

THIRD STREET REHABILITATION PROJECT

Fourth Street to Grand Avenue Project Study Report



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CITY OF SAN RAFAEL
DEPARTMENT OF PUBLIC WORKS

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I. EXECUTIVE SUMMARY

The City of San Rafael has secured approximately \$12 million in Measure A and State Local Partnership Program (SLPP) funds from the Transportation Authority of Marin (TAM) to rehabilitate Third Street between Fourth Street and Grand Avenue. The City Council authorized the allocation of \$300,000 of said funds to study the feasibility of the Third Street project. The scope of the feasibility study was to consider corridor enhancements with an emphasis on improving infrastructure, public safety, and traffic conditions.

A key component in development of the study was extensive communication with the public and key stakeholders. Public Works staff and a team of consultants completed a series of public meetings throughout the development of this Project Study Report (PSR). Meetings were initially held with working groups comprised of business owners, utility companies, transit agencies, Bicycle and Pedestrian Advisory Committee (BPAC) representatives and other community leaders. An open public meeting was also held to receive input on project goals from members of the community.

After an initial round of public outreach and consultation with technical and community working groups, the design team developed a list of improvements to enhance the corridor's many uses. The list included typical improvements (nicknamed the "tool box" during the public outreach) such as curb bulb-outs, street trees and signal upgrades as well as some site specific improvements such as the improved crossing and path widening from East Street to Miramar Avenue. The combination of typical and site specific improvement strