90050923			0	0	0	0	37.90214	-122.51622
6987950			0	0	0	0	37.9027	-122.51567
6793611			0	0	0	0	37.90264	-122.515
90076775			0	0	0	0	37.90255	-122.51306
90009832			0	0	0	0	37.90231	-122.51271
90211666			0	0	0	0	37.90259	-122.51458
90663697			0	0	0	0	37.9033	-122.51863
90852325			0	0	0	0	37.90325	-122.51848
90888179			0	0	0	0	37.903	-122.51716
90765988			0	0	0	0	37.90278	-122.51684
90850116			0	0	0	0	37.90271	-122.51596
90782812			0	0	0	0	37.90234	-122.51229
90849462			0	0	0	0	37.90223	-122.5112
90686960			0	0	0	0	37.9021	-122.5111
6918533			0	0	0	0	37.90271	-122.51338
90514039			0	0	0	0	37.90222	-122.51139
90150217			0	0	0	0	37.90277	-122.51686
6607595			0	0	0	0	37.90217	-122.51124
90085850			0	0	0	0	37.90282	-122.51751
6875284			0	0	0	0	37.9015	-122.51468
90016805			0	0	0	0	37.90215	-122.51085
90184186			0	0	0	0	37.90243	-122.51117
90382882			0	0	0	0	37.90287	-122.51741
90417801			0	0	0	0	37.9022	-122.5128
90495071			0	0	0	0	37.9024	-122.51108

SWITRS Collision Raw Data Export

CASE_ID	ACCIDENT_ YEAR	COLLISION_ DATE	COLLISION_ TIME	PRIMARY_RD	SECONDARY_RD
90534401	2017	20170819	536	SR-131 (TIBURON BLVD.) E/B	NORTH KNOLL ROAD
6885997	2015	20150402	900	RT 131	NORTH KNOLL RD
6588195	2014	20140805	915	RT 131	NORTH KNOLL RD
90050149	2015	20151105	747	SR-131 (TIBURON BLVD.)	N. KNOLL ROAD
90438802	2017	20170418	1715	REDWOOD HWY FRNTG RD	REED BLVD
90649635	2018	20180120	1335	REDWOOD HWY FRNTG RD	REED BLVD.
90768200	2018	20180629	1615	SR-131 W/B	REDWOOD HIGHWAY FRONTAGE ROAD
90878868	2018	20181201	1800	SR-131 E/B	NORTH KNOLL RD
6502971	2014	20140508	2120	EAST BLITHEDALE AV	RT 101
6834240	2015	20150213	830	RT 131	TOWER DR
6868079	2015	20150321	2304	RT 131	REDWOOD HWY FRNTG RD
90358021	2016	20161228	2109	SR-131 E/B	REDWOOD HIGHWAY FRONTAGE ROAD
90371142	2017	20170110	2045	SR-131 W/B	US-101 N/B
6618552	2014	20140819	55	RT 131	REDWOOD HWY FRNTG RD
90610526	2017	20171118	345	SR-131	REDWOOD HWY FRNTG RD
90090908	2015	20151230	2350	REDWOOD HIGHWAY FRONTAGE RD	SR-131
90589403	2017	20171101	2500	SR-131 (TIBURON BLVD)	REDWOOD HIGHWAY FRONTAGE ROAD
90879077	2018	20181202	330	SR-131 W/B	US-101 S/B UNDERCROSSING
90359877	2016	20161224	1757	E BLITHEDALE AVE	KIPLING DR
90527871	2017	20170805	615	REDWOOD HWY FRNTG RD	SR-131
6814088	2015	20150209	1420	EAST BLITHEDALE AV	RT 101
90349433	2016	20161212	1055	SR 131 E/B (TIBURON BLVD)	US 101 N/B
90894021	2018	20181218	712	N. KNOLL ROAD	SR-131 W/B
6720628	2014	20141110	1835	RT 131	NORTH KNOLL RD
90713408	2018	20180416	640	SR-131	N KNOLL ROAD
90537411	2017	20170829	1108	SR-131 (TIBURON BLVD.) W/B	N. KNOLL ROAD
90519317	2017	20170804	1330	SR-131 (TIBURON BLVD.) W/B	REDWOOD HWY FRNTG RD
6565404	2014	20140718	1247	RT 131	REDWOOD HWY FRNTG RD
6917970	2015	20150427	1420	EAST BLITHEDALE AV	RT 101

CASE_ID	DISTANCE	DIRECTION	INTERSECTION	COLLISION_SEVERITY	NUMBER_KILLED	NUMBER_INJURED	PCF_VIOL_CATEGORY	TYPE_OF_COLLISION	MVIW	PED_ACTION
90534401	40	W	N	0	0	0	7	D	C	A
6885997	0		Y	0	0	0	8	D	C	A
6588195	0		Y	0	0	0	9	D	C	A
90050149	0		Y	0	0	0	9	D	C	A
90438802	0		Y	0	0	0	9	D	C	A
90649635	0		Y	0	0	0	9	D	C	A
90768200	252	E	N	0	0	0	9	D	C	A
90878868	0		Y	0	0	0	9	D	C	A
6502971	0		Y	0	0	0	12	D	C	A
6834240	0		Y	0	0	0	12	D	C	A
6868079	0		Y	0	0	0	12	D	C	A
90358021	0		Y	0	0	0	12	D	C	A
90371142	0		Y	0	0	0	12	D	C	A
6618552	0		Y	0	0	0	1	E	I	A
90610526	200	W	N	0	0	0	1	E	I	A
90090908	60	S	N	0	0	0	3	E	I	A
90589403	2	W	N	0	0	0	8	E	I	A
90879077	220	W	N	0	0	0	8	E	I	A
90359877	377	E	N	0	0	0	18	E	I	A
90527871	41	S	N	0	0	0	18	E	J	A
6814088	275	W	N	0	0	0	22	E	I	A
90349433	88	W	N	0	0	0	21	H	C	A
90894021	65	N	N	0	0	0	21	H	E	A
6720628	0		Y	4	0	3	8	A	C	A
90713408	0		Y	4	0	3	9	A	C	A
90537411	70	E	N	4	0	2	1	B	C	A
90519317	10	W	N	4	0	1	3	B	I	A
6565404	150	W	N	3	0	3	3	C	C	A
6917970	96	W	N	3	0	4	3	C	C	A

CASE_ID	PEDESTRIAN_ ACCIDENT	BICYCLE_ ACCIDENT	COUNT_PED _KILLED	COUNT_PED_ INJURED	COUNT_ BICYCLIST_ KILLED	COUNT_ BICYCLIST _INJURED	LATITUDE	LONGITUDE
90534401			0	0	0	0	37.90214	-122.51151
6885997			0	0	0	0	37.90238	-122.5111
6588195			0	0	0	0	37.90226	-122.51125
90050149			0	0	0	0	37.90234	-122.51107
90438802			0	0	0	0	37.90124	-122.515
90649635			0	0	0	0	37.90123	-122.51502
90768200			0	0	0	0	37.90239	-122.51166
90878868			0	0	0	0	37.90222	-122.51122
6502971			0	0	0	0	37.90284	-122.51716
6834240			0	0	0	0	37.90373	-122.5192
6868079			0	0	0	0	37.90269	-122.51265
90358021			0	0	0	0	37.90249	-122.51272
90371142			0	0	0	0	37.90266	-122.51437
6618552			0	0	0	0	37.90252	-122.51271
90610526			0	0	0	0	37.90271	-122.51343
90090908			0	0	0	0	37.90215	-122.513
90589403			0	0	0	0	37.90253	-122.51279
90879077			0	0	0	0	37.90295	-122.51679
90359877			0	0	0	0	37.90293	-122.51778
90527871			0	0	0	0	37.90232	-122.51303
6814088			0	0	0	0	37.90291	-122.51685
90349433			0	0	0	0	37.90264	-122.51463
90894021			0	0	0	0	37.90248	-122.51107
6720628			0	0	0	0	37.90224	-122.51123
90713408			0	0	0	0	37.90225	-122.5112
90537411			0	0	0	0	37.90217	-122.51092
90519317			0	0	0	0	37.90264	-122.51279
6565404			0	0	0	0	37.90267	-122.51312
6917970			0	0	0	0	37.903	-122.51776

SWITRS Collision Raw Data Export

CASE_ID	ACCIDENT_YEAR	COLLISION_DATE	COLLISION_TIME	PRIMARY_RD	SECONDARY_RD
6801497	2015	20150122	1700	RT 131	NORTH KNOLL RD
90575344	2017	20171011	1315	E. BLITHEDALE AVE E/B	KIPLING DR
90554066	2017	20170914	1825	SR-131 E/B	US-101 U/C
6530551	2014	20140618	1400	EAST BLITHEDALE AV	TOWER DR
6376809	2014	20140224	730	RT 131	RT 101
6505785	2014	20140523	1145	RT 131	RT 101
6600930	2014	20140813	1610	RT 131	RT 101
6461676	2014	20140421	1255	RT 131	NORTH KNOLL RD
90029031	2015	20151001	1535	E. BLITHEDALE E/B	KIPLING DR
90071034	2015	20151204	1305	SR-131 (TIBURON BLVD)	REDWOOD HWY FRNTG RD
90017940	2015	20150909	1655	SR-131 EASTBOUND	US-101
6877483	2015	20150317	1430	EAST BLITHEDALE AV	RT 101
90060046	2015	20151119	1925	REDWOOD HIGHWAY FRONTAGE ROAD N/B	REED BLVD
90459691	2017	20170510	1625	E BLITHEDALE AVE	TOWER DR
90502397	2017	20170714	1635	SR-131 E/B	N KNOLL ROAD
90735096	2018	20180520	1730	EAST BLITHEDALE AVENUE WB	TOWER DRIVE
90835408	2018	20181012	810	E. BLITHEDALE AVE	TOWER DR
90728165	2018	20180515	1805	EAST BLITHEDALE AVE E/B	US-101 S/B
90814240	2018	20180902	1240	SR-131 E/B	TOWER DR
90712135	2018	20180418	1607	SR-131 W/B TO US 101 N/B	SR-131
90662241	2018	20180207	1300	REDWOOD HIGHWAY FROTAGE ROAD	SR-131
90735797	2018	20180521	1909	SR-131 E/B	NORTH KNOLL ROAD
90712952	2018	20180419	900	SR-131 W/B	N.KNOLL RD
90029229	2015	20151009	1825	SR-131 W/B	REDWOOD HWY FRNTG RD
90888948	2018	20181218	1310	SR-131 E/B	US 101 N/B TO SR-131
6963245	2015	20150607	1235	RT 131	NORTH KNOLL RD
6448213	2014	20140408	1315	RT 131	NORTH KNOLL RD
90360499	2016	20161229	1730	REDWOOD HIGHWAY FRONTAGE ROAD	REED BOULEVARD
6787830	2015	20150106	1410	TIBURON BL	NORTH KNOLL RD

CASE_ID	DISTANCE	DIRECTION	INTERSECTION	COLLISION_SEVERITY	NUMBER_KILLED	NUMBER_INJURED	PCF_VIOL_CATEGORY	TYPE_OF_COLLISION	MVIW	PED_ACTION
6801497	70	W	N	3	0	1	3	C	C	A
90575344	174	E	N	3	0	1	3	C	C	A
90554066	200	W	N	3	0	3	3	C	C	A
6530551	20	E	N	4	0	1	3	C	C	A
6376809	55	W	N	4	0	1	3	C	C	A
6505785	110	W	N	4	0	1	3	C	C	A
6600930	75	E	N	4	0	1	3	C	C	A
6461676	100	E	N	4	0	1	3	C	C	A
90029031	50	E	N	4	0	1	3	C	C	A
90071034	865	W	N	4	0	1	3	C	C	A
90017940	100	E	N	4	0	1	3	C	C	A
6877483	44	W	N	4	0	3	3	C	C	A
90060046	0		Y	4	0	2	3	C	C	A
90459691	180	E	N	4	0	1	3	C	C	A
90502397	100	W	N	4	0	1	3	C	C	A
90735096	208	E	N	4	0	1	3	C	C	A
90835408	500	E	N	4	0	1	3	C	C	A
90728165	30	W	N	4	0	1	3	C	C	A
90814240	1056	E	N	4	0	2	3	C	C	A
90712135	500	N	N	4	0	1	3	C	C	A
90662241	325	S	N	4	0	2	3	C	C	A
90735797	50	W	N	4	0	1	3	C	C	A
90712952	100	E	N	4	0	1	3	C	C	A
90029229	150	W	N	4	0	1	4	C	C	A
90888948	60	W	N	4	0	1	21	C	C	A
6963245	0		Y	4	0	1	8	D	C	A
6448213	0		Y	3	0	2	9	D	C	A
90360499	0		Y	3	0	2	9	D	C	A
6787830	0		Y	4	0	1	9	D	C	A

CASE_ID	PEDESTRIAN_ ACCIDENT	BICYCLE_ ACCIDENT	COUNT_PED _KILLED	COUNT_PED_ INJURED	COUNT_ BICYCLIST_ KILLED	COUNT_ BICYCLIST _INJURED	LATITUDE	LONGITUDE
6801497			0	0	0	0	37.90214	-122.51164
90575344			0	0	0	0	37.90341	-122.51885
90554066			0	0	0	0	37.90275	-122.51676
6530551			0	0	0	0	37.90354	-122.51896
6376809			0	0	0	0	37.90279	-122.51736
6505785			0	0	0	0	37.90275	-122.5167
6600930			0	0	0	0	37.90407	-122.51594
6461676			0	0	0	0	37.90204	-122.51076
90029031			0	0	0	0	37.90336	-122.51878
90071034			0	0	0	0	37.90274	-122.51571
90017940			0	0	0	0	37.90269	-122.51514
6877483			0	0	0	0	37.90261	-122.51507
90060046			0	0	0	0	37.90126	-122.515
90459691			0	0	0	0	37.9032	-122.5182
90502397			0	0	0	0	37.90221	-122.51139
90735096			0	0	0	0	37.90325	-122.51826
90835408			0	0	0	0	37.90282	-122.51736
90728165			0	0	0	0	37.90274	-122.51644
90814240			0	0	0	0	37.90271	-122.51622
90712135			0	0	0	0	37.90357	-122.51455
90662241			0	0	0	0	37.90221	-122.51365
90735797			0	0	0	0	37.90225	-122.51156
90712952			0	0	0	0	37.90211	-122.51082
90029229			0	0	0	0	37.90284	-122.51379
90888948			0	0	0	0	37.90265	-122.51444
6963245			0	0	0	0	37.90225	-122.51126
6448213			0	0	0	0	37.90252	-122.5109
90360499			0	0	0	0	37.90123	-122.51499
6787830			0	0	0	0	37.90198	-122.51136

SWITRS Collision Raw Data Export

CASE_ID	ACCIDENT_ YEAR	COLLISION_ DATE	COLLISION_ TIME	PRIMARY_RD	SECONDARY_RD
90606313	2017	20171121	1610	SR-131 W/B	NORTH KNOLL RD
90712851	2018	20180417	1050	SR-131	N. KNOLL RD.
6600906	2014	20140807	943	BLITHEDALE AV	RT 101
6505837	2014	20140516	1445	RT 131	REDWOOD HWY FRNTG RD
90194261	2016	20160525	2132	SR-131 E/B	US-101
90728118	2018	20180514	1855	SR-131 E/B	US-101 N/B TO SR-131
90337173	2016	20161125	1227	SR-131	US-101 S/B
90782161	2018	20180729	800	SR-131 WB	REDWOOD HWY FRNTG RD
90478352	2017	20170611	1205	SR-131 W/B	SR-131 O/C
90027839	2015	20150930	515	SR-131 (E/B)	REDWOOD HWY. FRONTAGE RD.
90767332	2018	20180630	1132	E BLITHEDALE AVE	TOWER DR
90763977	2018	20180627	1550	E. BLITHEDALE AVE.	TOWER DR.
90179063	2016	20160504	1353	SR-131 (TIBURON BLVD)	N. KNOLL ROAD

CASE_ID	DISTANCE	DIRECTION	INTERSECTION	COLLISION _SEVERITY	NUMBER_ KILLED	NUMBER_ INJURED	PCF_VIOL_ CATEGORY	TYPE_OF_ COLLISION	MVIW	PED_ACTION
90606313	0		Y	4	0	2	9	D	C	A
90712851	0		Y	4	0	1	9	D	C	A
6600906	0		Y	4	0	3	12	D	C	A
6505837	0		Y	4	0	1	12	D	C	A
90194261	350	E	N	4	0	1	12	D	C	A
90728118	0		Y	4	0	2	12	D	C	A
90337173	370	W	N	4	0	2	18	D	I	A
90782161	50	W	N	4	0	1	3	E	J	A
90478352	162	W	N	4	0	1	3	F	A	A
90027839	70	W	N	3	0	1	18	H	H	A
90767332	0		Y	3	0	1	8	C	G	A
90763977	350	E	N	4	0	1	8	D	G	A
90179063	0		Y	3	0	1	9	F	A	A

CASE_ID	PEDESTRIAN_ ACCIDENT	BICYCLE_ ACCIDENT	COUNT_PED _KILLED	COUNT_PED_ INJURED	COUNT_ BICYCLIST_ KILLED	COUNT_ BICYCLIST _INJURED	LATITUDE	LONGITUDE
90606313			0	0	0	0	37.90223	-122.51124
90712851			0	0	0	0	37.9021	-122.5113
6600906			0	0	0	0	37.90285	-122.51714
6505837			0	0	0	0	37.90241	-122.51269
90194261			0	0	0	0	37.90259	-122.5143
90728118			0	0	0	0	37.90256	-122.51427
90337173			0	0	0	0	37.90287	-122.51727
90782161			0	0	0	0	37.9026	-122.51277
90478352			0	0	0	0	37.90293	-122.51664
90027839			0	0	0	0	37.90257	-122.51361
90767332		Y	0	0	0	1	37.90359	-122.51886
90763977		Y	0	0	0	1	37.90295	-122.518
90179063		Y	0	0	0	1	37.90243	-122.51117

G. Transit Ridership Data

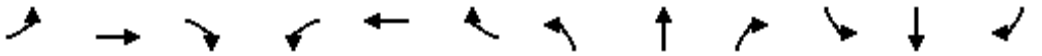
Highway 101 East Blithedale Ave / Tiburon Blvd Interchange - Transit Ridership

	Marin Transit Routes			Golden Gate Transit Routes			Total	
Stop ID	Route Numbers	Board	Exit	Route Numbers	Board*	Exit*	Board	Exit
40129	17, 115	10	6	4, 4C	17	0	27	6
40130	17, 115	3	5	4, 4C	0	15	3	20
40164	36, 71X	1	34	18, 27, 30, 70	27	27	28	61
40170	17, 22, 36, 71x	57	10	18, 27, 30, 70	31	48	88	58
40171	17, 115	10	1	4	1	0	11	1
40172	17, 22, 115, 119	6	40	4	0	2	6	42
40182	17, 22, 115, 219	23	73	4, 8	10	5	33	78
40175	119, 219	15	0	8	0	0	15	0
40176	119	0	0	8	0	0	0	0
40168				8	0	2	0	2

Data Sources: Marin Transit 2017, Golden Gate Transit 2020

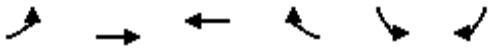
*2020 Golden Gate Transit data were multiplied by a factor of 1.04 per transit agency recommendation to adjust for pandemic ridership

H. Synchro Output



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1275	4	41	1443	157	9	28	135	198	10	25
Future Volume (vph)	12	1275	4	41	1443	157	9	28	135	198	10	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Grade (%)		5%			0%			0%			0%	
Total Lost time (s)	4.0	4.9		4.0	4.9	4.9		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.95		1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00		0.95	1.00
Satd. Flow (prot)	1635	3268		1676	3353	1425		1742	1479		1685	1472
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.92	1.00		0.71	1.00
Satd. Flow (perm)	1635	3268		1676	3353	1425		1623	1479		1248	1472
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	13	1386	4	45	1568	171	10	30	147	239	12	30
RTOR Reduction (vph)	0	0	0	0	0	19	0	0	0	0	0	23
Lane Group Flow (vph)	13	1390	0	45	1568	152	0	40	147	0	251	7
Confl. Peds. (#/hr)	12					12	2					2
Confl. Bikes (#/hr)			1			5			9			5
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8		Free	4		4
Actuated Green, G (s)	1.6	63.4		7.3	69.1	69.1		26.4	110.0		26.4	26.4
Effective Green, g (s)	1.6	63.4		7.3	69.1	69.1		26.4	110.0		26.4	26.4
Actuated g/C Ratio	0.01	0.58		0.07	0.63	0.63		0.24	1.00		0.24	0.24
Clearance Time (s)	4.0	4.9		4.0	4.9	4.9		4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	5.0	5.0		3.0			3.0	3.0
Lane Grp Cap (vph)	23	1883		111	2106	895		389	1479		299	353
v/s Ratio Prot	0.01	0.43		c0.03	c0.47							
v/s Ratio Perm						0.11		0.02	0.10		c0.20	0.00
v/c Ratio	0.57	0.74		0.41	0.74	0.17		0.10	0.10		0.84	0.02
Uniform Delay, d1	53.9	17.2		49.3	14.3	8.5		32.6	0.0		39.8	31.9
Progression Factor	1.00	1.00		1.01	0.74	0.61		1.00	1.00		1.00	1.00
Incremental Delay, d2	28.1	2.6		1.9	2.0	0.3		0.1	0.1		18.3	0.0
Delay (s)	82.0	19.8		51.9	12.6	5.5		32.7	0.1		58.1	31.9
Level of Service	F	B		D	B	A		C	A		E	C
Approach Delay (s)		20.4			12.9			7.1			55.3	
Approach LOS		C			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



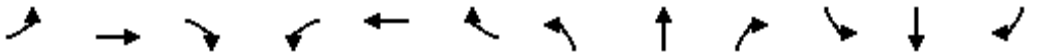
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1115	530	0	1065	1087
Future Volume (vph)	0	1115	530	0	1065	1087
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		10%	0%		0%	
Total Lost time (s)		2.9	2.9		4.7	4.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3185	3353		3252	2640
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3185	3353		3252	2640
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.95	0.95
Adj. Flow (vph)	0	1267	602	0	1121	1144
RTOR Reduction (vph)	0	0	0	0	0	63
Lane Group Flow (vph)	0	1267	602	0	1121	1081
Confl. Bikes (#/hr)						14
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		54.9	43.0		45.3	58.2
Effective Green, g (s)		57.1	45.2		45.3	58.2
Actuated g/C Ratio		0.52	0.41		0.41	0.53
Clearance Time (s)		5.1	5.1		4.7	
Vehicle Extension (s)		2.0	2.0		2.0	
Lane Grp Cap (vph)		1653	1377		1339	1396
v/s Ratio Prot		c0.40	0.18		c0.34	c0.41
v/s Ratio Perm						
v/c Ratio		0.77	0.44		0.84	0.77
Uniform Delay, d1		21.1	23.3		29.0	20.7
Progression Factor		0.57	1.00		1.00	1.00
Incremental Delay, d2		2.7	1.0		4.5	2.5
Delay (s)		14.7	24.3		33.6	23.2
Level of Service		B	C		C	C
Approach Delay (s)		14.7	24.3		28.3	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

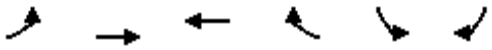
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1420	0	0	1060	153	237
Future Volume (vph)	1420	0	0	1060	153	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	10%			0%	0%	
Total Lost time (s)	2.9			2.9	4.7	4.7
Lane Util. Factor	0.95			0.95	0.97	0.91
Frpb, ped/bikes	1.00			1.00	0.99	0.98
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	0.93	0.85
Flt Protected	1.00			1.00	0.97	1.00
Satd. Flow (prot)	3362			3539	3245	1417
Flt Permitted	1.00			1.00	0.97	1.00
Satd. Flow (perm)	3362			3539	3245	1417
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1543	0	0	1152	166	258
RTOR Reduction (vph)	0	0	0	0	64	64
Lane Group Flow (vph)	1543	0	0	1152	231	65
Confl. Peds. (#/hr)					2	
Confl. Bikes (#/hr)						2
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	125.2			125.2	15.0	15.0
Effective Green, g (s)	127.4			127.4	15.0	15.0
Actuated g/C Ratio	0.85			0.85	0.10	0.10
Clearance Time (s)	5.1			5.1	4.7	4.7
Vehicle Extension (s)	3.0			3.0	2.0	2.0
Lane Grp Cap (vph)	2855			3005	324	141
v/s Ratio Prot	c0.46			0.33	c0.07	
v/s Ratio Perm						0.05
v/c Ratio	0.54			0.38	0.71	0.46
Uniform Delay, d1	3.1			2.5	65.4	63.7
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.7			0.4	6.1	0.9
Delay (s)	3.9			2.9	71.5	64.6
Level of Service	A			A	E	E
Approach Delay (s)	3.9			2.9	69.4	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	7.6
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1326	304	52	1722	21	305	8	41	16	5	82
Future Volume (vph)	70	1326	304	52	1722	21	305	8	41	16	5	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		10%			0%			0%			0%	
Total Lost time (s)	4.7	2.9	2.9	0.0	2.9		4.7	4.7			4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			0.95	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.96			0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (prot)	1681	3362	1498	1770	3532		1681	1639			1573	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (perm)	1681	3362	1498	1770	3532		1681	1639			1573	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	1441	330	57	1872	23	332	9	45	17	5	89
RTOR Reduction (vph)	0	0	0	0	0	0	0	9	0	0	82	0
Lane Group Flow (vph)	76	1441	330	57	1895	0	212	165	0	0	29	0
Confl. Peds. (#/hr)	3		4	4		3	12		1	1		12
Confl. Bikes (#/hr)			3			1						1
Turn Type	Prot	NA	custom	Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2	2 8	1	6		8	8		7	7	
Permitted Phases			5 6									
Actuated Green, G (s)	12.2	74.3	123.5	8.9	76.0		25.5	25.5			12.1	
Effective Green, g (s)	12.2	76.5	123.2	18.6	78.2		25.5	25.5			12.1	
Actuated g/C Ratio	0.08	0.53	0.85	0.13	0.54		0.18	0.18			0.08	
Clearance Time (s)	4.7	5.1		9.7	5.1		4.7	4.7			4.7	
Vehicle Extension (s)	2.0	3.5		2.0	3.5		4.0	4.0			2.0	
Lane Grp Cap (vph)	141	1773	1272	227	1904		295	288			131	
v/s Ratio Prot	c0.05	0.43	0.19	c0.03	c0.54		c0.13	0.10			c0.02	
v/s Ratio Perm			0.03									
v/c Ratio	0.54	0.81	0.26	0.25	1.00		0.72	0.57			0.22	
Uniform Delay, d1	63.7	28.3	2.1	56.9	33.2		56.4	54.8			62.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	2.0	4.2	0.1	0.2	19.5		8.7	3.3			0.3	
Delay (s)	65.7	32.5	2.3	57.1	52.7		65.0	58.0			62.4	
Level of Service	E	C	A	E	D		E	E			E	
Approach Delay (s)		28.5			52.8			61.9			62.4	
Approach LOS		C			D			E			E	

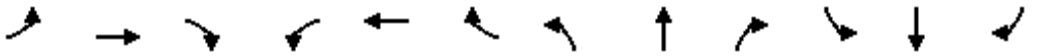
Intersection Summary			
HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	68	1325	1756	44	0	43
Future Volume (Veh/h)	68	1325	1756	44	0	43
Sign Control		Free	Free		Stop	
Grade		10%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	74	1440	1909	48	0	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		484				
pX, platoon unblocked					0.64	
vC, conflicting volume	1957				2801	978
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1957				2691	978
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	75				100	81
cM capacity (veh/h)	294				8	250

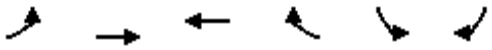
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	74	720	720	1273	684	47
Volume Left	74	0	0	0	0	0
Volume Right	0	0	0	0	48	47
cSH	294	1700	1700	1700	1700	250
Volume to Capacity	0.25	0.42	0.42	0.75	0.40	0.19
Queue Length 95th (ft)	24	0	0	0	0	17
Control Delay (s)	21.3	0.0	0.0	0.0	0.0	22.7
Lane LOS	C					C
Approach Delay (s)	1.0			0.0		22.7
Approach LOS						C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1260	10	63	1300	90	9	6	69	132	3	27
Future Volume (vph)	10	1260	10	63	1300	90	9	6	69	132	3	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Grade (%)		5%			0%			0%			0%	
Total Lost time (s)	4.0	5.8		4.0	5.8	5.8		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.95		1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00		0.95	1.00
Satd. Flow (prot)	1635	3265		1676	3353	1426		1713	1479		1683	1470
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.85	1.00		0.72	1.00
Satd. Flow (perm)	1635	3265		1676	3353	1426		1507	1479		1269	1470
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	11	1370	11	68	1413	98	10	7	75	159	4	33
RTOR Reduction (vph)	0	0	0	0	0	16	0	0	0	0	0	27
Lane Group Flow (vph)	11	1381	0	68	1413	82	0	17	75	0	163	6
Confl. Peds. (#/hr)	12					12	2					2
Confl. Bikes (#/hr)			1			5			9			5
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8		Free	4		4
Actuated Green, G (s)	1.6	68.7		8.4	75.5	75.5		20.0	110.0		20.0	20.0
Effective Green, g (s)	1.6	67.8		8.4	74.6	74.6		20.0	110.0		20.0	20.0
Actuated g/C Ratio	0.01	0.62		0.08	0.68	0.68		0.18	1.00		0.18	0.18
Clearance Time (s)	4.0	4.9		4.0	4.9	4.9		4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	5.0	5.0		3.0			3.0	3.0
Lane Grp Cap (vph)	23	2012		127	2273	967		274	1479		230	267
v/s Ratio Prot	0.01	c0.42		c0.04	0.42							
v/s Ratio Perm						0.06		0.01	0.05		c0.13	0.00
v/c Ratio	0.48	0.69		0.54	0.62	0.08		0.06	0.05		0.71	0.02
Uniform Delay, d1	53.8	14.0		48.9	9.8	6.0		37.2	0.0		42.3	37.0
Progression Factor	1.00	1.00		1.04	0.72	0.65		1.00	1.00		1.00	1.00
Incremental Delay, d2	14.8	1.9		3.5	1.1	0.1		0.1	0.1		9.6	0.0
Delay (s)	68.6	16.0		54.4	8.2	4.0		37.3	0.1		51.8	37.0
Level of Service	E	B		D	A	A		D	A		D	D
Approach Delay (s)		16.4			9.9			7.0			49.3	
Approach LOS		B			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.8
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



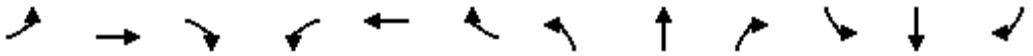
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1174	556	0	870	912
Future Volume (vph)	0	1174	556	0	870	912
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		10%	0%		0%	
Total Lost time (s)		4.0	4.0		5.4	5.4
Lane Util. Factor		0.95	0.95		0.97	0.88
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3185	3353		3252	2640
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3185	3353		3252	2640
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.95	0.95
Adj. Flow (vph)	0	1334	632	0	916	960
RTOR Reduction (vph)	0	0	0	0	0	112
Lane Group Flow (vph)	0	1334	632	0	916	848
Confl. Bikes (#/hr)						14
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		61.3	50.8		38.9	50.4
Effective Green, g (s)		62.4	51.9		38.2	49.7
Actuated g/C Ratio		0.57	0.47		0.35	0.45
Clearance Time (s)		5.1	5.1		4.7	
Vehicle Extension (s)		2.0	2.0		2.0	
Lane Grp Cap (vph)		1806	1582		1129	1192
v/s Ratio Prot		c0.42	0.19		c0.28	c0.32
v/s Ratio Perm						
v/c Ratio		0.74	0.40		0.81	0.71
Uniform Delay, d1		17.7	18.9		32.6	24.4
Progression Factor		0.50	1.00		1.00	1.00
Incremental Delay, d2		2.2	0.8		4.3	1.7
Delay (s)		11.0	19.7		36.9	26.1
Level of Service		B	B		D	C
Approach Delay (s)		11.0	19.7		31.4	
Approach LOS		B	B		C	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.8
Intersection Capacity Utilization	105.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

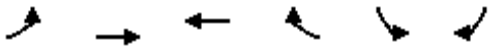
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1323	0	0	670	236	367
Future Volume (vph)	1323	0	0	670	236	367
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	10%			0%	0%	
Total Lost time (s)	4.0			4.0	5.4	5.4
Lane Util. Factor	0.95			0.95	0.97	0.91
Frpb, ped/bikes	1.00			1.00	0.99	0.98
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	0.94	0.85
Flt Protected	1.00			1.00	0.97	1.00
Satd. Flow (prot)	3362			3539	3252	1419
Flt Permitted	1.00			1.00	0.97	1.00
Satd. Flow (perm)	3362			3539	3252	1419
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1438	0	0	728	257	399
RTOR Reduction (vph)	0	0	0	0	70	70
Lane Group Flow (vph)	1438	0	0	728	379	137
Confl. Peds. (#/hr)					2	
Confl. Bikes (#/hr)						2
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	118.4			118.4	21.8	21.8
Effective Green, g (s)	119.5			119.5	21.1	21.1
Actuated g/C Ratio	0.80			0.80	0.14	0.14
Clearance Time (s)	5.1			5.1	4.7	4.7
Vehicle Extension (s)	3.0			3.0	2.0	2.0
Lane Grp Cap (vph)	2678			2819	457	199
v/s Ratio Prot	c0.43			0.21	c0.12	
v/s Ratio Perm						0.10
v/c Ratio	0.54			0.26	0.83	0.69
Uniform Delay, d1	5.4			3.9	62.7	61.3
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.8			0.2	11.2	7.6
Delay (s)	6.2			4.1	73.9	68.9
Level of Service	A			A	E	E
Approach Delay (s)	6.2			4.1	72.3	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1220	383	80	1388	18	444	9	67	11	3	52
Future Volume (vph)	100	1220	383	80	1388	18	444	9	67	11	3	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		10%			0%			0%			0%	
Total Lost time (s)	5.4	4.0	4.0	5.7	4.0		5.4	5.4			5.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			0.95	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.96			0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (prot)	1681	3362	1497	1770	3531		1681	1635			1560	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (perm)	1681	3362	1497	1770	3531		1681	1635			1560	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	1326	416	87	1509	20	483	10	73	12	3	57
RTOR Reduction (vph)	0	0	0	0	1	0	0	10	0	0	53	0
Lane Group Flow (vph)	109	1326	416	87	1528	0	295	261	0	0	19	0
Confl. Peds. (#/hr)	3		4	4		3	12		1	1		12
Confl. Bikes (#/hr)			3			1						1
Turn Type	Prot	NA	custom	Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2	2 8	1	6		8	8		7	7	
Permitted Phases			5 6									
Actuated Green, G (s)	13.8	59.6	116.0	11.6	62.4		30.0	30.0			9.6	
Effective Green, g (s)	13.1	60.7	113.5	15.6	63.5		29.3	29.3			8.9	
Actuated g/C Ratio	0.10	0.45	0.84	0.12	0.47		0.22	0.22			0.07	
Clearance Time (s)	4.7	5.1		9.7	5.1		4.7	4.7			4.7	
Vehicle Extension (s)	2.0	3.5		2.0	3.5		4.0	4.0			2.0	
Lane Grp Cap (vph)	163	1511	1258	204	1660		364	354			102	
v/s Ratio Prot	c0.06	0.39	0.23	0.05	c0.43		c0.18	0.16			c0.01	
v/s Ratio Perm			0.04									
v/c Ratio	0.67	0.88	0.33	0.43	0.92		0.81	0.74			0.18	
Uniform Delay, d1	58.9	33.8	2.4	55.5	33.4		50.2	49.3			59.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	7.8	7.5	0.2	0.5	9.9		13.4	8.3			0.3	
Delay (s)	66.6	41.3	2.6	56.1	43.3		63.6	57.5			59.9	
Level of Service	E	D	A	E	D		E	E			E	
Approach Delay (s)		34.1			44.0			60.7			59.9	
Approach LOS		C			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	69	1256	1422	47	0	51
Future Volume (Veh/h)	69	1256	1422	47	0	51
Sign Control		Free	Free		Stop	
Grade		10%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	1365	1546	51	0	55
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		484				
pX, platoon unblocked					0.64	
vC, conflicting volume	1597				2404	798
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1597				2072	798
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				100	83
cM capacity (veh/h)	406				24	329

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	75	682	682	1031	566	55
Volume Left	75	0	0	0	0	0
Volume Right	0	0	0	0	51	55
cSH	406	1700	1700	1700	1700	329
Volume to Capacity	0.18	0.40	0.40	0.61	0.33	0.17
Queue Length 95th (ft)	17	0	0	0	0	15
Control Delay (s)	15.9	0.0	0.0	0.0	0.0	18.1
Lane LOS	C					C
Approach Delay (s)	0.8			0.0		18.1
Approach LOS						C

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	53.8%	ICU Level of Service		A
Analysis Period (min)	15			

I. Preliminary Conceptual Plans

LEGEND:

- CONCRETE MEDIAN
- LANDSCAPING
- SIDEWALK/MULTI-USE PATH
- BIKE LANE
- DEMOLITION
- TRAFFIC SIGNAL
- BUS STOP
- RELOCATE BUS STOP
- EXISTING CALTRANS ROW
- EXISTING CITY ROW
- EASEMENT LINE
- PROPERTY LINE
- PROPOSED CITY ROW
- PROPOSED CALTRANS ROW
- SMART ROW
- PROPOSED CUT
- PROPOSED FILL
- METAL BEAM GUARDRAIL
- CHAIN LINK FENCE
- RETAINING WALL
- CONCRETE BARRIER
- * STUDY BY OTHERS

MERGE NB DIAGONAL ON-RAMP WITH AUXILIARY LANE

MATCHLINE A
SEE SHEET 3.2

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

TOWER DR

RELOCATE WALKWAY BETWEEN SOUTHBOUND RAMPS IN ORDER TO ELIMINATE AT GRADE UNCONTROLLED PEDESTRIAN CROSSING OF ON-RAMP *

RESTRIPE MAINLINE AND WIDEN TO PROVIDE AUXILIARY LANE

MARIN COUNTY

US-101

MAINTENANCE VEHICLE PULLOUT (MVP) *

SB OFF-RAMP

NB ON-RAMP

ADD BIKE LANES (TYP)

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

KIPLING DR

RAMP METER*

MARIN MUNI WATER DISTRICT EASEMENT

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

ADD BIKE LANES (TYP)

INSTALL HAWK FOR PEDESTRIAN AND BICYCLE CROSSING ON-RAMP (COORDINATED WITH REDWOOD HIGHWAY FRONTAGE ROAD INTERSECTION TIMING)

REALIGN SOUTHBOUND DIAGONAL ON RAMP*

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

KNOLL DR

E BLITHEDALE AVE

CONSIDER PROTECTED INTERSECTION

TIBURON BLVD

TRIM MEDIAN NOSE TO EXPEDITE LEFT-TURNING MOVEMENTS FROM SOUTHBOUND OFF-RAMP

SB ON-RAMP

REALIGN SOUTHBOUND LOOP ON RAMP*

TIGHTEN NORTHBOUND LOOP ON RAMP

0 100' 200'

PRELIMINARY CONCEPTUAL PLAN - FOR DISCUSSION PURPOSES

CITY OF MILL VALLEY

DIAGRAM ILLUSTRATES POTENTIAL ENHANCEMENTS

FEBRUARY 2022

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(510) 208-4599

Parisi TRANSPORTATION CONSULTING
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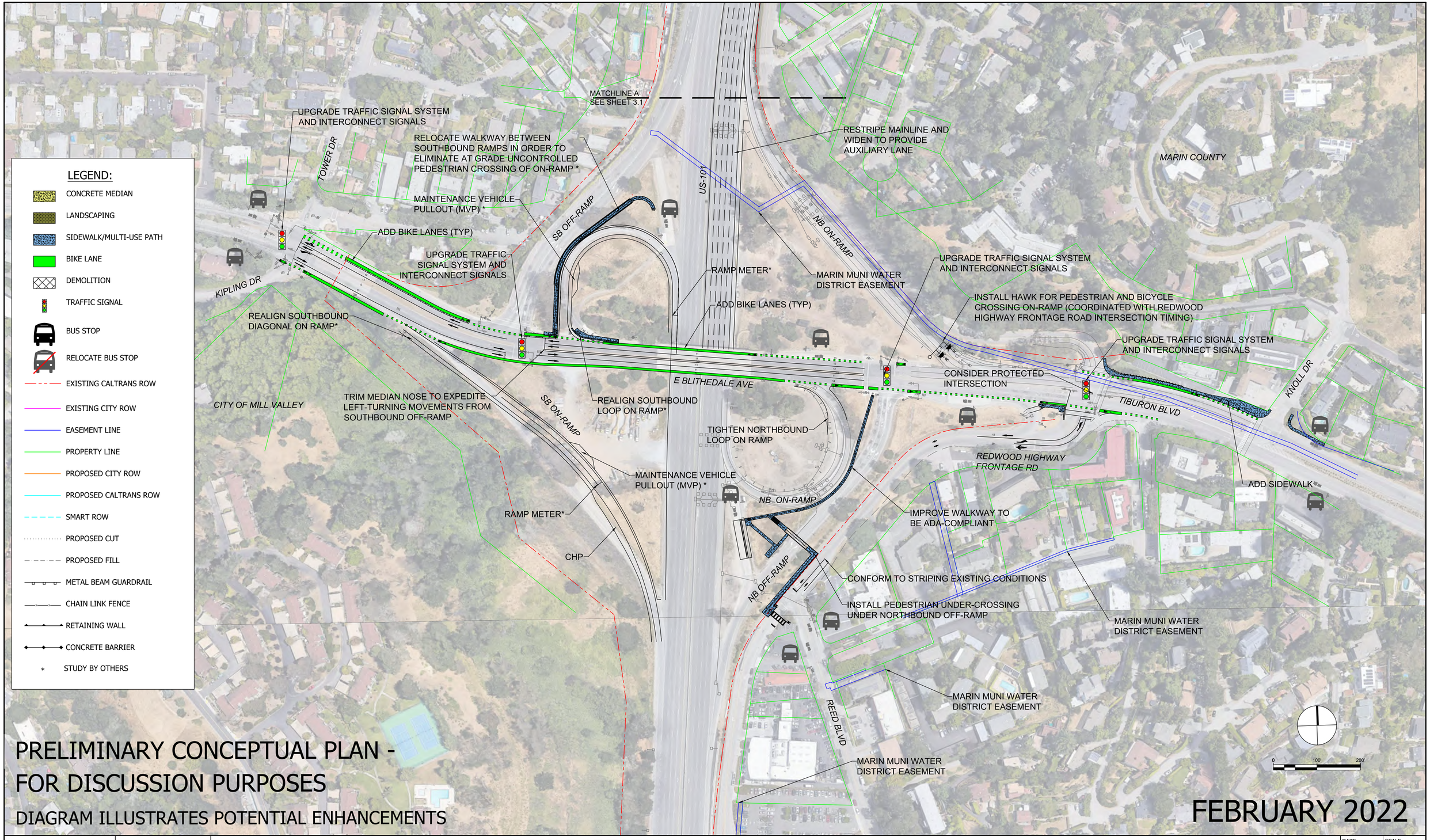
(415) 649-6000

TRANSPORTATION AUTHORITY OF MARIN
HIGHWAY 101 INTERCHANGE IMPLEMENTATION STUDY
EAST BLITHEDALE AVENUE / TIBURON BOULEVARD (SR131)
NEAR-TERM IMPROVEMENTS

TAM Transportation Authority of Marin

DATE:	SCALE: 1"=100'
FILENAME:	
PROJECT:	
SHEET NO.	3.1



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NEAR-TERM IMPROVEMENTS

TAM Transportation Authority of Marin

DATE:	SCALE: 1"=100'
FILENAME:	
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SHEET NO.	3.2

LEGEND:

- CONCRETE MEDIAN
- LANDSCAPING
- SIDEWALK/MULTI-USE PATH
- BIKE LANE
- DEMOLITION
- TRAFFIC SIGNAL
- BUS STOP
- RELOCATE BUS STOP
- EXISTING CALTRANS ROW
- EXISTING CITY ROW
- EASEMENT LINE
- PROPERTY LINE
- PROPOSED CITY ROW
- PROPOSED CALTRANS ROW
- SMART ROW
- PROPOSED CUT
- PROPOSED FILL
- METAL BEAM GUARDRAIL
- CHAIN LINK FENCE
- RETAINING WALL
- CONCRETE BARRIER
- * STUDY BY OTHERS

MERGE NB DIAGONAL ON-RAMP WITH AUXILIARY LANE

MATCHLINE A SEE SHEET 3.2

RESTRIPE MAINLINE AND WIDEN TO PROVIDE AUXILIARY LANE

MARIN COUNTY

MARIN MUNI WATER DISTRICT EASEMENT

US-101

NB ON-RAMP

SB OFF-RAMP

SB ON-RAMP

TOWER DR

KIPLING DR

E BLITHEDALE AVE

KNOLL DR

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

RELOCATE WALKWAY BETWEEN SOUTHBOUND RAMPS IN ORDER TO ELIMINATE AT GRADE UNCONTROLLED PEDESTRIAN CROSSING OF ON-RAMP *

MAINTENANCE VEHICLE PULLOUT (MVP) *

ADD BIKE LANES (TYP)

ADD 12' PATHWAY

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

ADD THIRD EASTBOUND TRAVEL ALNE

WIDEN BRIDGE TO THE SOUTH TO ALLOW FOR THREE EASTBOUND TRAVEL LANES

RAMP METERING SYSTEM INSTALLATION PROJECT*

ADD BIKE LANES (TYP)

ADD 12' PATHWAY

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

INSTALL HAWK FOR PEDESTRIAN AND BICYCLE CROSSING ON-RAMP (COORDINATED WITH REDWOOD HIGHWAY FRONTAGE ROAD INTERSECTION TIMING)

CONSIDER PROTECTED INTERSECTION

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

ADD SIDEWALK

REALIGN SOUTHBOUND DIAGONAL ON RAMP*

REALIGN SOUTHBOUND LOOP ON RAMP*

TIGHTEN NORTHBOUND LOOP ON RAMP

0 100' 200'

PRELIMINARY CONCEPTUAL PLAN - FOR DISCUSSION PURPOSES

DIAGRAM ILLUSTRATES POTENTIAL ENHANCEMENTS

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HIGHWAY 101 INTERCHANGE IMPLEMENTATION STUDY
EAST BLITHEDALE AVENUE / TIBURON BOULEVARD (SR131)
LONG-TERM IMPROVEMENTS

TAM Transportation Authority of Marin

DATE:	SCALE: 1"=100'
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PROJECT:	
SHEET NO.	3.1

MATCHLINE A
SEE SHEET 3.1

RESTRIPE MAINLINE AND WIDEN TO PROVIDE AUXILIARY LANE

MARIN COUNTY

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

TOWER DR

RELOCATE WALKWAY BETWEEN SOUTHBOUND RAMPS IN ORDER TO ELIMINATE AT GRADE UNCONTROLLED PEDESTRIAN CROSSING OF ON-RAMP *

MAINTENANCE VEHICLE PULLOUT (MVP) *

US-101

MARIN MUNI WATER DISTRICT EASEMENT

SB OFF-RAMP

ADD BIKE LANES (TYP)

NB ON-RAMP

ADD 12' PATHWAY

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

WIDEN BRIDGE TO THE SOUTH TO ALLOW FOR THREE EASTBOUND TRAVEL LANES

RAMP METERING SYSTEM INSTALLATION PROJECT*

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

KIPLING DR

E BLITHEDALE AVE

ADD BIKE LANES (TYP)

INSTALL HAWK FOR PEDESTRIAN AND BICYCLE CROSSING ON-RAMP (COORDINATED WITH REDWOOD HIGHWAY FRONTAGE ROAD INTERSECTION TIMING)

ADD THIRD EASTBOUND TRAVEL ALNE

ADD 12' PATHWAY

CONSIDER PROTECTED INTERSECTION

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

ADD SIDEWALK

KNOLL DR

REALIGN SOUTHBOUND DIAGONAL ON RAMP*

SB ON-RAMP

REALIGN SOUTHBOUND LOOP ON RAMP*

TIGHTEN NORTHBOUND LOOP ON RAMP

REDWOOD HIGHWAY FRONTAGE RD

TIBURON BLVD

MAINTENANCE VEHICLE PULLOUT (MVP) *

NB ON-RAMP

ADD BIKE LANES (TYP)

RAMP METER*

IMPROVE WALKWAY TO BE ADA-COMPLIANT

CHP

NB OFF-RAMP

CONFORM STRIPING TO EXISTING CONDITIONS

INSTALL PEDESTRIAN UNDER-CROSSING UNDER NORTHBOUND OFF-RAMP

MARIN MUNI WATER DISTRICT EASEMENT

CITY OF MILL VALLEY

MARIN MUNI WATER DISTRICT EASEMENT

REED BLVD

MARIN MUNI WATER DISTRICT EASEMENT

0 100' 200'

LEGEND:

- CONCRETE MEDIAN
- LANDSCAPING
- SIDEWALK/MULTI-USE PATH
- BIKE LANE
- DEMOLITION
- TRAFFIC SIGNAL
- BUS STOP
- RELOCATE BUS STOP
- EXISTING CALTRANS ROW
- EXISTING CITY ROW
- EASEMENT LINE
- PROPERTY LINE
- PROPOSED CITY ROW
- PROPOSED CALTRANS ROW
- SMART ROW
- PROPOSED CUT
- PROPOSED FILL
- METAL BEAM GUARDRAIL
- CHAIN LINK FENCE
- RETAINING WALL
- CONCRETE BARRIER
- * STUDY BY OTHERS

PRELIMINARY CONCEPTUAL PLAN - FOR DISCUSSION PURPOSES

DIAGRAM ILLUSTRATES POTENTIAL ENHANCEMENTS

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EAST BLITHEDALE AVENUE / TIBURON BOULEVARD (SR131)
LONG-TERM IMPROVEMENTS

TAM Transportation Authority of Marin

DATE:	SCALE: 1"=100'
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SHEET NO.	3.2

LEGEND:

- CONCRETE MEDIAN
- LANDSCAPING
- SIDEWALK/MULTI-USE PATH
- BIKE LANE
- DEMOLITION
- TRAFFIC SIGNAL
- BUS STOP
- RELOCATE BUS STOP
- EXISTING CALTRANS ROW
- EXISTING CITY ROW
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- SMART ROW
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- PROPOSED FILL
- METAL BEAM GUARDRAIL
- CHAIN LINK FENCE
- RETAINING WALL
- CONCRETE BARRIER
- * STUDY BY OTHERS

MERGE NB DIAGONAL ON-RAMP WITH AUXILIARY LANE

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

MATCHLINE A SEE SHEET 3.2

RELOCATE BUS STOP TO NEW SOUTHBOUND ON RAMP

RESTRIPE MAINLINE AND WIDEN TO PROVIDE AUXILIARY LANE

TOWER DR

MAINTENANCE VEHICLE PULLOUT (MVP) *

US-101

MARIN COUNTY

SB OFF-RAMP

ADD BIKE LANES (TYP)

ADD 12' PATHWAY

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

RAMP METER*

ADD BIKE LANES (TYP)

NB ON-RAMP

MARIN MUNI WATER DISTRICT EASEMENT

RELOCATE NORTHBOUND BUS STOP FROM SOUTH OF THE OVERCROSSING TO THE NEW NORTHBOUND ON-RAMP

INSTALL HAWK FOR PEDESTRIAN AND BICYCLE CROSSING ON-RAMP (COORDINATED WITH REDWOOD HIGHWAY FRONTAGE ROAD INTERSECTION TIMING)

KIPLING DR

E BLITHEDALE AVE

ADD THIRD EASTBOUND TRAVEL ALNE

ADD 12' PATHWAY

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

0 100' 200'

KNOLL DR

RELOCATE SOUTHBOUND BUS STOP FROM NORTH OF THE OVERCROSSING TO THE NEW SOUTHBOUND ON-RAMP

SB ON-RAMP

REALIGN SOUTHBOUND LOOP ON RAMP*

TIGHTEN NORTHBOUND LOOP ON RAMP

PRELIMINARY CONCEPTUAL PLAN - FOR DISCUSSION PURPOSES

CITY OF MILL VALLEY

DIAGRAM ILLUSTRATES POTENTIAL ENHANCEMENTS

FEBRUARY 2022

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TRANSPORTATION AUTHORITY OF MARIN
HIGHWAY 101 INTERCHANGE IMPLEMENTATION STUDY
EAST BLITHEDALE AVENUE / TIBURON BOULEVARD (SR131)
LONG-TERM IMPROVEMENTS (ALTERNATE)

TAM Transportation Authority of Marin

DATE:	SCALE: 1"=100'
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UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

MATCHLINE A
SEE SHEET 3.1

RELOCATE BUS STOP TO NEW SOUTHBOUND ON RAMP

RESTRIPE MAINLINE AND WIDEN TO PROVIDE AUXILIARY LANE

TOWER DR

MAINTENANCE VEHICLE PULLOUT (MVP) *

US-101

SB OFF-RAMP

ADD BIKE LANES (TYP)

ADD 12' PATHWAY

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

RAMP METER*

ADD BIKE LANES (TYP)

NB ON-RAMP

MARIN MUNI WATER DISTRICT EASEMENT

RELOCATE NORTHBOUND BUS STOP FROM SOUTH OF THE OVERCROSSING TO THE NEW NORTHBOUND ON-RAMP

KIPLING DR

E BLITHEDALE AVE

ADD THIRD EASTBOUND TRAVEL ALNE

INSTALL HAWK FOR PEDESTRIAN AND BICYCLE CROSSING ON-RAMP (COORDINATED WITH REDWOOD HIGHWAY FRONTAGE ROAD INTERSECTION TIMING)

ADD 12' PATHWAY

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

KNOLL DR

RELOCATE SOUTHBOUND BUS STOP FROM NORTH OF THE OVERCROSSING TO THE NEW SOUTHBOUND ON-RAMP

SB ON-RAMP

REALIGN SOUTHBOUND LOOP ON RAMP*

TIGHTEN NORTHBOUND LOOP ON RAMP

WIDEN BRIDGE TO THE SOUTH TO ALLOW FOR THREE EASTBOUND TRAVEL LANES

UPGRADE TRAFFIC SIGNAL SYSTEM AND INTERCONNECT SIGNALS

REDWOOD HIGHWAY FRONTAGE RD

ADD SIDEWALK

TIBURON BLVD

MAINTENANCE VEHICLE PULLOUT (MVP) *

RAMP METER*

NB ON-RAMP

NB OFF-RAMP

CHP

RELOCATE BUS STOP TO NEW NORTHBOUND ON RAMP

ADD SIDEWALK

MARIN MUNI WATER DISTRICT EASEMENT

MARIN MUNI WATER DISTRICT EASEMENT

REED BLVD

MARIN MUNI WATER DISTRICT EASEMENT

MARIN COUNTY

LEGEND:

- CONCRETE MEDIAN
- LANDSCAPING
- SIDEWALK/MULTI-USE PATH
- BIKE LANE
- DEMOLITION
- TRAFFIC SIGNAL
- BUS STOP
- RELOCATE BUS STOP
- EXISTING CALTRANS ROW
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- PROPOSED CITY ROW
- PROPOSED CALTRANS ROW
- SMART ROW
- PROPOSED CUT
- PROPOSED FILL
- METAL BEAM GUARDRAIL
- CHAIN LINK FENCE
- RETAINING WALL
- CONCRETE BARRIER
- * STUDY BY OTHERS

0 100' 200'

PRELIMINARY CONCEPTUAL PLAN - FOR DISCUSSION PURPOSES

DIAGRAM ILLUSTRATES POTENTIAL ENHANCEMENTS

FEBRUARY 2022

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TRANSPORTATION AUTHORITY OF MARIN
HIGHWAY 101 INTERCHANGE IMPLEMENTATION STUDY
EAST BLITHEDALE AVENUE / TIBURON BOULEVARD (SR131)
LONG-TERM IMPROVEMENTS (ALTERNATE)

TAM Transportation Authority of Marin

DATE:	SCALE: 1"=100'
FILENAME:	
PROJECT:	
SHEET NO.	3.2

J. Deficiency Matrix

Hwy 101 Interchange Implementation Study - Deficiency Matrix (Caltrans HDM)

Note: Existing conditions evaluated against Caltrans HDM(July 2020).

No.	HDM Section	HDM Boldface/Underline Criteria	Standard Applied	East Blithedale Ave / Tiburon Blvd
1	101.1(2)(c)(2) Local Streets or Roads	**Where the local facility connects to a freeway or expressway (such as ramp terminal intersections), the design speed of the local facility shall be a minimum of 35 miles per hour.** However, the design speed should be 45 miles per hour when feasible.	45 mph standard / 35 mph minimum	•Speed limit:35mph
2	Sidewalk	The minimum width of a sidewalk should be 8 feet between a curb and a building when in urban and rural main street place types. For all other locations the minimum width of sidewalk should be 6 feet when contiguous to a curb or 5 feet when separated by a planting strip.	8 feet for urban/rural main street to face of building 6 feet contiguous sidewalk 5 feet with separated planting	•6' sidewalk on north side of overcrossing
3	201.6 Stopping Sight Distance on Horizontal Curve	Figure 201.6		•No obstruction
4	206.3 Pavement Reductions	Through Lane Drops. When a lane is to be dropped, it should be done by tapering over a distance equal to WV, where W=Width of lane to be dropped and V=Design Speed.		•See 504.3(5)
5	208.4 Bridge Sidewalks	**The minimum width of a bridge sidewalk shall be 6 feet.**	6 feet	•6' sidewalk on north side of overcrossing
6	208.6 Bicycle and Pedestrian Overcrossing and Undercrossings	The minimum width of walkway for pedestrian overcrossing should be 8 feet. The minimum vertical clearance of the pedestrian undercrossing should be 10 feet.	8 feet	•N/A
7	208.6 Bicycle and Pedestrian Overcrossing and Undercrossing	Class I bikeways are designed for the exclusive use of bicyclists and pedestrians; equestrian access is prohibited.		Noted - N/A
8	208.10(2) Bridge Barriers and Railings Policies	To reduce the risk of objects being dropped or thrown upon vehicles, protective screening in the form of fence-type railings should be installed along new overcrossing structure sidewalks in urban areas (Sec 92.6 California Streets and Highway Code).		•Chain link railing
9	208.10(2) Bridge Barriers and Railings Policies	**Any use of railings and barriers with sidewalks on structures with posted speeds greater than 45 miles per hour shall have a barrier separation between the roadway and the sidewalk.**		•N/A - Speed limit:35mph

Hwy 101 Interchange Implementation Study - Deficiency Matrix (Caltrans HDM)

Note: Existing conditions evaluated against Caltrans HDM(July 2020).

No.	HDM Section	HDM Boldface/Underline Criteria	Standard Applied	East Blithedale Ave / Tiburon Blvd
10	208.10(6) Bicycle Railing	As a general policy, bicycle railings should be installed at the following locations: (a) On a Class I bikeway, except that a lower rail may be used if a curbed sidewalk, not signed for bicycle use, separates the bikeway from the rail or a shoulder at least 8 feet wide exists on the other side of the rail. (b) On the outside of a Class II or III bikeway, unless a curbed sidewalk, not signed for bicycle use, separates the bikeways from the rail.		▪N/A
11	208.10(7) Bridge Approach Railings	**Approach railings shall be installed at the ends of bridge railings exposed to approach traffic.**		▪Yes
12	301.1 Width	**Table 302.1**	Single-lane ramps shoulder width: 4' LT, 8' RT Multilane ramps shoulder width: 4' LT, 8' RT	▪NB single lane on-ramp: 2' (LT), 5' (RT) ▪NB single lane on-ramp(Loop): 2' (LT), No Right shoulders. ▪SB single lane on-ramp: 2' (LT), 9' (RT) ▪SB single lane on-ramp(Loop): 2' (LT), >8' (RT) ▪NB multi lane off-ramp: 4' (LT), 4' (RT) ▪SB multi lane off-ramp: 4' (LT), >8' (RT)
13	301.1 Lane Width (travel lane width on overpass/underpass)	**The minimum lane width on two-lane and multilane highways, ramps, collector-distributor roads, and other appurtenant roadways shall be 12 feet, except as follows:** **▪ For conventional State highways and posted speeds less than or equal to 40 miles per hour and AADTT (truck volume) less than 250 per lane that are in urban, city or town centers (rural main streets), the minimum lane width shall be 11 feet.** **▪Where a 2-lane conventional State highway connects to a freeway within an interchange, the lane width shall be 12 feet.** **▪Where a multilane State highway connects to a freeway within an interchange, the outer most lane of the highway in each direction of travel shall be 12 feet.**	12 feet	Overpass lane widths: ▪WB right:11.5' ▪WB left:10' ▪EB left:10' ▪EB right:10'
14	301.1 Lane Width	**The minimum lane width on two-lane and multilane highways, ramps, collector-distributor roads, and other appurtenant roadways shall be 12 feet, except as follows:** **▪For conventional State highways and posted speeds less than or equal to 40 miles per hour and AADTT (truck volume) less than 250 per lane that are in urban, city or town centers (rural main streets), the minimum lane width shall be 11 feet.** **▪Where a 2-lane conventional State highway connects to a freeway within an interchange, the lane width shall be 12 feet.** **▪Where a multilane State highway connects to a freeway within an interchange, the outer most lane of the highway in each direction of travel shall be 12 feet.**	12 feet *(unless otherwise noted for truck lane width)*	▪NB diagonal off-ramp: 3-12' lanes ▪NB loop on-ramp. (R=144') :14' single (20' standard truck lane width) ▪NB diagonal on-ramp: single 11' lane ▪SB diagonal on-ramp: single 12' lane ▪SB loop on-ramp (R=140') :14' single (20' standard truck lane width) ▪SB diagonal off-ramp: 4-12' lanes

Hwy 101 Interchange Implementation Study - Deficiency Matrix (Caltrans HDM)

Note: Existing conditions evaluated against Caltrans HDM(July 2020).

No.	HDM Section	HDM Boldface/Underline Criteria	Standard Applied	East Blithedale Ave / Tiburon Blvd
15	301.2(1) Class II Bikeway (Bike Lane) Lane Width	**Class II bikeways (bike lanes), for the preferential use of bicycles, may be established within the roadbed and shall be located immediately adjacent to a traffic lane as allowed in this manual.**		WB Class II leading to overcrossing requiring bicyclists to utilize shoulder to cross over.
16	308.1 City Streets and County Roads	**Where local facility, not on the NHS, within the State right of way crosses over or under a freeway or expressway but has no connection to the State facility, the minium design standards for the cross section of the local facility within the State's right of way shall be the local agency adopted standards.**		•Noted
17	308.1 City Streets and County Roads	**Where a local facility crosses over or under a freeway or expressway and connects to the State facility (such as ramp terminal intersections), the minimum design standards for the cross section of the local facility shall be at least equal to those for a conventional highway with the exception that the outside shoulder width shall match the approach roadway, but not less than 4 feet, and as shown below.**		•Noted
18	308.1 City Streets and County Roads	**Where a 2-lane facility connects to a freeway within an interchange, the lane width of the local facility shall be 12 feet.**	12 feet	•Noted - N/A (within Caltrans ROW)
19	308.1 City Streets and County Roads	**Where a multilane local facility connects to a freeway within an interchange, the outer most lane in each direction of the local facility shall be 12 feet.**	Outer lane width = 12'	•Noted - N/A (within Caltrans ROW)
20	308.1 City Streets and County Roads	**Shoulder width shall not be less than 5 feet when railings or other lateral obstructions are adjacent to the right edge of shoulder.**	5' shoulder from lateral obstruction	•Noted - N/A (within Caltrans ROW)
21	308.1 City Streets and County Roads	**If gutter pans are used, then the minimum shoulder width shall be 3 feet wider than the width of the gutter pan being used.**	3' wide shoulder plus gutter pan width	•Noted - N/A (within Caltrans ROW)

Hwy 101 Interchange Implementation Study - Deficiency Matrix (Caltrans HDM)

Note: Existing conditions evaluated against Caltrans HDM(July 2020).

No.	HDM Section	HDM Boldface/Underline Criteria	Standard Applied	East Blithedale Ave / Tiburon Blvd
22	308.1 City Streets and County Roads	**The minimum width for two-lane overcrossing structures at interchanges shall be 40 feet curb-to-curb.**	40 feet curb to curb	▪66'
23	301.2(1) Class II Bikeway (Bike Lane) Lane Width	**The minimum Class II bike lane width shall be 4 feet, except where:** -Adjacent to on-street parking, the minimum bike lane should be 5 feet -Posted speeds are greater than 40 miles per hour, the minimum bike lane should be 6 feet	Min Class II bike lane width = 4' Class II adjacent to street parking = 5' >40 mph, Class II bike lane width = 6'	▪N/A
24	309.1 (3) Horizontal Clearances for Highways - Minimum Clearances	**The following minimum horizontal clearances shall apply to all objects that are closer to the edge of traveled way than the clear recovery zone distances listed below:** **(a) The minimum horizontal clearance to all objects, such as bridge rails and safety-shaped concrete barriers, as well as sand-filled barrels, guardrail, etc., on all freeway and expressway facilities, including auxiliary lanes, ramps and collector-distributor roads, shall be equal to the standard shoulder width of the highway facility as stated in Table 302.1. A minimum clearance of 4 feet shall be provided where the standard shoulder width is less than 4 feet. Approach rail connections to bridge rail may require special treatment to maintain the standard shoulder width.**	Standard shoulder width from Table 302.1. 4' minimum for shoulder width < 4'.	▪EB and WB 4' shoulder
25	309.1 (3) Horizontal Clearances for Highways - Minimum Clearances	**The following minimum horizontal clearances shall apply to all objects that are closer to the edge of traveled way than the clear recovery zone distances listed below:** **(b) The minimum horizontal clearance to walls, such as abutment walls, retaining walls in cut locations, and noise barriers on all facilities, including auxiliary lanes, ramps and collector-distributor roads, shall not be less than 10 feet per Table 302.1.**	10 feet to abutment walls, retaining wall in cut locations, and noise barriers	▪N/A
26	309.1 (3) Horizontal Clearances for Highways - Minimum Clearances	**The following minimum horizontal clearances shall apply to all objects that are closer to the edge of traveled way than the clear recovery zone distances listed below:** **(c) On conventional highways, frontage roads, city streets and county roads within the State right of way (all without curbs), the minimum horizontal clearance shall be the standard shoulder width as listed in Table 302.1 and 307.2, except that a minimum clearance of 4 feet shall be provided where the standard shoulder width is less than 4 feet.**	Conventional highway, frontage roads, city streets within State ROW, minimum horizontal clearance is standard shoulder width and/or 4 feet	
27	309.1 (3) Horizontal Clearances for Highways - Minimum Clearances	In areas without curbs, the face of Type 60 concrete barrier should be constructed integrally at the base of any retaining, pier, or abutment wall which faces traffic and is 15 feet or less from the edge of traveled way (right or left of traffic and measures from the face of wall).		▪N/A

Hwy 101 Interchange Implementation Study - Deficiency Matrix (Caltrans HDM)

Note: Existing conditions evaluated against Caltrans HDM(July 2020).

No.	HDM Section	HDM Boldface/Underline Criteria	Standard Applied	East Blithedale Ave / Tiburon Blvd
28	309.2(1)(a) Vertical Clearances - Major Structures - Freeways and Expressways	**16 feet 6 inches shall be the minimum vertical clearance over the roadbed of the State facility (e.g. main lanes, shoulders, ramps, collector-distributor roads, speed change lanes, etc.)**	16.5'	▪15.2'
29	309.2(1)(c) Vertical Clearances - Major Structures - Conventional Highways, Parkways, and Local Facilities, All Projects	**15 feet shall be the minimum vertical clearance over the traveled way and 14 feet 6 inches shall be the minimum vertical clearance over the shoulders of all portions of the roadbed.**	15' traveled way 14' 6" shoulders	▪N/A
30	309.2(2)Vertical Clearances - Minor Structures	**Pedestrian over-crossings shall have a minimum vertical clearance 2 feet greater than the standard for major structures for the State facility in question. Sign structures shall have a vertical clearance of 18 feet over roadbed of the State facility.**	18.5' over freeways	▪N/A
31	403.6(1) Turning Traffic: Treatment of Intersections with Right-Turn Only Lanes	Optional right-turn lanes should not be used in combination with right-turn-only lanes on roads where bicycle travel is permitted.		▪N/A
32	403.6(1) Turning Traffic: Treatment of Intersections with Right-Turn Only Lanes	Locations of right-turn-only lanes should provide a minimum of 4-foot width for bicycle use between the right-turn and through lane when bikes are permitted, except where posted speed is greater than 40 miles per hour, the minimum width should be 6 feet.		▪N/A
33	405.1(2)(b) Public Road Intersection	The minimum value for corner sight distance at signalized intersections should be equal to the stopping sight distance as given in Table 201.1 measured as previously described.		▪No Obstructions
34	405.1(3) Decision Sight Distance	At intersections where the State route turns or crosses another State route, the decision sight distance values given in Table 201.7 should be used.		▪N/A
35	405.2(2)(a) Left-turn Channelization: Lane Widths	**The lane width for both single and double left-turn lanes on State highways shall be 12 feet.**	12 feet	▪N/A
36	405.2(4) Two-way Left-turn Lane (TWLTL)	**The minimum width for a TWLTL (Two-way Left-turn Lane) shall be 12 feet (see Index 301.1)**	12 feet	▪N/A

Hwy 101 Interchange Implementation Study - Deficiency Matrix (Caltrans HDM)

Note: Existing conditions evaluated against Caltrans HDM(July 2020).

No.	HDM Section	HDM Boldface/Underline Criteria	Standard Applied	East Blithedale Ave / Tiburon Blvd
37	405.3(2)(a) Right-Turn Channelization: Lane and Shoulder Width	**Index 301.1 shall be used for right-turn lane width requirements. Shoulder width shall be a minimum of 4 feet. Lane width is 12'.**	12 feet	▪10' right turn lane at Redwood Highway Frontage Road
38	405.3(2)(b) Right-Turn Channelization: Curve Radius	Where pedestrians are allowed to cross a free right-turning roadway, the curve radius should be such that the operating speed of vehicular traffic is no more than 20 miles per hour at the pedestrian crossing. See Index 504.3(3) for additional information.		▪SB off-ramp ▪NB off-ramp
39	501.3 Spacing	**The minimum interchange spacing shall be one mile in urban areas, two miles outside of urban areas, and two miles between freeway-to-freeway interchanges and other interchanges. The minimum interchange spacing on interchanges outside of urban areas shall be three miles.**	1 mile (urban)	Existing Condition - ▪Tamalpais Dr - 1.67 mi ▪Shoreline Hwy - 1.5 mi
40	504.2(2) Freeway Entrances and Exits	Design of freeway entrances and exits should conform to the standard designs illustrated in Figure 504.2A-B (single lane), and Figure 504.3K (two-lane entrances and exits) and/or Figure 504.4 (diverging brand connections), as appropriate. *Deceleration Length: See HDM 504.2B* *Acceleration Length: See HDM 504.2A*	Single lane on-ramp entrance Acceleration Length = 467.11' (measure from curve to gore point) Merge length = 600' (measure from gore point to 12' lane drop)	▪NB diagonal on-ramp Accel: Auxiliary lane provided Merge: Auxiliary lane provided ▪NB loop on-ramp Accel: 351'<467.11' Merge: does not meet successive on-ramps separation, short merge. ▪SB diagonal on-ramp Accel: Auxiliary lane provided Merge: Auxiliary lane provided ▪SB loop on-ramp Accel:242'<467.11' Merge: Meets Standards
41	504.2(2) Freeway Entrances and Exits	**The minimum deceleration length shown on Figure 504.2B shall be provided prior to the first curve beyond the exit nose to assure adequate distance for vehicles to decelerate before entering the curve.**	R<300', DL=570' R=300'-499', DL=470' R=500'-999', DL =420' R=1,000 or greater, DL=270'	▪Noted
42	504.3(1)(a) Ramps: Design Speed	When ramps terminate at an intersection at which all traffic is expected to make a turning movement, the minimum design speed along the ramp should be 25 miles per hour. When a "through" movement is provided at the ramp terminus, the minimum ramp design speed should meet or exceed the design speed of the highway facility for which the through movement is provided.		▪Noted
43	504.3(1)(b) Ramps: Lane Width (Trucks)	**Ramp Lanes shall be a minimum of 12 feet in width. Where ramps have curve radii of 350 feet or less, measured along the outside edge of traveled way for single lane ramps or along the outside lane line for multilane ramps, with a central angle greater than 60 degrees, the single ramp, or the lane furthest to the right if the ramp is multilane, shall be widened in accordance with Table 504.3 in order to accommodate large truck wheel paths.**	(Inside lane for multilane ramps) R<150', Lane width = 20' R=150-179', Lane width = 17' R=180-209', Lane width = 16' R=210-249', Lane width = 15' R=250-299', Lane width = 14' R=300-350', Lane width = 13' R>35', Lane width = 12'	▪NB off-ramp: 3 12' lanes ▪NB loop on-ramp. (R=144') :14' single (20' standard) ▪NB on-ramp: single 11' lane ▪SB on-ramp: single 12' lane ▪SB loop on-ramp. (R=140') :14' single (20' standard) ▪SB off-ramp: 4 12' lanes

Hwy 101 Interchange Implementation Study - Deficiency Matrix (Caltrans HDM)

Note: Existing conditions evaluated against Caltrans HDM(July 2020).

No.	HDM Section	HDM Boldface/Underline Criteria	Standard Applied	East Blithedale Ave / Tiburon Blvd
44	504.3(1)(c) shoulder width	**Shoulder widths for ramps shall be as indicated in Table 302.1**		▪Shoulder widths indicated above in Section 301.1
45	504.3(3) Location and Design of Ramp Intersections on the Crossroads	**For left-turn maneuvers from an off-ramp at an unsignalized intersection, the length of crossroads open to view should be according to the corner sight distance criteria in Index 405.1**		▪N/A - signalized
46	504.3(3) Location and Design of Ramp Intersections on the Crossroads	**The minimum distance (curb return to curb return) between ramp intersections and local road intersections shall be 400 feet.** The preferred minimum distance should be 500 feet.		▪Noted but did not evaluate. Does not appear to be an issue here.
47	504.3(5) Single-lane Ramps	When additional lanes are provided near an entrance ramp intersection, the lane drop should be accomplished over a distance equal to WV. The lane to be dropped should be on the right so the traffic merges left.	WV for ramp entering or exiting the freeway	Noted - N/A
48	504.3(5) Single-lane Ramps	If the length of the single lane ramp exceeds 1,000 feet, an additional lane should be provided on the ramp to permit passing maneuvers.	exit ramps with lengths greater than 1000' require additional lane	Noted
49	504.3(9) Distance Between Successive On-ramps	This distance should be about 1,000 feet unless the upstream ramp adds an auxiliary lane in which case the downstream ramp should merge with the auxiliary lane in a standard 50:1 (longitudinal to lateral) convergence.	1000' feet	▪successive NB on-ramps, 1075' > 1000'
50	504.3(10) Distance Between Successive Exits	The minimum distance between successive exit ramps for guide signs should be 1,000 feet on the freeway and 600 feet on collector-distributor roads.	1000' feet	▪Meets standard
51	504.7 Weaving Sections	**Between interchanges, the minimum entrance ramp-to-exit ramp spacing, measured as shown on Figure 504.2A and 504.2B shall be 2,000 feet in urban areas, 5,000 feet outside urban areas, and 5,000 feet between freeway-to-freeway interchanges and other interchanges.**	2000 feet for urban (entrance ramp-to-exist ramp spacing)	SB on-ramp and SB off-ramp to Redwood Hwy: Distance = 750' < 2000'
52	1003.1(1)(a) Class I Bikeways (Bike Paths): Traveled Way	**The minimum paved width of a traveled way for a two-way bike path shall be 8 feet, 10 feet preferred. The minimum paved width for a one-way bike path shall be 5 feet.**	Two-way Class I =8' (10' preferred) (5' minimum)	▪N/A

Hwy 101 Interchange Implementation Study - Deficiency Matrix (Caltrans HDM)

Note: Existing conditions evaluated against Caltrans HDM(July 2020).

No.	HDM Section	HDM Boldface/Underline Criteria	Standard Applied	East Blithedale Ave / Tiburon Blvd
53	1003.1(1)(b) Class I Bikeways (Bike Paths): Shoulder	**A minimum 2-foot wide shoulder, composed of the same pavement materials as the bike path or all weather surface material that is free of vegetation, shall be provided adjacent to the traveled way of the bike path when not on a structure.**	2' clear	▪N/A
54	1003.1(3) Class I Bikeways (Bike Paths): Clearance to Obstructions	**A minimum 2-foot horizontal clearance from the paved edge of a bike path to obstruction shall be provided.**	2' clear to obstruction	▪N/A
55	1003.1(3) Class I Bikeways (Bike Paths): Clearance to Obstructions	**The clear width of a bicycle path on structures between railings shall be not less than 10 feet.**	10' clear from structures	▪N/A
56	1003.1(3) Class I Bikeways (Bike Paths): Clearance to Obstructions	**The vertical clearance to obstruction across the width of a bike path shall be a minimum of 8 feet and 7 feet over shoulder.**	Class I vertical clearance = 8' over roadway and 7' over shoulder	▪N/A
57	1003.1(7) Class I Bikeways (Bike Paths): Clearance to Obstructions	**The minimum separation between the edge of traveled way of a one-way or two-way bicycle path and edge of traveled way of a parallel road or street shall be 5 feet plus the standard shoulder width. Bike paths within the clear recovery zone of freeways shall include a physical barrier separation.**	Class I - 5' clear + shoulder width to one-way or two-way bicycle path. Can be less with barrier.	▪N/A

Hwy 101 Interchange Implementation Study - Deficiency Matrix (Local Standards)

Note: Existing conditions evaluated against the Marin County Uniform Construction Standards(July 2008), the City of Novato's Uniform Standards(May 2013), and Marin Transit(August 2013).

No.	Jurisdiction	Criteria	Standard	East Blithedale Ave / Tiburon Blvd
1	Uniform Construction Standards for Marin County dated July 2018		•Arterial road means road specified in the countywide plan or the Marin county annual road list, and other major roads with an actual or projected ADT over two thousand •Industrial commercial road means providing access to, or through, an industrial or commercial zone or an area of high truck and/or other large vehicle traffic •Collector road means a road with an actual or projected ADT from one though to two thousand •Residential road means a road providing access to a generally residential area and which serves or may serve twenty or more dwelling units, and a maximum potential ADT of one thousand •Minor residential road means a road providing access to a generally residential area and which serve seven to nineteen dwelling units, and a maximum potential ADT of five hundred •Limited residential road means a road which serves two to six dwelling units, and a maximum potential ADT of one hundred fifty	•Arterial/Collector
2	Uniform Construction Standards for Marin County dated July 2019	Design Speed	All roads except residential roads will have a minimum design speed of 25 mph	•Speed limit:35mph
3	Uniform Construction Standards for Marin County dated July 2020	Centerline Radii	Follow Caltrans Highway Design Manual	•Noted
4	Uniform Construction Standards for Marin County dated July 2021	Intersections	Roads shall intersect each other as near to a right angle as is practical. Where several streets converge at one point, special approach treatment shall be provided to optimize driver sight distance and pedestrian safety. Provisions may include, but are not limited to, setback lines, special rounding, slope grading and/or vegetation removal. Block corners shall be rounded at the property line by a radius of not less than twenty feet and curb or pavement returns shall have a minimum radius of twenty-five feet.	•Noted
5	Uniform Construction Standards for Marin County dated July 2022	Roadway Width - lane widths	The following table sets forth the minimum widths for the improved section measured from face of curb to face of curb. Where no curb or berm is proposed the paved width shall be one foot greater than that listed to allow for edge striping and pavement edge raveling. •limited residential road: 20' with shoulders and 24' with curbs •minor residential road: 28' •residential road: 36' •collector road: 40' •arterial and industrial/commercial: as required	E Blithedale Ave and Kipling Dr (West of overpass) •E Blithedale Ave: 83' •Kipling:33' (Standard 40') •Tower Dr:40' Tiburon Ave and N Knoll Rd (East of overpass) •Tiburon Ave:90' •N Knoll Rd::37' (Residential)
6	Uniform Construction Standards for Marin County dated July 2023	Roadway With - shoulder width	Shoulders shall be provided on each side of all roads. Shoulders shall normally be four feet although wider shoulders may be required as deemed appropriate by the agency.	•No shoulders
7	Uniform Construction Standards for Marin County dated July 2024	Curbs	Curbs and gutters or berms shall be required adjacent to all parking lanes and where physical separation, delineation, or stormwater control is necessary. PCC curbs and gutters shall normally be required in order to minimize long-term maintenance. AC berms may be allowed where appropriate at the discretion of the agency.	West of overpass: •E Blithedale Ave: yes curb yes gutter. No parking lanes East of Overpass •Tiburon Blvd: yes curb yes gutter. Parking lanes on both sides •-Redwood Highway Frontage Rd: yes curb no gutter for WB, no curb no gutter for EB •Kipling Dr and Tower Dr: yes curb yes gutter and yes parking lanes

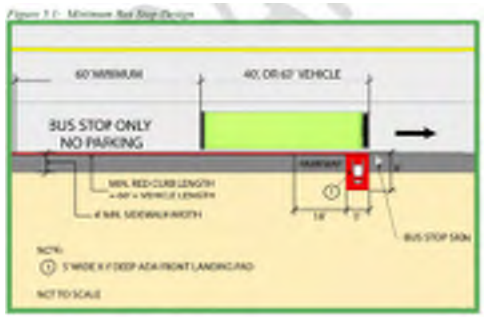
Hwy 101 Interchange Implementation Study - Deficiency Matrix (Local Standards)

Note: Existing conditions evaluated against the Marin County Uniform Construction Standards(July 2008), the City of Novato's Uniform Standards(May 2013), and Marin Transit(August 2013).

No.	Jurisdiction	Criteria	Standard	East Blithedale Ave / Tiburon Blvd
8	Uniform Construction Standards for Marin County dated July 2025	Sidewalks required	Sidewalks shall be provided in conformance with any applicable general, specific, or community plan which has been adopted by the county. In addition, the following general standards shall apply: (a) Sidewalks shall be required on both side of all roads within residential areas where densities will be equal to or ultimately exceed four units per acre (b) Sidewalks shall be required on only one side of each road within a residential area where densities will be less than four units per acre (c) Pedestrian paths of an acceptable width may also be required through the center of long blocks; to provide access to schools, parks, playgrounds, open space, and other public areas; to river, lake, bay and ocean frontage; to connect cul -de-sac streets and where otherwise necessary as determined by the agency and/or the community development agency. If location outside of the right of way of a county maintained road, provisions must be made for their maintenance. (d) Sidewalks may be eliminated on one or both sides of streets where it is found that topography, density or other circumstances make them impractical as determined by the agency (e) Sidewalks shall be required on both sides of all roads in industrial, commercial and business districts (f) Safe and reasonable direct pedestrian access shall be provided between residential subdivisions and transit stops where feasible	
9	Uniform Construction Standards for Marin County dated July 2026	Sidewalks within city-centered corridor	4' in width adjacent to a curb or 4.5' when separated by a curb. Additional width may be required for potential high pedestrian volumes such as near schools, places of public assembly, commercial areas and in vicinity of senior citizen housing or convalescent hospital.	•Sidewalk west of overpass: 5' •Sidewalk east of overpass: 5'
10	Uniform Construction Standards for Marin County dated July 2027	Sidewalk obstructions	(a) No poles, grates, covers, fire hydrants or other obstructions are allowed within a sidewalk. Utility boxes and other flush facility may be allowed within a sidewalk if their location and nature are deemed safe by the agency. (b) If the postal service requires that mailboxes be located adjacent to the curb then the sidewalk shall be either separated from the curb or wide enough to provide a four-foot obstructed width	•No sidewalk obstructions
11	Uniform Construction Standards for Marin County dated July 2028	Transit facilities - passenger shelters	Bus passenger shelters shall be designed to shelter at least eight persons, shall not obstruct a sidewalk and shall be subject to approval of the Marin County Transit District and the agency.	•Bus Shelter outside of sidewalk
12	Uniform Standards (City of Novato) dated May 2013	Bus Turnout	Refer to drawing no. 195N	
13	Marin Transit (Golden Gate Transit) dated August 2013		The bus stop has ADA landing pads, 4 - feet accessible sidewalk, a clear wheelchair's space inside the shelter, and barrier and obstacle-free zone.	•West of overcross E Blithedale Ave (40130): no wheel chair space inside bus shelter
14	Marin Transit (Golden Gate Transit) dated August 2014		No parking in front of bus stop	•Yes
15	Marin Transit (Golden Gate Transit) dated August 2015		60' clear from parking to bus stop (near side stops)	•N/A
16	Marin Transit (Golden Gate Transit) dated August 2016		50' clear from parking to bus stop (far side stops)	•N/A
17	Marin Transit (Golden Gate Transit) dated August 2017		60' clear from back and 60' clear from front of bus (mid block stops)	•Yes

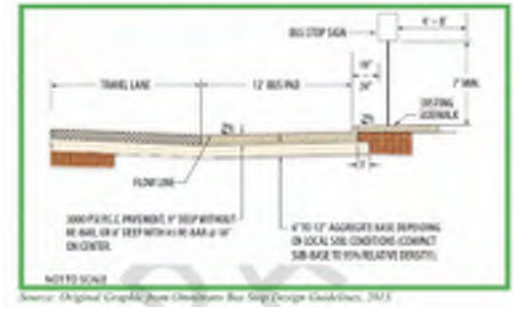
Hwy 101 Interchange Implementation Study - Deficiency Matrix (Local Standards)

Note: Existing conditions evaluated against the Marin County Uniform Construction Standards(July 2008), the City of Novato's Uniform Standards(May 2013), and Marin Transit(August 2013).

No.	Jurisdiction	Criteria	Standard	East Blithedale Ave / Tiburon Blvd
18	Marin Transit (Golden Gate Transit) dated August 2018		Bus turn-out should be consider: •Traffic in the curb lane exceeds 250 vehicles during the peak hour •Traffic speed is greater than 40 mph •Bus volumes are 10 or more per peak hour on the roadway •Passenger volumes exceed 20 boardings per hour •Average peak-period dwell time exceed 30 second per bus •History of repeated traffic and/or pedestrian accidents at stop location •A right turn lane is used by buses as a queue jumper lane, •Improvements, such as widening, are planned for major roadway. This provides the opportunity to include the bus bay as part of the reconstruction, resulting in better-designed and less-costly bus turnout.	
19	Marin Transit (Golden Gate Transit) dated August 2019		When traffic volumes exceed 1000 veh/hr per lane, placement of a bus turnout on a high-volume road is guided by the following: •Far side intersection placement is desirable. Bus bays should be placed at signal-controlled intersection so that the signal can create gaps in traffic. •Near side bays should be avoided because of conflicts with right-turning vehicles, delays to transit service as buses attempt to re-enter the travel lane, and obstruction of traffic control devices and pedestrian activity unless associated with key sites or key pedestrian access to major transit-oriented activities centers. •Midblock bus bays locations are not desirable unless associated with key pedestrian access to major transit-oriented activities centers.	
20	Marin Transit (Golden Gate Transit) dated August 2020		Bus pad : 8" thick reinforced concrete pad with #3 rebar at 18" OC. Width of pad =11' and varies in length (40'-60') (depends on bus length)+3' buffer at beg/end	•East of overcross Tiburon Blvd (40171 and 40172) : standard bus pad •West of overcross E Blithedale Ave (40129 and 40130): No bus pad
21	Marin Transit (Golden Gate Transit) dated August 2021		ADA Landing Pad : front landing pad are 5 feet parallel to street and 8 feet deep and rear landing pad are 5 feet parallel to street and 8 feet deep (ADAAG 10.2.1)	•West of overcross E Blithedale Ave (40130): landing pad<8' deep
22	Marin Transit (Golden Gate Transit) dated August 2022		Minimum Bus Stop Design 	

Hwy 101 Interchange Implementation Study - Deficiency Matrix (Local Standards)

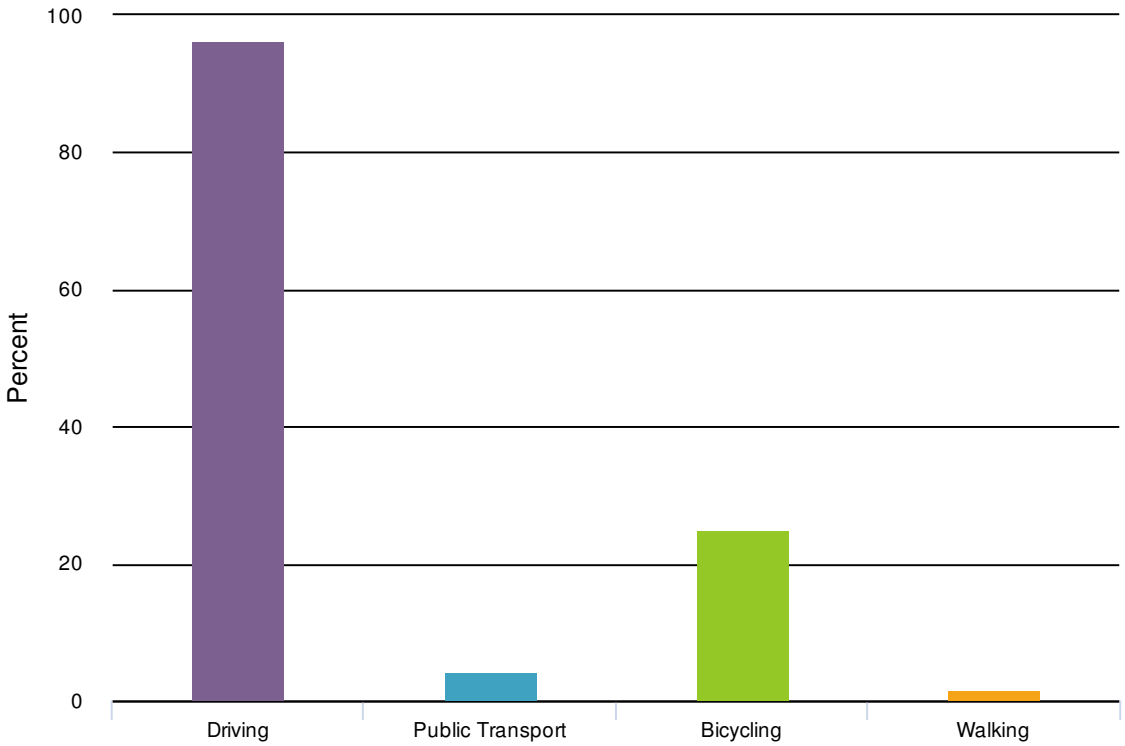
Note: Existing conditions evaluated against the Marin County Uniform Construction Standards(July 2008), the City of Novato's Uniform Standards(May 2013), and Marin Transit(August 2013).

No.	Jurisdiction	Criteria	Standard	East Blithedale Ave / Tiburon Blvd
23	Marin Transit (Golden Gate Transit) dated August 2023		Bus Pad Design - Cross Section 	

K. Online Survey Comments

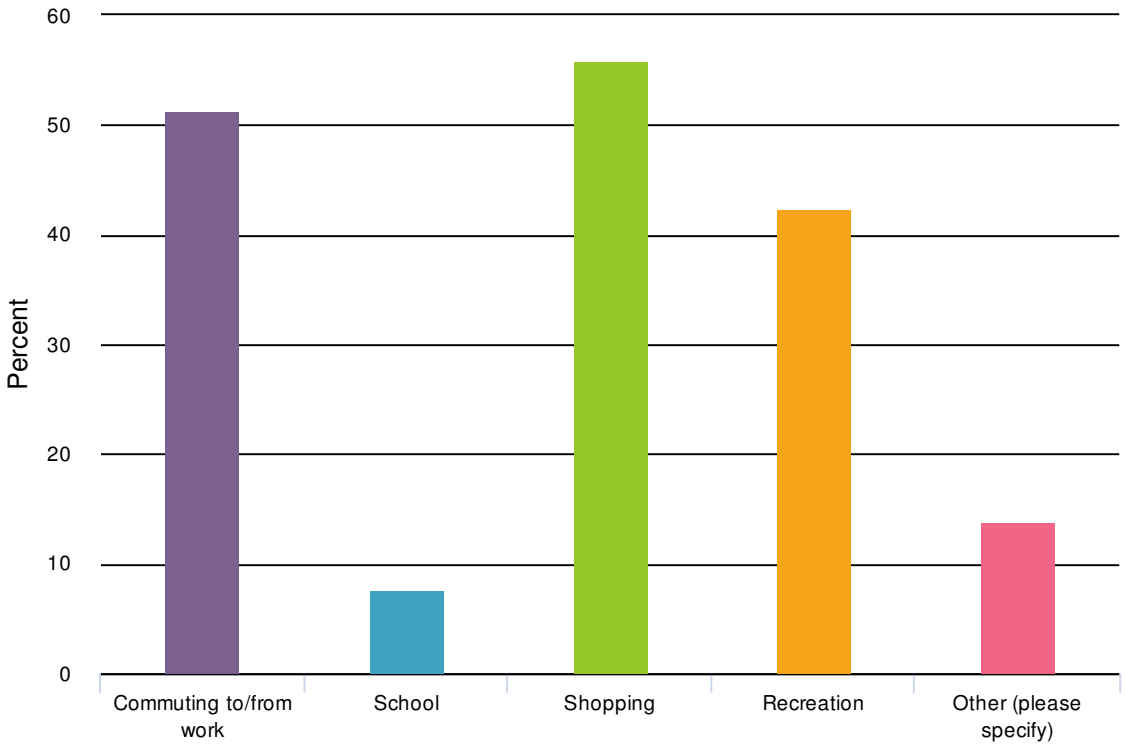
E. Blithedale Avenue / Tiburon Blvd

9. How do you normally travel through this interchange? Select up to 2



Value	Percent	Responses
Driving	96.4%	487
Public Transport	4.4%	22
Bicycling	25.0%	126
Walking	1.8%	9

10. What are the main purposes you use this interchange for? Select up to 2



Value	Percent	Responses
Commuting to/from work	51.3%	259
School	7.7%	39
Shopping	56.0%	283
Recreation	42.4%	214
Other (please specify)	13.9%	70

Other (please specify)	Count
Appointments	2
Visiting friends	2
all of the above	2
visiting family	2
Access field work locations	1
Totals	69

Other (please specify)	Count
All activities - appointments, travel, recreation, business, charitable. This is the primary interchange I must use to get from the Tiburon/Belvedere peninsula to anywhere else for any purpose.	1
All of the above	1
Appts in the City	1
Caregiving an elderly parent	1
Daycare	1
Dr. Apts	1
Errands, medical appointments	1
General Transportation	1
Getting about Marin County.	1
Getting on the freeway to go anywhere in northern Marin, or going to Tiburon Blvd from MV	1
Getting out of Mill Valley to go North on 101 for any travel situation	1
Getting to and from Mill Valley	1
Getting to and from home	1
Go to the vet	1
Going anywhere	1
Health care	1
Life	1
Medical	1
Medical	1
Medical, dental and other appointments tments	1
Physiotherapy	1
Totals	69

Other (please specify)	Count
Sharing child care	1
Sports	1
Sports practices	1
To get to the ferry terminal	1
To/from home	1
Travel to Sonoma County	1
Trips to SF, San Rafael, going to restaurants	1
Visit Family	1
Visiting Family	1
Visiting and helping a family member	1
Visiting family in Tiburon	1
Work	1
appointments	1
babysit our grandchildren in Tiburon	1
business	1
business related	1
caregiving	1
connection to other towns in the area	1
daily driving	1
doctor's appointments	1
errands	1
family visit/care	1
food	1
Totals	69

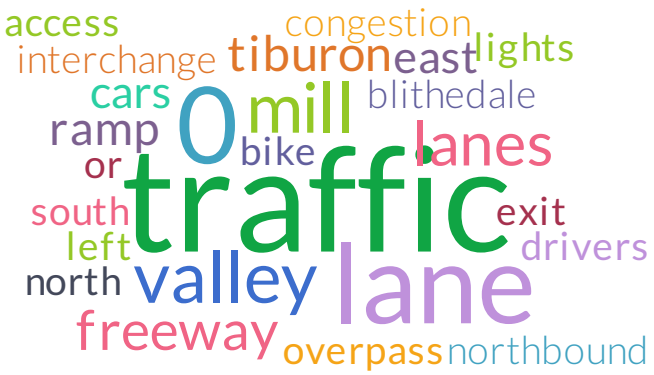
Other (please specify)	Count
freeway access	1
get out of Mill Valley onto freeway	1
getting out of mill valley for any reason	1
getting to 101 freeway	1
medical	1
medical appts	1
moving around the county	1
other necessary errands	1
other personal trips	1
to Medical services	1
to go north on 101	1
to head north on 101	1
various meetings	1
visit mother	1
visiting nursing home	1
while at work	1
Totals	69

11. Please rank the following priorities for this interchange based on their importance to you:

	Not Important	Lower Importance	No Opinion	Somewhat Important	Most Important	Responses
Reduce traffic congestion Count Row %	11 2.2%	12 2.4%	10 2.0%	65 12.9%	404 80.5%	502
Make it easier to drive to and from this interchange Count Row %	27 5.4%	30 6.0%	28 5.6%	131 26.4%	281 56.5%	497
Improve the quality and access to bus stops near this interchange Count Row %	120 24.8%	74 15.3%	159 32.9%	77 15.9%	54 11.2%	484
Increase Park and Ride capacity Count Row %	155 32.0%	61 12.6%	169 34.9%	60 12.4%	39 8.1%	484
Make it safer to walk around this interchange Count Row %	76 15.6%	68 13.9%	105 21.5%	144 29.5%	95 19.5%	488
Make it safer to bike around this interchange Count Row %	56 11.4%	48 9.8%	73 14.9%	143 29.1%	171 34.8%	491

	Not Important	Lower Importance	No Opinion	Somewhat Important	Most Important	Responses
Improve lighting and security Count Row %	83 17.1%	84 17.3%	156 32.1%	103 21.2%	60 12.3%	486
Improve environmental sustainability and resiliency (e.g. protection from flooding and sea level rise) Count Row %	133 27.4%	79 16.3%	124 25.5%	86 17.7%	64 13.2%	486
Totals Total Responses						502

12. Is there anything else you'd like to let us know about traveling on or around this interchange? Please be as specific as possible.



ResponseID	Response
255	The onramp to enter 101 Northbound from East Blithedale has become consistently congested. It can take up to 30 minutes to get from downtown MV to the freeway. Primarily this inconvenience has altered our daily habits and decisions. I am also concerned about what would happen if an evacuation is necessary. Something should be done to fix this.
279	Biking westbound access the northbound freeway entrance is extremely dangerous and must be improved immediately. The bike lane needs to be relocated outboard of the turning lanes. Eastbound traffic congestion could be reduced by limiting the southbound freeway exit to Tiburon to one lane, blocking that traffic from the Blithedale curb lane, and making the eastbound Blithedale curb lane Freeway Access only. The congestion occurs because eastbound Blithedale vehicles wanting to enter the freeway are blocked by stacked cars stoped at the northbound freeway exit traffic light. Donald Herzog, Civil Engineer
283	Such a hazard-filled interchange, for autos and bicyclists. So many close calls to accidents and injuries and so easily improved with creative thinking that prioritizes safety and separation of 3 modes (cars, bicycles, pens).
304	This interchange has been an ongoing nightmare for decades and it continues to get worse. The bridge is simply too narrow for the traffic load and all the turning options required. ONE major improvement that would be very easy to do would be to expand the width of the right turning lane from Blithedale Avenue coming east to the turn into the entry ramp to 101 going south. The lack of this "stacking lane" causes traffic to back up for a mile into Mill Valley

ResponseID	Response
309	Widen south side of overcrossing to make a right turn only lane for east bound traffic that desires to go north on 101.
311	Widen the over path to include one more lane to go north. Use the existing over path center area and sides for the new lane. Add cantilevers to house pedestrian and bike lanes. The widening of the ramp is the cookie cutter done at every highway but the problem here was not the access ramp (easy but costly fix) but the narrow over path. Add new lane or split-lane to ease access for traffic going to San Francisco. Those accessing south have to be in the same lane than those trying to get access to the north ramp.
321	Eastbound Blithedale to southbound 101: The ramp needs to be widened and extended to the west. Much of the congestion is cars waiting to get to the empty ramp. Westbound right lane over the overpass should be freeway access only during commute hours. All lights should be smarter and work together to move the most traffic, especially in the late afternoon when a lot of traffic backs up into Mill Valley headed to the freeway.
325	Traffic backing up on East Blithedale is horrible particularly for those headed north toward San Rafael.
334	Current bus stop arrangement is dangerous. Bus stops should be located so we don't have to walk across freeway ramps to get to them. Also, they should be positioned so we can walk straight up to the street or over to Strawberry Village, rather than walking up/down the ramps or on the more direct dirt paths that cross the ramps.
352	Such "clover-leaf" on-ramps and off-ramps consume an inordinate amount of land and make it very difficult and unsafe to walk or bike over the overpass. Why can't such "clover-leaf" designs be converted to a design similar to the #101 and DeLong Avenue (Novato) interchange?
355	The overpass needs to be widened to accomodate maore cars and 3 lanes in each direction. Back up to get onto 101 from East Blithedale and Tiburon Blvd. is intolerable
370	Add green lanes for cyclists. Make sure to have the green lanes continue in the line of bike travel when crossing merge lanes. Encouraging cyclists to deviate right, then left confuses drivers.
386	The interchange is incredibly dangerous for bikes and pedestrians. The recent improvements to the car onramp have made the intersection even more dangerous. I am not sure how the intersection can be made to be safe and friendly for bikes and pedestrains but the existing is extremely dangerous.
390	--Add bicycle green lanes to the overpass. Be sure these lanes cross motor vehicle 101 ramp lanes in a straight alignment in the direction of intended travel. A zig-zag route confuses motorists.

ResponseID	Response
397	Please separate the bikes and pedestrians from the cars.
416	4 agencies control various stop signals at this interchange. I know there have been communications among them but they have different objectives which makes cooperating difficult. Still, more cooperation could improve the situation somewhat. Also physical changes are necessary and some smaller ones could help. Tiburon Blvd has 2 lanes onto NB 101. MV could have 2 lanes to SB 101 by some small modifications and allowing use of the shoulder (illegal now and ticketed by CHP). I favor small incremental changes over a new flyway etc.
425	Traffic backs up beyond off-ramp onto right two lanes of 101 SB, on frontage road northbound, on overpass and southern on-ramp to 101 NB, and on Blithedale eastbound to 101. The timing/duration of lights is one major component, but number of lanes/road capacity is also an obvious factor. The timing/duration of the lights results in drivers constantly running the red light at Blithedale and Tower Drive, endangering cars with the right-of-way. Drivers also constantly use the Paradise Drive exit-only lane to pass other northbound cars when traffic is bad, which hampers drivers actually needing to get off at Paradise Drive
445	The congestion caused by this interchange is the worst in the county. Both Mill Valley and Tiburon are impacted greatly. I have also cycled tis interchange and its one of the most challenging.
460	This intersection has been redone, but it is very confusing to the motorists...maybe they just are not familiar with it, but it difficult to avoid the cars cutting in front of you to make a right turn, or in front of you to go left when they are in the wrong lane. It is not a good situation. Heading south on 101 taking this exit, there is always a lot of traffic and if you are heading over the overpass you have to keep in the far left lane as the cars feeding onto the highway will back up.
473	The timing of the lights now has it so that traffic backs up all the way to downtown Mill Valley as contrasted to the northbound exit which rarely has 10% of the number of cars waiting to go through the intersection.
474	The traffic backs up severely and there is no dedicated bike path for kids traveling to school
477	Please work with the city of Mill Valley to better synchronize the traffic controls leading to the freeway interchange on ramps. Both the traffic lights and lane configurations need to be coordinated. For example, eastbound Blythedale to 101 south is frequently congested due to the approaching light and lane configuration.

ResponseID	Response
478	1. The Blithedale EB overpass should have a permanent barrier to prevent the left lane from merging into the 101 NB access. This forces bad habits, is unsafe and accordions traffic. The bad-aggressive drivers always win. I often sit for several light changes simply because the left lane is merging on the overpass. Normal traffic flow is impossible. ALL lane changes should be forced to happen earlier, before the 101 SB exit. 2. The NB on- ramps should be connected. Tiburon lane is empty while Blithedale remains tightly blocked. Need longer merge option. 3. NEED MORE OVERPASS LANES.
479	The traffic/car congestion is bad along here - and crossing the interchange is scary as a cyclist, especially as cars are speeding up to get onto 101.
496	This is an extremely highly trafficked intersection and one of the most unsafe to bike/walk in Marin - this should be a very high priority to reconfigure to address bike/foot traffic. The bike lanes are narrow or almost non existent and traveling east through the onramp south is extremely dangerous for bikers. Bikes lanes are needed and the existing need to be much wider ideally with protected barriers from traffic.
506	1. The Blithedale EB overpass should have a permanent barrier to prevent the left lane from merging into the 101 NB access. This forces bad habits, is unsafe and accordions traffic. The bad-aggressive drivers always win. I often sit for several light changes simply because the left lane is merging on the overpass. Normal traffic flow is impossible. ALL lane changes should be forced to happen earlier, before the 101 SB exit. 2. The NB on- ramps should be connected. Tiburon lane is empty while Blithedale remains tightly blocked. Need longer merge option. 3. NEED MORE OVERPASS LANES.
514	This interchange is the only remotely direct route between Mill Valley and Tiburon. Recent improvements made it slightly less deadly for cyclists but further improvements are needed. Consider a grade separated bike and ped path along both the north and south side of the interchange including safe entry and exit to bike lanes on either side of the interchange.
534	Volume of traffic exceeds capacity of intersection. Backups from this intersection go all the way into Mill Valley. Eastbound jockeying of cars trying to get ahead in order to get in right lane to enter 101 north after having merged with south bound exiting traffic trying to get to Tiburon increases burden.
549	Please expand access to 101 South so its more efficient to leave Mill Valley. It would help a lot to have an "only" lane to access the freeway. This would also reduce the backup onto E. Blithedale. Thanks!
569	Needs additional lanes on Blithedale to get on 101 going south and over the bridge to go north.

ResponseID	Response
572	From Mill Valley city hall to the freeway sometimes takes a half hour to go northbound on 101 once on the freeway it is all jammed up until you get past the access to the richmond bridge on SFD
574	Going westbound over the freeway is incredibly dangerous for bicyclists. Bicycling on the roadway is challenging for a bicyclist to move left across the lane(s) that allow access to the northbound on-ramp. There is a crosswalk across the on-ramp that is not convenient for the bicyclist to use.
583	My wife, friends, and family have been cycling through this interchange for 30 years and it is still one of the biggest barriers to regional bicycle travel in Southern Marin. We occasionally cross this interchange after dark (with lights) and it is a terrifying, so we have mostly stopped travelling this way by bike at night. The new N/B 101 ramp configuration is awful for bikes....awkward diversion to uncontrolled high speed on-ramp crossing or shared lane travel in middle of three high speed lanes. Re-allocate a lane on the bridge for two protected bike lanes.
592	On a bicycle, travelling East thru this interchange is a challenge because of the hill and having to cross on ramps. And of course, we need a wider shoulder. Westbound not quite so bad as bike is travelling fast. But still need more room on roadway/shoulder and clearer stripes and lights to protect bikes. Backups for motor vehicles Eastbound is a serious problem. Would be good to get rid of the one way section on nearby Hamilton Drive so southbound traffic can take hamilton.
605	Include more coordination with non-caltrans controlled signals & any adjustments made by caltrans connecting to the entire interchange. There are times when you are stuck in traffic E Blithedale to even reach the southbound ramp let alone the northbound ramp as the traffic entering the overpass headed to Tiburon Blvd turns the entire area into a gridlocked mess. It is just as bad trying to return westbound from Strawberry or Tiburon. You can wait through several signal rotations to get over the overpass. Perhaps additional lanes with barriers to go east/west with out the option of entering the freeway northbound.
642	1. Widen the turnout from Blithdale onto southbound 101 2. I would try and widen bridge. If this cannot be done structurally I would consider removing the north side sidewalk . I would then make the eastbound right lane over the bridge "freeway access only" This would increase the flow onto the freeway, end the practice of cutting in and, keep people from going to Tiburon from clogging and slowing traffic trying to get on Northbound 101. The improvement of flow would dramatically improve traffic on Blithdale. One could consider removing the stoplight for the far right lane.

ResponseID	Response
660	The Blithedale exit heading Southbound is always backed up because of the congestion on East Blithedale itself. The street is always backed up to Sloat for the northbound onramp as well. All of this relates to the traffic lighting and structure of East Blithedale itself. Even after the 'fixing' of the onramps heading north, it did nothing to address the actual traffic jam that occurs. Further, as we continue to upgrade our freeways and roads, taking our environment and our wildlife should be paramount. Seeing how other European countries build their roads and freeways to address shld be a model
664	The traffic at lights on Blithedale/Tiburon Blvd are nearly always clogged. There are simply annoying most of the time; they are dangerous when frustration overcomes patience -- esp going east into the intersection from Blithedale to get on 101N. This is confusing at best and encourages linecutting (the most dangerous stunt) even though there are 2 lanes open to go right and bend around to 101 N. That's not obvious until way too late.
668	Seems totally stupid to put metering lights on the WB Tiburon Blvd. to NB 101 on ramp as the on ramp gets it's own dedicated lane. Maybe a payoff from the stoplight company?
717	The recent update to the northbound on ramp has improved flow, but the shifting lanes and weird bike lane has made it even more dangerous for cyclists to navigate. It's often safest for a cyclist to avoid the bike lane /crossing and take the lesser risk of running the red right before the light changes. Transiting the bridge eastbound on a bike from Blithesdale until past the Chevron station is still one of the most dangerous elements of my bike commute home from the city. Potholes, no shoulder, and multiple car merges make it super sketchy. Top priority.
760	Timing of lights, esp the delay in the eastbound traffic past the frontage road on the east side of the fwy. It's delayed even if there is no one making a left turn. The westbound traffic always moves first. The approach into the intersection from Tiburon can have better lane markings. 2 lanes into the 3.
765	Excellent improvements made with last overhaul for southbound cars, but the volume (and speed) of car traffic makes it challenging for bicyclists. Similar concerns for pedestrians.
766	Lights should be timed better to increase traffic flow. In addition, smart light system should be installed so that lights can detect how many cars are waiting at a red light, in order to prevent unnecessary waiting.

ResponseID	Response
769	1.The run onto the 101 southbound from the east (Tiburon Blvd), is too short to join the freeway safely. Traffic from the North should be advised to slow in the far right lane. 2. The pedestrian crossing on the west side of the overpass is unsafe. By the time cars crossing the bridge to go southbound on 101, see pedestrians or cyclists, they risk being rear-ended. 3. Leaving the 101 (from south) to enter Tiburon Blvd should be NO TURN ON RED. Several accidents occurred here because people turn onto Tiburon Blvd as someone coming over the bridge switches lanes.
774	The bike lane heading West on Tiburon Boulevard as it crosses the on-ramp to 101 North was recently rerouted. It is now quite dangerous for bike riders due to the obstructed sight lines for observing traffic entering the on-ramp, for both bikes and cars crossing that intersection. Also, more experienced bike riders tend to stay in the Tiburon Boulevard car lane to get through that on-ramp intersection and there is a bike decal on the pavement to suggest this is permitted. However, either option for crossing that two lane on ramp are remarkably dangerous and the bike lane routing should be reevaluated. Also, for traffic heading East on Blithedale to get onto the on-ramp for 101 North, it seems that traffic not intending to use the on-ramp should be routed to the left lane until passing the ramp where cars could then be directed back over to the right lane to access the frontage road, thereby helping to alleviate at least some of the back up that inevitably occurs on that choke point. Also, and again for traffic heading East on Blithedale with the intent of entering the on-ramp for 101 South to San Francisco, a second lane to the right should should be constructed starting at the traffic light at Kipling Drive to merge with the 101S on-ramp to allow those vehicles to legally circumvent the backed up traffic, as many do now by driving on the shoulder area at that section. Thank you for you consideration.
778	Would be nice to have a safe good way for pedestrians and public commuters to use this area. The exit N is blind for cars & bicyclists coming across. The exit S is blind for cars and bicyclists. Lots of near misses and accidents. Sidewalk on overpass to walk on is narrow & too close to traffic.
821	There has to be a change on this road to many people and cars. The traffic is just horrible
852	Eastbound across the interchange is the most congested. Finding a way to separate the hwy 131 traffic from the Northbound freeway traffic would help.
868	It is extremely difficult and dangerous to bike to the bus stop here and to bike across town
917	There is traffic at this exchange because there is a bottle neck to go from Blithdale to 101 North. At times, the traffic backs up all the way to downtown Mill Valley about 2 miles away. The bridge needs one more lane to compliment the two lane on ramp for 101 north.

ResponseID	Response
947	Put up bollards for a distance prior to the EB Tiburon Blvd on-ramp to NB 101. There is far too much cutting in line of vehicles that should have queued earlier.
979	Terrible traffic back up due to traffic flow off SB 101 towards Tiburon merging with EB Blithedale traffic trying to access NB 101. And dangerous for bikers particularly EB over the overpass.
987	The project a couple of years ago to widen the on-ramp coming out of downtown Mill Valley on to the 101 North did nothing to improve traffic congestion. There needs to be an additional lane that feeds from E. Blithedale directly on to the on ramp. Right now all cars must still merge into the far right lane to enter, which causes a backup into MV all the way to Camino Alto and sometimes beyond. Please re-stripe the lanes so that 2 lanes may enter the on-ramp without having to merge beforehand.
995	The timing of the lights is poor. When caltrans added the additional lane for northbound 101 onramp (with meters to come) the pitch they made is by increasing capacity of that onramp it would allow the northbound 101 exit onto Tiburon blvd to stay red longer, so that more could flow across overpass and through the Tiburon Y. I think they reduced the time for redlights coming up that exit. I have lived here for 45 years and I have hit more green lights than ever. Please address this. Every change caltrans make causes worse traffic for MV
1012	The timing of the lights before, after and on the bridge seems to be the primary cause of the traffic backups coming out of Mill Valley
1015	I am writing because the Francisco Blvd exit I to the canal area is a complete disaster - and I am am concerned that it was not part of this survey . I live in the canal and it is by far the worst exit in Marín county . What can be done about this?
1020	Same comments as for the Tamalpais/Paradise, this is another very hazardous and crowded (autos) area for pedestrians and speeds are quite high!
1024	This is a very dangerous spot for bicycles. I have witnessed almost accidents multiple times between bicyclists and motor vehicles going eastbound over Hwy 101 where the cars exit the road to enter the highway. Something needs to be done before someone is killed.
1045	This interchange is particularly dangerous for bicyclists because cars are exiting onto the highway through the bike lanes. The light on the East side of the interchange backs up traffic blocking the northbound highway exit which then cascades through the previous light and all the way back into Mill Valley to While Foods. It also backs up the 101 southbound exit because the cars there are blocked from turning onto the eastbound lanes when they have a green light due to congestion.

ResponseID	Response
1046	West bound bike lane from Tiburon creates a ton of confusion for cyclists and drivers. The giant green lane ends in a sidewalk. But bikes are not intended to go on sidewalks. If a cyclist chooses this option, they then have to hit a pedestrian light and crosswalk for the 101 N on-ramp, and hope that cars who just accelerated from a greenlight onto a busy on ramp see them crossing and don't barrel right through them. Alternatively, a cyclist may choose the more intuitive cyclist pattern to merge left requiring crossing 2 lanes of traffic and is also unsafe!
1063	Need a strategy on how to handle traffic backing up onto freeway. Need much safer bike lanes for bikes that are continuing across the overpass onto Blithedale and Tiburon Blvd. currently it is a hairy experience navigating this on a bike, especially when heading to Tiburon from Mill Valley.
1075	This route is one lane up until blackies pasture. It gets congested and the bus makes it worse with frequent stops on this road. It would be nice if we could figure out how to reduce congestion on this road.
1114	On and off ramps too tight!
1131	Road surface needs replacing! Tiburon Blvd eastbound past interchange. Overhead traffic light west bound tiburon Blvd / blythdale is impossible to see light colors - green light bulb burned out Where is CALTRANs on vegetation removal in meridian - it's an overgrown weed disgrace!
1136	Pedestrian access to and from the bus pads at this interchange should be improved, particularly for bus riders accessing the northbound bus pad. For example, there should be a crosswalk and better roadway markings, ideally even with a red light for automobiles or something similar, for the crosswalk between the Frontage Road near the shopping center and the bus pad. Pedestrians crossing the off-ramp at this location are subject to being hit and killed by speeding automobiles. This is an important access point for bus riders. Please improve it and make it safer.
1147	The bicycling situation is terrible, especially for such a heavy bike usage heading to/from the MV/sausalito bike path and Mt Tam area generally. There should probably be some sort of bike/pedestrian bridge.
1172	I'm just a car commuter, but I note the placement of the buses along the 101 have people dangerously playing frogger with full speed off-ramping vehicles. It's horribly unsafe and you can see stress inducing for all involved. The West facing 101 northbound on-ramp also has been updated for bikers and walkers, but it's still filled with uncertain blind spots for either distracted walkers, bikers, or cars. Also, I know city planning is hard so thanks for all you do!

ResponseID	Response
1177	This was a bad interchange until the work to "improve" it ended. Then it became horrendous. It's a minor miracle that there aren't car and bike accidents every day. It's unsafe and confusing. Somehow, you succeeded in making a bad situation far worse.
1209	these interchanges should be altered as little as possible due to their "quieting" effect on increased density and their interesting historical aesthetic and blend into the built environment
1214	Congestion at this interchange backs up traffic way back into Mill Valley
1216	The northbound intersection from Tiburon towards corte madera is the worst on ramp I have ever seen or experienced in the world. Its terrible for cars. Its terrible for bikes. The sight lines and transition from 2 lanes to 3 lanes to 2 lanes is dangerous. How can the cars in the left lane entering the freeway see a bike?
1217	The timing of the lights adds to the back up. When the light turns green for E blithedale traffic going towards 101, only a very limited number of cars can proceed, because the lights accessing the frontage road to Strawberry at the junction of the north bound exit for Tiburon remain red. The lane space approaching these lights is full of vehicles exiting 101 south. When the light at the overpass turns green, few cars can proceed. This blocks autos from the on ramp going south on 101. Cars are then backed up far into MV.
1232	If your recent redo of this interchange is the template for future "improvements" to other interchanges, please stop! You've made a mess of the eastern approach to this interchange - significantly worse than it was before the state's magic touch. Thank you.
1234	Now it is very dangerous for bikes to pass westward from Tiburon Blvd over the overpass as there are 2 lanes turning onto 101N and the bike / crosswalk is around a blind curve and cannot be seen by speeding drivers. In addition, there is no space for bikers on the overpass going either way, much less an actual bike lane.
1248	No
1252	I'd like more buses, stage coach, up and down Edgewood to make it possible for me to use this interchange without driving. There are many people who live on canyon who would make use of this type of transport and make it easier to go to city or points beyond without driving at all.

ResponseID	Response
1273	The new double lane entrance for 101N has made a marginal road for bicyclists much less safe. For drivers the additional lanes can make merging seem somewhat like a free for all. Additional work needs to done to calm this highway entrance. In addition the overpass needs dedicated class 4 bike lanes and safety improvements for the other highway entrances. Alternative frontage improvements would reduce the need bicycle access but not eliminate it.
1276	Cyclist, even experienced cyclists should have better directional messages on the road. Or there should be a complete flyover so cars and cyclists can be totally separated. Right now there is not enough information for a driver to understand where to expect cyclists. Cyclists also need to know what happens to the bike lane before they get trapped trying to cross the onramp to the freeway. This is a very popular route for cyclists and a link for kids going to the Mill Valley School District from Strawberry.
1277	People don't "get" the southbound exit and try to change lanes too late causing accidents. Very confusing, especially going south.
1323	Ramp south needs a legal extra lane. Everyone uses the shoulder.
1328	Needs safe, fast passage for kids on bikes
1333	the repair area is messy and the road is always full of gravel
1345	Make E Blithedale a 3 lane road that alternates based on commuting hours.
1358	This is a very dangerous intersection that the county should address immediately. The auto and bicycle traffic patterns are very poorly designed and unfortunately were made worse by the recent "improvements". I would suggest rerouting the frontage road entrances and improving bicycle safety by eliminating the last minute lane merging patterns. Eliminate the second lane northbound 101 entrance from the east side of Tiburon Blvd. Clearly mark bicycle through traffic using green lanes and sharrows rather than routing on and off the sidewalk and across the freeway entrance.
1364	Redesigning the northbound on-ramps
1368	Always traffic with no apprent reason
1390	Too much traffic backup into mill valley due to this interchange.

ResponseID	Response
1392	Traffic on the local roads across the interchange backs up several lights. Can something be done to improve traffic flow on the local roads (signal timing, complete cloverleaf interchange, diverging diamond interchange, etc.)? Traffic from Mill Valley to the interchange is terrible because everyone stays in the right lane to exit right for SB 101, exit right for NB 101, and exit right for Redwood Highway (access road) and Strawberry Shopping Center. Could this be improved by an innovative design like a diverging diamond, where both lanes would be fully utilized?
1397	DANGEROUS INTERSECTION! After exiting 101 from the north, at the intersection in order to proceed west toward Mill Valley, the traffic lights are positioned so it's impossible to see the light if you are lawfully positioned in the first of the two right turn lanes. Further, because of obstructions on the left, drivers waiting to turn right toward Mill Valley cannot see traffic coming from Tiburon. It's dangerous for pedestrians there and also at the ramp by the bus stop heading north. Why did you add a lane to the northbound off ramp? Impossible to use because of centripetal force.
1430	1. Provide flashing crosswalk lights for pedestrians crossing on/off ramps to/from bus stops.
1446	The light change is actually over 3 mins
1457	The approach from the west in Blithedale in Mill Valley needs to be widened to two lanes all the way from Camino Alto. The merge into one lane by Whole Foods really creates problems (in both directions, but more so coming from Mill Valley toward 101)
1465	please add bike lane
1475	Travel path: heading east along Blithedale, then taking the loop to 101 north. This new two lane loop does nothing to help alleviate traffic. I have never seen both lanes used, the traffic problem exists before this loop. There needs to be an additional lane prior to the loop to 101 north. Travel path: heading east along Blithedale, then taking the off ramp to 101 south. We need an extra lane after Kipling Dr. that is dedicated to the driver heading south.
1478	When approaching from E. Blithedale towards the overpass, the right shoulder should be turned into an additional lane to facilitate entrance to southbound 101. Also when approaching from E. Blithedale, now that there are 2 lanes on the northbound 101 entrance ramp, there should be 2 right turn lanes from the overpass. These changes would ease congestion coming out of Mill Valley.
1484	Always congested, mostly due to poor signaling at the overpass that does not allow good traffic flow.

ResponseID	Response
1505	Navigating this intersection by bicycle can be really scary - especially crossing Eastwards from Mill Valley toward Tiburon, when cars often pass very close as they turn right onto the Northbound freeway entrance. We really need a better approach to segregated cycle lanes.
1510	Need bike lanes across the whole interchange. Current configuration on northbound on-ramp to 101 is dangerous in both directions.
1514	The reconfiguration on Tiburon Blvd is extremely confusing. Currently at the intersection before the light at redwood frontage road, the road adds a lane (this is in the intersection!!) to become 3 lanes. It is extremely confusing to drivers to know which lane has the right of way to move into that "new" middle lane. The signage is terrible. Which lane is for 101 north? which lane for 101 south? which lane for east blithdale? The green bike lane literally dead ends into the sidewalk. BUT in the middle lane there is also a biker "sharrow" on the ground.
1532	When driving from Blithedale to southbound 101 it's crazy that there are not two lanes leading to the on-ramp. There is room for another lane, but a white stripe prohibits it. Also, Mill Valley police officers looking to lodge another ticket (end of month quota?) lurk in the area and give tickets for no apparent safety reason when a motorist crosses the white line and enters the highway in that manner.
1534	The cyclist traffic is very heavy on weekends and the road is often covered with debris and too narrow and crowded for two lanes of traffic and bikes.
1547	Southbound onramp westbound from East Blithedale is a huge choke point, with traffic usually backing up in the eastbound East Blithedale lanes. Also, many eastbound drivers on the overpass drive up the left lane and cut off drivers in the right lane, trying to access the northbound 101 onramp.
1549	Traveling westbound on Tiburon Boulevard, by bike: the new bike path/route to cross the 101 North Entrance is very scary. I waited there until traffic stopped for me, but it was 2 lanes of traffic coming towards me, and I couldn't see the second lane due to a blocked view from a stopped vehicle in the nearby lane. This was very scary.
1552	This interchange results in a dangerous backup of traffic attempting to exit from the southbound freeway. A horrible backup also occurrs on Blithedale in Mill Valley because there isn't a sufficient entrance to the northbound freeway from Mill Valley. It needs at least one more lane to allow for a proper flow of traffic. The extra lane doesn't have to be on the already crowded overpass, but it seems there may be room below it, OR perhps there is a way for drivers to bypass that entrance and enter on the Tiburon side.

ResponseID	Response
1574	Having a crosswalk close to this intersection (on the Tiburon side) but not at the stoplight is dangerous for pedestrians and disruptive to motorists, whose progress is already disrupted by the "timing" of stoplights on Tiburon Boulevard. The "timing" is that the lights are green except when triggered by cross or left turn traffic. Which is fine in off hours, but at other times creates pollution and gas wasting with endless stops and starts on Tiburon Boulevard. The bridge over 101 needs replacement. It needs to be wider to beat congestion and improve bike safety.
1584	Traffic congestion. Traffic east bound backed up into E. Blithedale and at certain hours backed all the way to Camino Alto. Northbound traffic pulls into left lane to by pass line of stopped traffic attempting to get on 101 only later to merge right for ramp, blocking traffic heading into Strawberry. Traffic stopped at 101 off ramp light block traffic from getting onto northbound 101. Traffic getting off 101 southbound exit heading east sometimes block traffic from Blithedale. As stated: traffic congestion. Need at least three lanes going east on overpass with one dedicated to 101 northbound.
1617	I live at East Blithedale\Tower Drive and the traffic gets incredibly backed up on East Blithedale. My 1-mile commute to and from work can sometimes take 20 minutes due to traffic, but when there isn't traffic it can take about 3 minutes. It can also be dangerous for bikers that regularly ignore the traffic light at East Blithedale and Tower and continue from the freeway into Mill Valley. Additionally, it can take a very long time to turn left coming from Mill Valley onto Tower drive. I've waited up to 15 minutes because the light skips the turn lanes.
1618	I commute by bike three days a week and by car twice a week over this overpass. When riding my bicycle drivers shout at me and occasionally try to run me off the road, probably about once a month. When traffic is backed up there are no safe options for bicycle riders who must either ride on a shoulder full of debris or they must split a lane with cars which are often stopping and going. Caltrans changed the Tiburon side eastbound but it did nothing to improve safety for people on bikes.
1633	Making driving safely is most important to me. There is so much going on at this intersection - with cars trying to find the correct lane to be in, merging lanes onto the northbound freeway, cars going back and forth to Mill Valley, cars turning to exit the freeway from the south, pedestrians trying to cross, bicyclists trying to cross the freeway entrances and exits, multiple stoplights and people trying to race through them, cars changing lanes to go from one lane coming from Mill Valley to two lanes with one going to freeway entrances and another going to Tiburon.

ResponseID	Response
1642	The changes that were made making on-ramp to 101N wider, with more lanes has caused confusion and apprehension in drivers and every time I'm driving I almost see an accident because of the 2 lanes on 131 opening to 3 or 4 at the light. Bikers do not use the sidewalk. Whoever designed and approved that interchange should be fired. It's a mess.
1644	More signage such as "Right 2 lanes = right onto E Blithedale" "Left 2 lanes = Left onto E Blithedale" and is there a way to prohibit cars from cutting in at the last minute, like soft bollards or sm bumps? More signage, not just painting, exiting to Blithedale from no101 - drivers still confused. Comment: The addtl and expensive work to make 2 lanes for north bound traffic from E Blithedale is a waste! The backup onto Blithedale is still awful with aggressive drivers cutting into the rt lane. And no signage or bike lanes???? This is a must!
1646	This intersection is a nightmare -- specifically the wait to get on to 101 northbound when coming from Mill Valley. I intentionally take the long and windy way up camino alto to larkspur and then get on the 101 or just take surface streets to Trader Joe's. It's deeply frustrating and I'm not sure if it's the timing of the traffic lights or the design of the whole thing, but it's a disaster. Also, I would love a surface street way to get to Goodman's or the Arco without having to wait on blithedale.
1652	Leaving Mill Valley going north via E Blithdale anytime/any day after 2pm is horrific; cars cutting in on the overpass is maddening, that it's a one lane approach is annoying and to have a second lane on the on-ramp is bizarre and infuriating. And brave is the bicyclist who tries to get over the overpass at any hour. A separate lane for those going south would be a slight improvement. The signal at Camino Alto/Blithdale needs work in the afternoons.
1657	Approach coming from the west (from Mill Valley) gets very congested, for people wanting to go north on 101. Optimum solution would be to allow two lanes to go onto freeway. (As has been done for people driving from Tiburon who are getting on 101 north)
1668	Eastbound Overpass - Is there a way to prevent cutting over into the northbound on ramp lane at the last minute?
1669	South entrance is hard to find. Exit from North is dangerous at the light.
1675	It is very dangerous for cyclists. I have seen several cyclists be hit by cars trying to get onto 101 North. There needs to be some more protection for cyclists.

ResponseID	Response
1677	This interchange starts the daily commute traffic in this area. There is a tight-turn on-ramp that makes it hard for drivers to speed up to match highway traffic speeds, then they suddenly have to merge with highway traffic. This interchange, along with the double-merge near the Village shopping center, is a major contributor to the heavy commute traffic in this area.
1683	Surface streets are routinely backed up, making it difficult to access the interchange even when there is no traffic on the highway. There really needs to be a separation between highway-bound traffic and surface traffic that is clogging the overpass trying to cross the highway. I believe the entire interchange needs to be re-worked, with a wider or additional overpass. In Mill Valley a large number of families live in the hills.
1694	Extremely congested for most of daylight hours. Particularly going west on Blithdale Ave. Choke point is on Blithdale Ave near CVS Pharmacy.
1695	Add right lane to access 101 South when traveling west.
1708	Congestion occurs on East Blithedale before the on-ramp going south at almost every time of day. There needs to be at least one right hand turn lane to the on ramp. The southbound off-ramp to East Blithedale problem from 101 seems to work well, after the major reconstruction and additional lanes 10 years ago. The two lane on-ramp going north is ridiculous; it's not used and would be confusing and congested if it was.
1714	This intersection presents a dangerous situation for cyclists and pedestrians, who must cross two active freeway ramps on the bridge across 101. I regularly witness distracted drivers, hurrying to get on/off the freeway almost hit kids riding bikes across the freeway. There needs to be a physically safe way for pedestrians and cyclists to cross 101, without relying upon some painted roadway lines, hoping motorists remain alert. Nearby, the allowed U-turn near the Chevron station, North Knoll Road, is the site of almost daily potential accidents, and motorists make the U-turn, the cross multiple lanes of traffic to access 101.
1727	Medians on the bridge and on the approach to and from Mill Valley need to be landscaped AND maintained. They are currently very unsightly and an embarrassment to residents.
1744	Driving this route on a regular basis, this interchange appears to be the busiest and causes the largest traffic bottleneck. During peak commute hours, this section of highway is the first to become stop and go. If this section of highway could be wider to allow more cars or if there was a tunnel (boringcompany.com) that could bypass the Golden Gate bridge and go directly to the train station it would offload the main highway.

ResponseID	Response
1746	Mill Valley has already committed to making this interchange better for their town and Tiburon residents now benefit greatly as well. Cal Trans and Fed Hwy commission need to step up to get this intersection overpass done asap. Traffic congestion into/out of Mill Valley is hideous during morning/evening commute times. A true fire hazard and safety hazard. Get it done now! No study!!!!!
1759	This interchange seems to create a lot of traffic during rush hour and some of the roads to the interchange go down to one lane. That creates a lot of traffic. Would love it if you improved the flow and created some sort of flow that wouldn't bring down cars to a standstill during rush hour.
1773	Biggest issue is not on the freeway itself but getting on coming from Mill Valley. Suggest that the overpass be widened.
1791	This interchange used to be a clover leaf with NO stoplights. For some inexplicable reason that was changed and now there is back up and congestion. The clover leaf design mirrored the traffic circle concept popular in Europe. Put it back the way it was.
1797	Further improve the two merge lanes onto northbound 101. The southern most merge lane should connect with the northern most merge lane instead of merging with traffic directly under the underpass. Thus both merge lanes would merge into a single merge lane before joining the free way via the single existing dedicated lane when entering the freeway.
1798	The manner in which drivers leaving E Blithedale merge to go north on 101 is atrocious and has been for years. There has to be something you can do to alleviate the sheer terror of trying to block the late mergers who are cheating the law abiding drivers who get into lane early. Nightmare.
1801	STOP JERKS FROM PULLING INTO RIGHT LANE EAST BOUND SO THEY CAN CUT IN LINE TO GET ON NORTHBOUND RAMP. BACKS UP TRAFFIC UNFAIRLY
1832	New bike lanes are confusing and will lead to accidents. Bikers need to go straight and not weave to take a pedestrian crosswalk. Also confusing for cars coming north from Redwood with road signage for which lane to be in to go north onto highway 101.
1837	This interchange has already been improved recently. San Rafael and Sir Francis Drake should be higher priorities as they have not been improved recently.
1855	This interchange is a disaster of congestion. Gets backed up onto surface streets of Mill Valley. The right lane especially is always congested as cars have to use this lane to not only go South but also North. The flow is terrible and rewards cars that use the left lanes and then cut in at the last minute to use the North bound onramp.

ResponseID	Response
1869	The many merging lanes onto 101 northbound are too close, too congested. Hard to get into flow of traffic easily.
1873	The southbound on-ramp, coming from mill valley, should be painted with an on ramp-only lane to improve traffic flow across the overpass.
1877	It is extremely difficult to bike or walk on E Blithedale/Tib Blvd across this interchange, due to the amount of traffic, the speed, the very large intersections and highway entrances. Traffic backs up both from E. Blithedale going east and from Strawberry shopping center, due to lack of coordination of traffic lights. There should be a dedicated lane going east to get on 101 north. And a right hand lane going east to get on 101 south. In general, I think "bus pads" are a terrible idea. They leave people on the freeway with difficult access to streets and neighborhoods.
1884	From the Mill Valley side (going eastbound) allow traffic to flow to 101 south, and to prevent cars from zooming up and merging to get into the northbound 101 ramp. Please consider protected lanes going onto the 101 north ramp to prevent last minute merging. All of this will help traffic flow between Mill Valley and Tiburon.
1885	Northbound 101 from Tiburon Blvd have many problems. 1. Cars in the right lane frequently move left at the last minute to go straight rather than enter onramp. 2. Cars entering 101 from the center lane are often prevented from entering onramp due to back up of traffic at stop light on freeway overpass. 3. Walking lane and warning lights are set to far into onramp where cars are ready to accelerate and have to come to a quick stop. 4. Bikes need more direction to avoid walking lane on onramp and just continue straight to overpass in center lane.
1903	I live at Reed Blvd, off of Redwood Highway near the Strawberry Safeway. Due to the traffic on Tiburon Blvd caused by the back-up at the 101 entrances, I have had to wait for 4 minutes to enter Tiburon Blvd from Redwood Highway. This is intolerable. The back-up on Redwood Highway then goes back towards Safeway. Tempers are ragged. Drivers cut corners, cut off other drivers, run the yellow/red lights just to get on Tiburon Blvd. There has to be a way to move traffic off Tiburon Blvd onto 101 without backing up traffic on nearby streets. NOT solution.
1908	Open area off freeway is ideal park and ride location
1929	The recently added bike lanes on the westbound side are a nice gesture but were poorly implemented (it dumps riders into the on-ramp!) Please fix this. For East bound lanes at the on-ramp to go north on 101, please add a dedicated "turn only" right lane for vehicles no proceeding East towards Tiburon. It's a log jam.

ResponseID	Response
1935	The roads from downtown Mill Valley to the Freeway are parking lots, even in COVID times. This is unacceptable. There needs to be easier access to the freeway from downtown MV. Cars are always cutting in from the left lane over to the right lane to get onto the onramp for Northbound 101. This needs to be addressed. It happens every day.
1936	The traffic is pretty slow going east, so it shouldn't be too hard to bike. It is the going west, where you have to make sure to be out of the way of the cars getting on the freeway.
1953	These comments are for heading west out of Tiburon: The new lane striping is still confusing for drivers, there is a lot of lane changing going on in a short distance. The stoplight just past the onramp isn't timed well and traffic backs up so one of the turn lanes heading north on 101 gets stopped and can't get on the onramp. The timing of this light has also made it more difficult to get onto 101 northbound from the left lane.
1982	There is a jumble of traffic on Eastbound E. Blithedale (from Mill Valley towards the interchange) that includes overlapping (1) southbound 101, (2) northbound 101, and (3) onward to Tiburon. Separating this traffic into its own lanes earlier would speed up traffic flow for everyone. E.g., people headed for 101 NB stay in the right-most lane prior to the interchange, which blocks out people headed for the SB entrance ramp.
1983	Not sure if this is part of the survey, but the approach from Mill Valley to 101 North is maddening. If we could somehow educate drivers who wish to continue onto Tiburon to use the left lane of the overpass, many more cars could more efficiently use the right lane to enter 101 North.
2001	This interchange backs up every day. This needs a long term fix.
2004	This interchange is a nightmare to bike across, just terrifying. Only the most experienced and confident cyclists feel okay riding across these onramps to the highway. A totally different approach is needed to invite the biking and pedestrian public to cross this intersection.
2007	1. Eastbound, the right lane should be dedicated to turn onto 101 N so that cars in left lane have the option of turning onto 101 N and thus improve flow on E Blithedale. 2. We have a lot of school traffic from Strawberry to Edna/MVMS/Tam across this interchange so making this bike/ped safe is critical to reducing car traffic and improve environmental sustainability.
2012	There is significant congestion heading from Mill Valley to the interchange that backs up multiple traffic lights. There seems to be an issue around people trying to get on the freeways (especially when one direction is backed up) vs. through the interchange to Tiburon Boulevard. Overall the interchange seems significantly more overloaded from this direction vs. traveling from the Tiburon Blvd. side.

ResponseID	Response
2015	The Seminary Drive interchange is not listed. It should be! Too many cars exiting northbound here will place themselves in the left off ramp lane and immediately after getting on the Redwood Highway Frontage road will turn right going across the right lane to access one of the service stations, creating a potential for a collision with cars in the right lane. We need signage on the off ramp directing cars into the right or middle lane if they wish to access one of the service stations. We also need "Local Traffic Only" signs on 101 at this exit.
2043	The approach to the interchange from Mill Valley via E Blithedale has been extremely congested for many years. There should be studies performed to evaluate how to ease this congestion.
2053	Improve traffic light timing, so the traffic ahead has time to start moving, before the next set of traffic arrives behind them and has to slow or come to a stop... this increases pollution through unnecessary braking and acceleration. The same approach would help all major intersections. At this particular intersection, some form of traffic light protection for cyclists and pedestrians is needed at freeway entrance crossings; they can be terrifying for non car/truck users.
2071	Is this the intersection with the dedicated bike crossing of the freeway on ramp? It is SO MUCH WORSE than before it was there. Cars do not see you waiting to cross and I have almost been hit several times. I take the car lane instead and everyone is confused. This needs to be MUCH clearer for everyone, considering how many cyclists use this interchange.
2098	On the E. Blithedale side very poor road quality.
2102	Traffic lights heading east (from Mill Valley to Tiburon) are untimed and cause major back ups and delays on a daily basis. There could be no traffic anywhere else in the area, and there will almost always be traffic trying to head east.
2112	Back-up onto 101 South creates dangerous condition as drivers coming over hill face unexpected stopped line of cars. Regularly takes up to 5 traffic lights during rush hours to get over overpass heading east.
2126	Traffic back-up to get onto northbound 101 and people to purposely drive in the left lane\ then cut in front of people at the last minute to get into the right lane and onto the onramp. This has been an increasing issue as cities and towns create traffic calming measures and change the flow of traffic. Also I don't know who did the traffic study regarding the frontage road not having enough cars to support the way the traffic lights used to work on E Blithedale but that street is a NIGHTMARE now it takes 4-5 turns of the light

ResponseID	Response
2151	Mill Valley to 101N or 101S is absolutely horrible. To 101S - there needs to be an additional lane added to E Blithedale so that the cars heading onto 101S can flow. To 101N - there needs to be an additional lane added to the overpass so that two lanes flow onto 101N. You do not need to add another lane to E.Blithedale to do these two things.
2161	This intersection is a mess and a major choke point for traffic most weekends and during extended commute periods and school drop offs during the week. Much has been attempted to widen the access ramps to/from 101 but the traffic jam ups continue. This intersection needs major investigation and analysis. Bicycle traffic is not accommodated safely. An additional bike/pedestrian overpass should be considered here.
2172	My concern is more with the exit/entrance before this one, the Seminary Drive on ramp to 101N. Why was money wasted on metering lights there?? I've lived here 15 years and never seen an issue that would require that. Instead it will CAUSE a backup on Redwood Hywy thru that intersection if and when those lights ever go into operation.
2177	It badly needs repaving on the west side, esp the southbound 101 exit. The new northbound interchange from Tiburon was very poorly designed. I see little benefit from the wider on-ramp and the right turn is awkward and dangerous for bicyclists.
2188	It's a nightmare! The traffic lights cause major back-ups. Given that RoundAbouts are known to 1. cost less overall and overtime, 2. improve traffic flow, 3. reduce fatal pedestrian accidents, 4. reduce carbon emissions from idling cars that sit uselessly at lights, 5. save the public money because they aren't wasting gas sitting idly at traffic lights and in traffic... WHY! isn't Marin County beginning the transition to RoundAbouts for all these areas you have listed in your survey. WHY! are we spending a ridiculous amount of money on traffic lights? https://freakonomics.com/podcast/roundabouts/
2208	There is no good, safe, easy way to bike between mill valley and tiburon, without going over to paradise and going under near lucky drive. A bike specific overpass, or protected lane, or some other way to get between the two cities, each with their own wonderful bike paths and trails, would really increase the ease of getting around marin via bike. This intersection in particular is scary and dangerous. In either direction, you have to navigate crossing lanes of fast moving traffic in locations where visibility isn't great.
2219	Mill Valley exit needs another lane for Southbornd traffic flow. Back up during rush hour and many use side lane to make a right turn to go southbound. Open up to a proper lane to help traffic ease.

ResponseID	Response
2220	Hamilton Drive should be widened and opened up for 2 way traffic in addition to fixing the 101/Blithedale interchange. Blithedale heading East then heading South on 101 - the breakdown lane on the right should be opened up for cars (with caution for bikes).
2223	This interchange is an absolute mess. Way too many cars backed up trying to get on 101 north and very difficult to access the 101 south ramp.
2228	An additional lane from this 101 access to San Rafael would decrease congestion and alleviate crashes from merging vehicles
2232	Lights are timed incorrectly. Cars should not be able to be in right lane and continue to go straight to tiburon, this blocking cars trying to turn onto the freeway. Should be a third lane for cars trying to turn onto SF bound on ramp (coming from mill valley).
2233	It is dangerous. If there was an emergency or someone in the car needed to get out of town reasonably fast, this would be a disastor . Ridiculous. We need more ways to get out of town. Very dangerous as it is. Thank you
2234	Hi, not sure what has happened in the recent weeks but the traffic leading out of Mill Valley to this interchange has been INSANE. Every day starting around 3:30 it backs up and is bumper-to-bumper for almost two miles back into town.
2235	Seminary NorCal project being processed by the County has 550 condos, 150 senior apartments, 1000 student commuter college with 200 commuter staff. Traffic Sudies by Strawberry Neighborhood Association show quadruple traffic AM and PM at Tiburon Blvd/Blithedale/101 Interchange.Hello gridlock if project goes.
2240	The timing of the traffic lights adjacent to this interchange are poorly coordinated and often lead to long backups into Mill Valley along Blithedale Avenue during peak travel periods. Also, many bicyclists use this route to pass between Mill Valley and Tiburon, and the points where the cyclists must cross the entry/exit ramps are hazardous, inadequately marked, and confusing.
2243	When I first came to Marin 40 years ago there was a four leaf clover design then Caltrans put in the traffic lights and every year the traffic gets worse and worse and now it's unbelievably bad the congestion is threatening our lifestyle. A redesign is needed ,a huge roundabout would be beneficial for this area.Caltrans has never never been able to sync the traffic lights.

ResponseID	Response
2245	While it's not strictly an interchange it is frustrating that the Highway 1, Stinson Beach freeway exit and entrance are not included in this study. On any day with reasonable weather the traffic backs up onto the freeway and for miles into Tam Junction. Residents are worried about pollution and possible emergency egress. The roads and infrastructure around the exit no longer support the volume of traffic.
2247	The traffic is now backing up for many hours in the morning and afternoon from east blithedale. This backup extends from the on-ramp for 101N to east blithedale/ Camino alto and then down to Miller. In general I think the timing of the stoplights is part of the problem. It is hard to tolerate the 30 minutes it sometimes takes to get to the freeway when it normally is a 3 minute drive.
2251	The lights need to be better timed. Also - perhaps creating a lane that is to go to Tiburon or to enter the highway. The back up is so horrible daily.
2253	Going east is HORRIBLE as the bridge must accommodate freeway, tiburon and strawberry. Not enough lanes and lights poorly timed.
2254	Coordinate lights with mill valley to prevent girdlock
2255	Concern with the application for the Strawberry Seminary additional buildings which would create tremendous traffic jams by unduly increasing the number of cars going and coming on those narrow roads.
2256	Even after additional lane added to 101N ramp traffic is still very bad. People do not seem to know how to use the additional north lane and traffic still backs up, need to educate people. Also because of the back up of cars that want to go to 101N, cars are blocking 101S ramp. So many dart in front of people on their cell phones not paying attention to traffic. Lights are not synced. Traffic to Tiburon backs up also, there is something about the light to Lomita. Getting in and out of MV can be a nightmare.
2257	The lights going over 101 need to be studied and better timed. The back up there coming from Mill Valley to Tiburon/101 on ramp is horrible on a daily basis and doesn't need to be.
2259	The school entry and exit hours create extraordinary pressure on this and the Miller Ave. to Shoreline to 101. Since Caltrans put in the lights at Flamingo, Tam Junction and Tennessee Valley Road, we CANNOT get in or out of our neighborhoods. The weekends are terrible, but weekdays during school exit/entrance schedules are ridiculous.
2261	The road backs up in both directions. After the big project adding an on ramp lane going northbound, it seems traffic congestion is no better. Very frustrating

ResponseID	Response
2262	The backup eastbound on Blithedale is unacceptable. An easy fix would be to add an entrance lane to South bound 101 only. Come on folks, you can figure this out!
2263	Traffic is horrible here every day in the morning and afternoon. 1. EXPAND the roadway. Coming from MV. Traffic goes from 2 lanes, back to 1 lane and then back to 2 lanes. 2. Fix the timing of the lights. 3. At the Camino Alto and E. Blithedale intersection make both lanes able to turn right onto E. Blithedale. Traffic is often backed up all the way to Miller. Traffic is just as bad getting on 101 at Tam Valley. Fix this! This is a major fire hazard. We would all die in an emergency waiting to get on 101.
2264	Timing of lights causes major backup on EB Blithedale
2267	Because of the poor timing of lights by Cal Trans the traffic is backed up for miles on E Blithedale from downtown MV. I've lived in MV for almost 20 years and in the last 3-4 years the traffic back up on the arteries has exponentially increased. The # of housing units and people have not increased. A large percentage of drivers are not accessing the freeway so there needs to be a way to help them get across the ramp to free up the right lane for drivers accessing the freeway north and south.
2268	Need a dedicated exit lane to 101 south. Traffic backups & blocks Kipling. Motorists don't respect the traffic lane and move onto the shoulder to get on to Highway 101 in order to avoid the backup created by drivers trying to access the exit on the otherside of the overpass that leads to 101 northbound. Cyclists are a big problem between Kipling heading over the bridge Their presence also impacts the flow of traffic. I do NOT want an ugly park and ride anywhere near this interchange. Why isn't there an option to comment on the Shoreline/Highway One interchange?????
2271	Blithedale is backed up from downtown to the freeway. You didn't include tam valley exit from the freeway which backs up from Sausalito to shoreline from 101 going north and from 101 coming south to shoreline!
2283	The bottleneck effect of the approach from Mill Valley is inconvenient, but in case of an emergency evacuation, it will be deadly on both routes out of town.
2286	This interchange is heavily trafficked. Often times a line of cars can be seen waiting to enter the freeway from downtown tiburon.or from the opposite direction in mill valley. The traffic has been increasing. The off ramp on 101S can be dangerous. At certain times of the day, the traffic build up extends past the off ramp and is on the freeway waiting to exit. I would like to see traffic better managed to reduce congestion on Tiburon Blvd.
2287	Too many lights in this area that get out of sync and create gridlock n local streets. Need roundabouts and no lights.

ResponseID	Response
2291	For auto traffic, the eastbound approach remains a hazardous bottleneck. It rewards aggressive drivers who use the left lane to leapfrog backed-up traffic, then force their way into the right lane at the last second to reach the 101 onramps. This further chokes traffic flow and incites road rage. The changes completed recently to the westbound interchange improved flow auto traffic flow onto northbound 101. However, these same changes worsened cycling safety and flow. There must be a better solution, perhaps using bike-specific signals, to improve this interchange that improves cyclists' safety and flow in both directions.
2294	This interchange is jammed every evening. Caltrans said the northbound ramp widening would add extra storage and provide some relief. That didn't seem to do much. The clog seems to be backup from the Tamalpais onramp merge. It appears to let up pretty quickly in the evening, making me think demand management may be the best solution. Please collect data from employers in Mill Valley and Corte Madera regarding when work shifts end. A shift there could make a substantial difference and would not cost TAM anything. Trying to widen the freeway to accommodate the demand seems unrealistic.
2295	This interchange backs up for miles, affecting even downtown Mill Valley. We get stuck over here, even if we are not going to the freeway. We really need creative solutions
2299	The timing of the lights, that seem to prioritize traffic coming off the freeway, both north and southbound, seem to be out of sync. The overpass eastbound fills up with the southbound exit traffic hitting red lights and then, when the lights change for the traffic out of Milll Valley to move, there is no room to move anywhere. Please time the lights so that they're all green at the same time for through movement, rather than this stop, start, stop, start, ritual that sometimes takes 10-15 minutes to get across the freeway overpass (and I live right at Kipling!)
2300	Kipling intersection at E. Blithedale. Needs a bike lane. Would alternate lights at Tower and Kipling ease the problem for merging traffic for cars heading to 101 from Kipling and those heading south on 101 from Tower Dr
2306	from The kipling drive /east blithedale intersection to highway 101 - this should be converted into a separate lane so that drivers going east on east blithedale that want to go south on highway 101 can immediately merge on to this additional lane and then enter highway 101 south. also, drivers making a right onto east blithedale from kipling or a left onto east blithedale from tower currently have to get in the right traffic lane and then exit onto freeway lane to go south on 101.

ResponseID	Response
2313	For cars: Access to 101 North and especially 101 South coming out of Mill Valley is compromised due to lack of dedicated lanes, forcing drivers to mix with traffic going to Tiburon/Strawberry. The middle lanes of the bridge should be designated for East/West local travel and the outer lanes dedicated to 101 access. The bridge itself is too narrow but I'm pretty sure it would cost $100 million to replace the bridge. For bikes: Biking across this bridge is nearly impossible. The new on ramp from Tiburon to 101 North is a disaster waiting to happen.
2314	The on-ramp from East Blithedale getting on to 101 South needs it's own dedicated approach lane on East Blithedale. I am often coming down the hill at Kipling turning right to get to the on-ramp. When the overpass is backed up, many people just squeeze onto the right shoulder to get on the on-ramp, instead of having to wait for the overpass (headed to Tiburon) to clear up. If there was a dedicated lane on the right this would be safer and faster.
2322	The fact that there are two lanes headed East bound with the right lane the only lane for entering the 101 Northbound entrance ramp causes everything to backup because everyone is trying to squeeze over to that lane beginning back a quarter of a mile to half a mile west of the onramp. There needs to be a dedicated lane much earlier on somehow to ease the congestion.
2323	Traffic gets backed up terribly going eastbound because of the commuter traffic in the afternoon. It backs everything up on East Blithedale past the Camino Alto intersection, making it functionally impossible to get anywhere in a timely manner. 101 northbound backs up from Larkspur (Richmond bridge exit) all the way past Strawberry and sometimes even all the way to Sausalito.
2325	The double-right turn onto northbound 101 from Tiburon Boulevard is a death trap for pedestrians and cyclists. Drivers cannot see pedestrians/cyclists in the crosswalk until they are already accelerating onto the downhill onramp. And compliance with the HAWK beacon is poor, bordering on tragic. We also need better barriers to prevent elderly pedestrians from going down the onramp onto 101 accidentally. I had to stop on the freeway and escort an elderly resident (who was lost while looking for the bus stop) back up to Tiburon Boulevard. Scary!
2340	When traveling Eastbound on Blithdale Blvd a single exit lane is marked for those turning unto the entrance of Southbound 101. That exit lane should be expanded to almost reach Kippling Dr. It would expedite the entry to 101 South for all those wishing to avoid the back up of East and North bound traffic.

ResponseID	Response
2344	Why are you NOT focusing on one of the WORST areas; Hwy 1 and 101 exchange? Hideously a cluster of political handoffs : king tide floods, 2 Lanes only (Tam Junction!) Multiple amount$ spent on bicycle lanes, yet bikes ride along Hwy 1 in front of the motels, etc. At LEAST 4 lanes (2 in both directions) for evacuations, build a bridge over the waterway to reroute Miller Ave, relieve Tam Junction. There must be road elevation work to avoid the regular tidal flooding of this section of roadway (ironically in front of CALTRANS work yard).
2345	The traffic is horrendous. And the signage to get on the 101N needs to be clear. People should be pushed into the right lane if they are going North on 101, with thru traffic to tiburon / strawberry on the right
2346	You also need a traffic light at Knoll Drive/131 intersection. Close calls by drivers - no left turn signal onto Knoll, cars always blocking intersection in rush hour. Lights are NOT timed from one side of 101 to the other, both directions. Traffic is ALWAYS stopped, night and day. It is a nightmare with cats idling waiting for lights to change.
2351	There are 4 ways out of Mill Valley: the 2 most traveled are Blithedale 101 & Hiway 1 to 101. These 2 access points to 101 are jammed everyday. Because the lights at Highway 1 by the entrance to Tennessee are poorly timed, the backup on this exit pushes cars to exit MV via Blithedale Ave exit to 101. Fix the terrible traffic jam on Highway 1 & Blithedale will be lessened. Put a pedestrian bridge over Highway 1 by Tennessee Valley Rd & remove the stoplight there, & traffic will flow much better, & cars won't overflow onto Blithedale
2352	1. PLEASE install a "Through-Traffic Left Lane Only" sign on eastbound E. Blithedale in Mill Valley, before the 101 entrances. Tiburon traffic clogs up the freeway entrance lane (right side lane). A sign directing through-traffice into the Left lane will reduce traffic trying to inter the freeway from the right lane. 2. Create a new dedicated lane on eastbound E. Blithesdale traffic to access 101 South. This alone would reduce backed up traffic on E. Blithedale.
2357	Need more lanes leading to on ramps especially in the north direction People going south on 101 here have to skirt around to the right. Not sure why they widened the cloverleaf access to freeway but not the approach. If anything the traffic is worse now than before.
2360	Need to add a lane
2363	Enable dedicated lane for southbound traffic on east Blithedale approaching 101 interchange. For northbound traffic coming from east Blithedale going over the overpass, is it possible for there to be two lanes that can turn right into on ramp and merge on the on ramp, and one through lane that splits just past the 101N on-ramp into a dedicated right turn lane for the frontage road, and a lane to continue straight?

ResponseID	Response
2364	The traffic on the freeway backs up northbound when the street traffic from Mill Valley must first merge onto the freeway. Then again when the street traffic from Tiburon must enter the freeway onto the extra lane northbound on the freeway. It would be more efficient if the traffic from the MV traffic merged NOT with the freeway, but with the dedicated extra lane northbound.
2365	Work on timing of lights to maximize traffic flow when heavy at different times of day. Avoid enlarging any more of the roadways. The recent timed light freeway entry added northbound lane feels like a huge freeway intersection in a residential neighborhood. Add Park and Ride in one of the cloverleafs? Sea level rise is going to be a huge issue for access to Mill Valley from 101 and this intersection will be crucial to keep functioning.
2368	Please put in traffic circles and get rid of lights - police should help traffice move where there accidents. Widen lanes leaving mill valley to freeway. Mark waiting lanes on e blithedale so traffic doesn't jam up and put in longer turning lane for left turn over Camino alto hill
2370	The eastbound E. Blithdale to 101 onramps are horrible. The entire approach and overpass need to be reconfigured with 3 lanes in each direction. One dedicated to through traffic, one dedicated to entering the highway, and the middle lane configured either way. As it is now drivers trying to get on the highway will drive up the less congested left lane and then attempt to merge into the right lane before the highway onramps. The move not only worsens traffic jams in the lanes the driver cuts off, but backs up the lanes the driver borrows as a slingshot.
2374	The traffic problem is a joke and has been ongoing for years. Even with the $$$$ of tax payer dollars spent on the new configuration at east blithedale 101 north intersection the traffic has gotten worse. Whoever designed this needs to be held accountable
2383	The new interchange in front of the Chevron station is dangerous. The number of lanes increase (which is good) but there is no signage that indicates the lane change/right of way. Most generally drivers in the left Tib Blvd lane move to the right to join the new center lane to take the 101N exit and the drivers in the right Tib Blvd move to the left to join the same center lane to proceed towards Mill Valley. I have seen numerous "close call" collisions as cars try to merge into the same lane at the same time.
2385	Access to 101 North from East Blithedale now gets backed up daily partially due to the red lights being out-of-sync and how East Blithedale goes from 2 lanes to 1 lane and back to 2 lanes but only one lane can access the 101 North ramp (resulting in the 2 lanes merging on the bridge before the ramp). The recent red light replacements actually made the backups worse, not better.
2386	Biking across this interchange is a nightmare.

ResponseID	Response
2387	The traffic congestion at this intersection is horrific and needs to be analyzed carefully and methodically to ascertain the root cause. My hypothesis is that it's the timing of the lights. I've lived and commuted in Mill Valley for 30 years and both the Blithedale and Stinson exits became more congested after Cal Trans changed the lights. While there has been additional car/usage, it cannot explain the excessive amount of the congestion where a 10 min trip to get from downtown to freeway now takes 45 mins. This is an engineering problem - do a proper study.
2392	Eliminate "exit only" lanes of 101 on/off ramps. When the on-ramp enters into an "exit only" lane, it creates so much urgent lane-changing, which causes traffic on 101 to bottleneck around these interchanges.
2398	I would really like to see a dedicated pedestrian / bike bridge here ! At the very least dedicated bike lanes with barriers. It's very dangerous to bike across here and would really encourage people to bike and walk more if it were safer
2399	Please create protected Class 4" bike lanes, on E. Blithedale. It's terrifying to use today with "shared shoulder." My partner and I live across Tiburon Blvd. in Strawberry and can't ride over given its condition. We love to bike and would most certainly use this essential route if it was protected. Please put our taxes towards this key piece of public transit.
2401	Thanks for taking a survey... Traffic lights going east from Tower over the freeway are not coordinated very well at all. My understanding is there are two entities at play; Cal-Trans and local. Please have people in a position to come up with adjustments from both entities monitor activity throughout the day together at the actual location, not on paper and come to an agreement that works... It does not work right now...period. Thanks again...
2403	The lights need to be better synchronized. Traffic backs way into Mill Valley due to the overpass not operating efficiently. Now that redwood frontage road has 2 lanes to move north on the freeway, green time east west should expand to move cars thru the area rather than backing up all the way into Mill Valley for miles. There really should be a third lane on the bridge to allow the traffic to not back up. East Blithedale is a total mess as a result of the interchange design issues.
2426	The backups into Mill Valley on East Blithedale are ridiculous. Most days it takes anywhere from 20-35 minutes to get onto the freeway from Downtown Mill Valley.
2436	It is unacceptable that it takes 45 minutes to get from the depot square in Mill Valley to the freeway. It impedes travel within our community -- nevermind getting in and out of Mill Valley.

ResponseID	Response
2437	You could definitely look into the root of the problem which is people in the left lane trying to circumvent, skip the line and cut off people in the right lane trying to get onto 101 North. Not only is it a petty and entitled way to drive (and go through life) but it causes even MORE traffic and back ups. It's a pretty easy thing to monitor and fine. Also, all the work that went into making the on ramp two lanes (from 1) and then, 50 feel later, go back to one lane, was completely pointless and also cause MORE traffic and back ups.
2451	Yes. People do not wait there turn here! Many people drive in the inner (left) lane as if they were going to Tiburon and switch lanes at the last moment, which slows down everyone whether they are going to Tiburon or trying to get on the freeway. It's extremely frustrating! If the center line was a solid white line all along the overpass, maybe even with barriers in between the lanes and they couldn't switch lanes at the last moment it would be safer, less frustrating and faster for everyone to get to the on ramp.
2475	The freeway exit for this area is precarious at best. I've had several near misses. People exit the freeway at top speed often waiting until the last minute to get in the lane. Very dangerous. And there is always a lot of traffic at this interchange.
2477	The traffic backup on eastbound East Blithedale is unacceptable. Biking westbound on Tiburon Blvd through across the northbound freeway entrance is suicide. The new design is a desaster.
2502	One of the most dangerous intersections in Marin for cyclists esp westbound. Some of the rudest drivers too
2504	add another lane to let cars who go south bound merge onto that lane and reduce traffic crossing the bridge towards the 101 N highway entrance
2505	Hideously bad area most of the day. Obviously you can't do anything about the rude and aggressive drivers but you could do SOMETHING to improve the flow.
2509	East Blithedale needs to be widened from Camino Alto to the freeway ALSO if the seminary is redeveloped the developer needs to share the cost of improving access to 101. The traffic flow right now is terrible--- up to 10 minutes from Camino Alto to the Freeway
2512	Making this interchange friendly to bikers is critical. Accomplishing this goal would make this

ResponseID	Response
2523	Heading out of Mill Valley towards Highway 101, on the right hand side to get onto 101S - this needs to be TOTALLY redone! You can wait a LONG time in traffic, and that right hand turn lane should be extended a lot, so that you can get to the highway without being blocked by the people going across the overpass. Also if you go on the shoulder, to avoid the insane traffic, you can get a ticket [since it is the shoulder, and emergency vehicles/police use it]
2524	starting from the intersection of e. Blithedale and Roque Moraes going east, the road merges to one lane. Should be 2. After light at E. Blithedale and Tower, should be a separate lane on the right for traffic to southbound 101. There is a bottleneck, and break down lane that prevents cars from going south earlier, which would help relieve congestion. But the biggest problem, IMO, is the bridge needs to be widened over 101. There needs to be 3 lanes going east, with the 2 right lanes able to take the northbound 101 exit. This would help A LOT.
2531	Outbound traffic from Mill Valley is terrible. Allowing drivers I left lane to bypass all the cars waiting to exit and then cut over just before the on-ramp leads to much bad behavior and chaotic driving.
2532	The timing of lights seems to impact the lights and this the congestion. I've also noticed that nobody seems to use the new double lane on the northbound on ramp which I believe needs to be promoted otherwise I think people think it's rude!
2537	The traffic on East Blithedale is unbearable, even during COVID 19, which says a lot! not only is it generally intolerable for local residents and visitors, it's even worse for those who live on East Blithedale (like ourselves) and nearby streets. It's also a pretty unpleasant to walk from the Mill Valley side to the Tiburon side since you're so exposed to all of the congestion. The street and area had so much potential and greatly needs an update.
2539	The mandate by the state of California to build more housing in Mill Valley is absurd unless there is HUGE improvement in being able to get and out of Mill Valley. E. Blithedale is a PARKING LOT during commute times and especially on the week ends. What will a hundred or two hundred, or more new homes do to livability in this town?
2541	The daily congestion and back up on the overpass of this congestion could be improved. The congestion on Blithedale from the interchange to downtown Mill Valley is horrible.
2543	Fix the synchronization of the lights so traffic doesn't get back up in Mill Valley even when traffic is somewhat light on East Blithedale. When the light turns green, you should be able to go through it. This doesn't happen because the Strawberry light is red

ResponseID	Response
2544	There should be a right lane to enter 101 S when traveling eastbound - even if it is only a short lane that would begin after the stoplight just preceding the freeway entrance. This would help traffic flow immensely and is a no brainer. Now there is room for that lane but a solid white lin makes it illegal to cross it and go around traffic continuing straight over the bridge.
2546	East Blithedale narrows from four lanes to two lanes at the Bank of America building to approx Ashford. This creates a bottleneck that often backs up all the way close to Park Ave downtown. The narrowing has been addressed and action planned - not to eliminate the car backup but for bike traffic. Widening seems possible with retaining walls, some road alignment/change. Bicycles still getting improved access. Adding two bridge overpass lanes would improve traffic and eliminate lane jumping at the on-ramp.
2548	Improve exit signs to show which lanes to use for right two for Mill Valley and left two for Tiburon. The one lane exit going into four lanes causes drivers to "fly" across all four lanes. Many close calls there
2549	Fix it- the back up is ridiculous
2550	I live on E. Blithedale and the traffic backs up from 101 to Park School every weekday.
2552	Emergence of the E-bike is safer navigating intersections with multiple sections of potential conflictIt, because mostly rides the same speed as traffic (speed limit should be 25). This interchange needs a green bike lane option westbound (not just a sharrow), and transitions earlier from Tiburon Blvd, giving motorists and cyclists a 'heads up' that savvier/faster cyclists will be sharing the lane - novices/kids can use the northern 'rightmost Class II lane that requires them to cross the freeway on/off ramps. The eastbound side, has no treatments to guide bikes across 2 critical conflicting RTOLs - where's the green lane/sharrow??
2557	Every weekend I feel like a prisoner in Mill Valley .The 1,000,000 tourists who go through Tam Junction clog up local roads it's impossible to get through .years ago I suggested you buy the carpet shop build a huge roundabout .Inbound traffic would have no left turn into any of the buildings so there's two traffic lanes one for Mill Valley and one for shoreline
2558	The right lane from East Blithedale (feeding southbound and northbound 101) is usually stop and go during the day. One solution is to allow northbound drivers to use the left-hand lane, make a slight U onto the now double wide northbound ramp from Tiburon Blvd. This used to be permissible, but signs now prohibit it.

ResponseID	Response
2560	Is there anything I can say that hasn't been said many, many times before? The traffic congestion and delays getting to and from this interchange, whether going south or north, is unabated, unsustainable and potentially deadly in an emergency. This has been known for years yet nothing has been done to address it. Instead, an access light has been installed at great expense which will slow down traffic even more. Also, an alternative route through Hamilton Blvd., which passes by the police and fire stations, is readily available to relieve traffic congestion. Why has this not been utilized?
2564	Backup in eastbound right lane approaching 101 is always bad, and if you are going northbound on 101 it's always hard to tell whether the traffic in right lane is going to go onto on-ramp for 101 southbound or northbound, so it's a gamble to go in left lane to avoid R lane traffic but then maybe have to abruptly cut back into R lane to be able to take northbound exit.
2568	One lane from E blithedale to access 101 N backs traffic up thru Mill Valley all the way back to Miller Ave especially during school pick up from 2:45 pm to 5 pm. There should be two lanes accessing the two new on ramps. As well the metering lights are installed but not operational as yet. It has been months since work was completed.
2570	the backup of people trying to enter the freeway to go North (looking East) is herndous. It can back all the way to Park School. Fridays are the worst. I live off E Blithdale and it is an everyday occurrence. people cutting in front of other drivers from the left lane is an issue as well. It also might help if there was a dedicated lane to turn on to 101 from E Blithdale to go south to San Francisco
2572	This interchange does not handle the traffic from East Blithedale. Traffic backs up to Park school. The lights are timed solely for the traffic going to Tiburon. When you get to the light on Blithedale, the signal where 101 NB exits onto Tiburon Blvd is timed such that you sit in backup and can't move when the light is green. The Tiburon traffic exiting SB 101 has a green light further up but by the time the Blithedale light turns green again the traffic is again stopped due to the next light. Mill Valley is being held hostage.
2580	it's terrible. please change the right hand lane east side to a right turn only and no merging
2585	Major changes need to be made to the Blithedale/101 interchange. CalTrans needs to coordinate with the city of mill valley. There are always very long backups from Blithedale to 101 and lots of driver frustration about the single right turn lane to go north on 101. We need 2 dedicated lanes to go onto 101 north, not one.

ResponseID	Response
2597	Travelling east to use the south and north on ramps is outrageously bad. There needs to be another lane starting after Kipling drive for those travelling south. Currently some cars ride the shoulder of the road illegally. Also, the traffic lights need to be coordinated better to allow a better flow of traffic.
2600	It shouldn't take years of survey and talk to implement a solution.
2604	Because of the congestion around this interchange, traffic backs up well into Mill Valley at peak times. This makes it hard to get around town (by any mode of transportation) even if you are not trying to get to the freeway.
2606	Make bike friendly the next 101 intersection south - Seminary - for all ages and abilities so we can comfortably avoid biking across the Tiburon 101 intersection completely.
2607	This interchange needs to be widened in both directions. The traffic on this interchange negatively affects Mill Valley traffic. The approach to this interchange is too narrow and backs traffic up, especially near the Blithedale Whole Foods market. The back up from this interchange leads to huge back ups along Blithedale all the way to Pharmaca area, and along Camino Alto to Safeway and by the schools. It regularly takes us 30 to 45 minutes to get onto the freeway from either Miller Avenue or from Blithedale Avenue when we use this exchange. It is unacceptable, needs to be widened.
2611	NA
2613	1.When traveling east from Mill Valley on Blithedale, another lane to access the south-bound entrance to the freeway is needed. 2. When traveling east from Mill Valley on the overpass, intending to enter the northbound access to the freeway, it would be nice to have two lanes from on the overpass that provide access to the north bound entrance lanes.
2615	The problem with the interchange, when heading east is the double lane/single lane bottleneck that begins after Roque Moraes. Freeway traffic goes to the inner lane and then has to cut back over to freeway exit the closer to the interchange. This creates potentially dangerous situations in rush hour traffic.
2619	The confluence of traffic merging from the freeway towards Tiburon, plus the traffic from East Blithedale to 101 north makes this interchange a "parking lot". The last quarter mile from East Blithedale to 101 could easily take 15-20 minutes.. An additional dedicated lane for the entrance to 101 North from the west side of East Blithedale, and better coordination of traffic lights, would certainly improve this interchange enormously.

ResponseID	Response
2621	Parking is also a problem because so many cars come to Mill Valley from other places and they park wherever they need to, and often it means that the people who live near where they park, can't park near where they live.
2623	Do not widen or make this interchange easier for traffic. If you make it convenient, there will be more traffic congestion and you have to keep working on this interchange for even more traffic. Encourage commuters to leave their car at home and to carpool or bike. (I live on a street that has gained attention as being a faster and less congested way to get to Stinson Beach. Instead of living in a 25 mph residential area, I now encounter traffic speeding at 45 mph or more and a whole bunch more of out-of-towners on the weekends.)
2624	Over pass has two lanes but only one gored to on-ramp north and traffic tries to rush ahead and cut drivers off to enter ramp, needs two lanes for this purpose
2626	1.Reduce the congestion of eastbound traffic before the Tower Drive/E. Blithedale intersection-widen E. Blithedale: 2.Cars are in a race to bud in to get to the N101 on ramp, which causes increased slow downs and congestion back along E. Blithedale, often backing up to Camino Alto. It's a dangerous practice, cut ins, at the last minute, which causes many close calls and unnecessary fender benders. 3.Current cyclist crossing going westbound on Tiburon blvd, over the 101 is super dangerous, can be frightening and deadly for cyclists. Much safer as a cyclist to take up the whole lane
2628	Bridge needs to be widened with freeway only lane.
2629	Traffic has been backing up on Camino Alto and East Blithedale. All the way to Tamalpais High. It use to be that the two right lanes could turn right now only the right lane. Had a choice in the past to go straight or take a right in the second lane.
2634	It can take me 10 minutes from Kipling to north entrance when school traffic is happening
2635	The congestion at this interchange is unacceptable- the lights could be timed and it seems like it would fix a lot of the issues of cars backing up way into mill Valley
2641	Poor road surface Need a fresh vendor Ghilotti unable to secure contracts adequate to the tasks
2649	Safety. People change lanes after the stoplight to access the 101N on-ramp. Offer dangerously.

ResponseID	Response
2650	There needs to be an additional access to Highway 101 to improve evacuation ability in the event of fire and to reduce traffic congestion on E. Blithdale where it becomes one lane. This is a very dangerous situation in the event of a large fire. The logical additional access to the freeway is on Hamilton Drive. The road is already built for two way traffic but currently access going East past the Police station is not allowed. This should be two way traffic past the Police Station to allow another way to exit Mill Valley to the freeway.
2651	East Blithedale Avenue needs to become a 4 lane road from at least Camino Alto to the freeway. Walking and biking should not happen in this area; if it needs accommodation it should have it's own bridge. There is no need to worry about flooding in this area.
2655	The number of lights around the interchange and likely other factors make getting to the interchange and across the other side or onto the highway a nightmare frequently. A 10 minute drive to the freeway can easily be 25 to 39 minutes.
2656	Please do not use this interchange as a CalTrans storage station. It is an eyesore as the entrance to Mill Valley. Visitors comment that Mill Valley is beginning to look like an industrial town with trucks, cranes and equipment storage. At a minimum, can all of this mess be disguised with fencing, foliage or reduced storage levels? Also the dust level is a problem.
2678	It's frustrating when there is a huge backup on E. Blithedale to enter 101N when the traffic on the freeway is super light! I cannot figure out how it's not easier to get cars onto a freeway that is moving freely, but frequently you'll be inexplicably backed up into Mill Valley. Must be a way to do it. Thank you for the survey.
2683	NB 101 Traffic Backs up from Corte Madera preventing not only access to/from the interchange, but through Mill Valley as well
2685	If heading east on Blithedale, people cut into the traffic in right lane getting onto the freeway going north keeping traffic from moving smoothly. Suggest putting white lane dividers to keep people in the left lane for straight and right lane to enter freeway. Otherwise it backs up the lane so that people heading south can't get onto the freeway. The double lanes going north as come out of Tiburon have really helped.
2711	The entire interchange design configuration needs modification and upgrading to more efficient design....such as diamond interchange...or. Other

ResponseID	Response
2712	Traffic at this interchange is horrendous. It takes me longer to get from the Mill Valley Middle school to the freeway entrance, then it takes me to get to San Rafael. The one right hand lane that all traffic must funnel into in order to get onto the freeway is a disaster. Everyone just uses the left lane to cut everyone off creating even more traffic. Additionally, as a biker I have been hit by a car near here and have not ridden my bike since(2 years ago) The roads in Mill Valley are not safe for bikes.
2713	Congestion at this interchange and causes severe backups into Mill Valley, sometimes affecting traffic turning onto Camino Alto from Miller Ave. These backups result in excess traffic in the surrounding neighborhoods while drivers try to get around the congestion. Because people are agitated they often speed through these residential areas creating unsafe conditions.
2714	There needs to be two lanes that go onto the freeway northbound from the east (mill valley) to the north bound lanes of 101.
2717	Can a roundabouts be explored, studied, and be considered along East Blithedale Avenue and along route 131 towards Tiburon to improve traffic flow?
2719	Traffic exiting Mill Valley to Hwy 101 all have to merge into the #2 lane in order to access either northbound Hwy 101 or southbound Hwy 101, therefore the majority of the load of traffic all gets funneled into that right lane. This creates total gridlock multiple times a day (morning commute and afternoon commute).
2722	Traffic congestion is the worst here, especially during commute hours. When getting off the Freeway on E. Blithedale, heading in to Mill Valley, it's a bit of a funny exchange with two lanes, no official traffic signals, and merging with traffic coming over the overpass from Tiburon.
2727	Wow from manageable transit time 05 minutes to a 45 minute trip from downtown Millvalley to get on the 101 exchange. While East Blythedale cleaning from Camino Alto to the freeway needs a redo for sure, it's clear that there is a continuing timing issue with the lights. Our community finds it incredibly frustrating that some thing as simple as timing lights can't be prioritized while taking a longer-term vision of how to upgrade this exchange.
2731	Both lanes traveling east should be able to access the freeway by making the inside lane an option lane of either merging onto the freeway or continuing east onto 131 and having 2 lanes on the clover leaf. That would solve 80% of the issues at this interchange.
2734	There are two lanes that people cut you off getting onto the freeway people don't want to wait in line .It is very bad there has been a lot of accidents there.

ResponseID	Response
2737	One of the major problems and safety threats are unsafe lane changes and/or vehicles blocking traffic in one lane in order to force a merge into the on-ramp lane.
2742	1. The approach from Mill Valley needs to be widened to allow vehicles to get onto southbound 101 and not sit in congested traffic. 2. There needs to be a dedicated lane for westbound to the northbound onramp with a second lane for option through to 131 and right onto the onramp.
2743	Significant evening congestion leaving Mill Valley to 101. Adding 101 Southbound ramp access further west on East Blithedale would get more cars on the freeway faster. Intersection looks very unsafe for bikes and pedestrians, though bikes/peds/transit users do use the intersection. Add safety enhancements to improve driver awareness of these other users of this intersection, while also improving vehicle circulation.
2744	Commuting in and out of town is awful on the EBL/NB 101 on ramp to leave work. Cars never let me in coming from Kipling Drive so I wait and wait. Set up devices that won't allow people to cut over and delay all other cars. These have worked on highway 37 to prevent cars from using the left lane. Stop focusing resources on bike paths. Cars and roads are needing to be maintained at a greater priority.
2747	The ramp to get on the freeway North backs up past the light many times, with many people cutting into the right lane right before the on-ramp. Any improvements to reduce congestion would be great.
2757	The traffic congestion trying to get to the freeway in Mill Valley is overwhelming
2759	I would like to see cyclist have a safer option to cross highway 101, perhaps a separate bike bridge in this vicinity.
2762	I would like information about alternative routes from Camino Alto down East Blithedale to 101.
2766	The main problem I see is trying to get onto northbound 101 traveling east on e blithedale. A major problem I see is the multiple traffic lights in that area. It's very rare for them to line up enough to let enough traffic through to get to the 101 on ramp.
2769	NO
2794	Wider roads over bridge for more lanes

ResponseID	Response
2795	The changes to the controlled lighting, as well as the changes to the north 101 freeway entrance at 131 overpass by Redwood Hwy Frontage (no left turn, no u-turn) has affected and increased traffic coming from Mill Valley onto N/B 101. During high commute times, it can take up to 20 minutes to try and merge northbound 101. Allowing people to make a U-Turn and merge N/B 101 at 131 overpass would help. Also, eliminating or re-directing traffic from southbound 101 making the left hand turn towards Tiburon would help the flow of this area.
2796	Terrible traffic control, traffic lights are useless, congestion is terrible for the 101 north on ramp. The traffic backs up blithedale to Roque morales for the on ramp.
2813	I listened to a radio program on single lane roundabouts being safer, reduces traffic, Traffic lights won't need maintenance so savings on long term funds (though possible immediate funds to build). I got to experience roundabouts for the first time up near Eureka and saw first hand how it slowed cars down, it didn't take me long to get used to them and see them as normal. I much appreciate the one that we have by the Marin Civic center and think the YIELD signs were a great idea!
2816	expanding entry from E. Blithedale (east) to 101 S would greatly improve traffic flow.
2817	Approached exit ramp from Hwy 101 S to E. Blithedale Ave. Noticed the far right traffic light on several occasions has been removed. Recommend leaving the right turn traffic light always. Install SMART Crosswalk In-Roadway Warning System. In 2020, I noticed that the new lane added to the entrance ramp leading to Hwy 101 N does not get utilized by the drivers. Drivers will usually use the right side of the ramp. Whenever a driver does use the left side of the ramp, the drivers on the right side will honked at them. Recommend added lane & merge traffic signs.
2818	The timing of the traffic lights with Mill Valley's traffic lights used to be more fluid, but i feel like there is unnecessary back up now. Traffic in this cooridor is a nightmare.
2819	Before the pandemic, it took me 15 to 20 mins to reach Hwy101 from work (Bayfront Park, Sycamore Avenue). During the pandemic, the time got reduced to 5-7 minutes. Now, it has returned to 15 minutes since March 2021. I noticed that the traffic light system needs to be more frequently updated based on the change in traffic.
2821	Heading out of Mill Valley towards this freeway entrance causes major traffic congestion in the afternoon rush times. The backup of cars extends for many blocks on the one lane of E. Blithedale Ave.). This road needs to be expanded somehow to accommodate the number of vehicles, especially because in an emergency situation, this road will most definitely be impassable.

ResponseID	Response
2822	Approaching 101 from Mill Valley is a nightmare, especially during rush hour. I usually take the 101 northbound on ramp but often have to wait for the light beyond the turn to change since the shoulder isn't wide enough to squeeze around the backed up cars.
2835	When heading east on e blithedale toward 101N onramp one of the lanes should not have a traffic light at the T intersection with 101S exit. There should be one lane with concrete k-wall between other lane. This will allow a constant flow of cars onto 101N
2836	This specific interchange at E Blithedale has heavy traffic and it is difficult to get by during commute hours.
2866	It has become a major traffic mess on East Blithedale coming out of Mill Valley to get to 101 south or north since more people are driving again (since Covid began). It can take 25 to 30 minutes to get out of Mill Valley now. It must have something to do with the timing of the lights for traffic exiting the freeway coming from the north to East Blithedale or Tiburon Blvd. It used to be that there would be a delay here on Friday afternoons at rush hour. Now the terrible traffic back-up starts at 1pm EVERY day.
2870	More police presence especially during commuter hours.
2875	The on ramp to S 101 from East Blithedale needs better shoulder barriers and enforcement. Too easy for vehicles to use the shoulder to enter the South bound highway. Improve lane controls to deter drivers from cutting into the east bound number 2 lane leading to the northbound 101 loop onramp. This is the one issue that holds up all traffic back into East Blithedale/ Rouge Moreas intersection.

L. Existing FEMA Map

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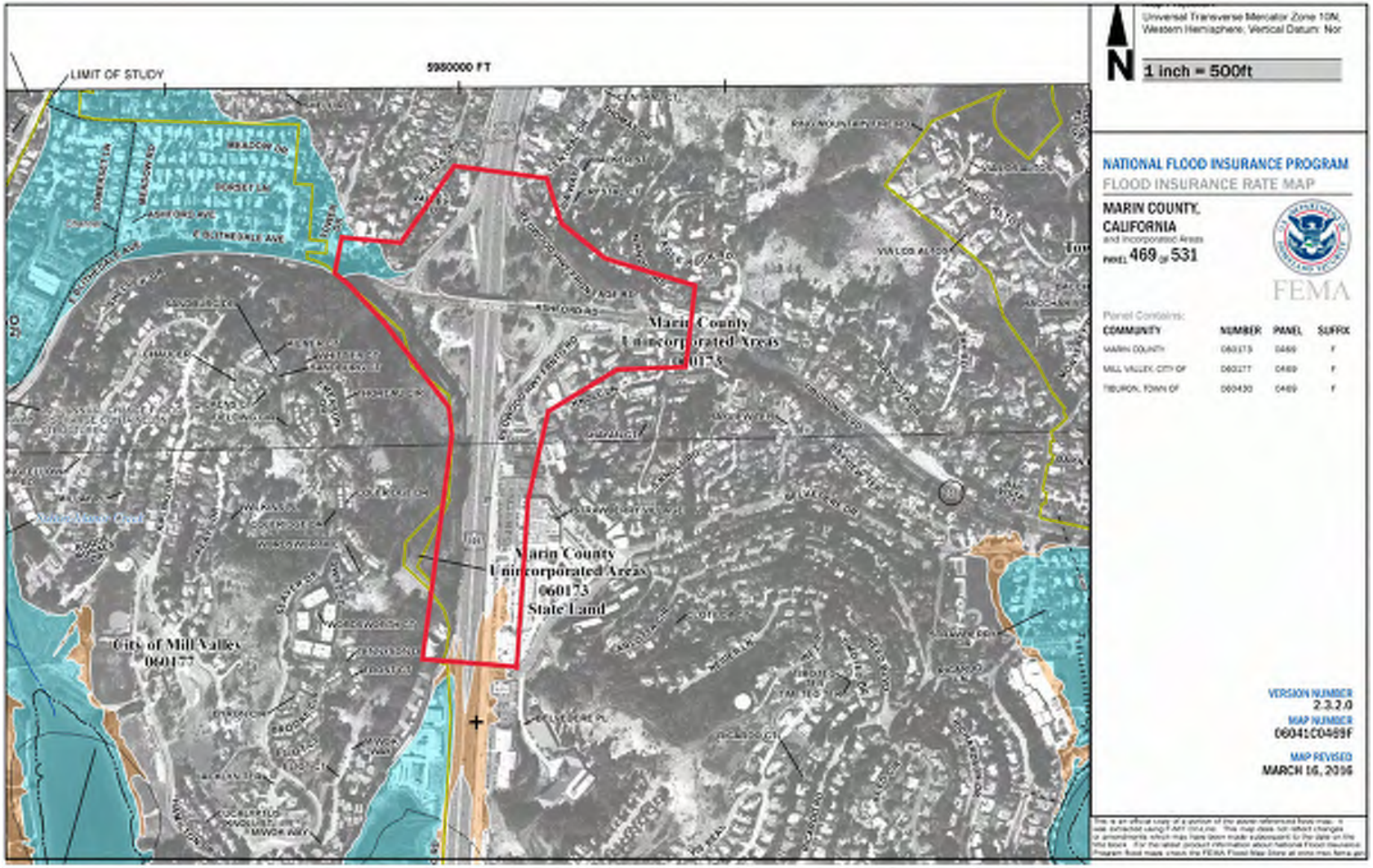

Figure 1. FEMA Flood Insurance Rate Map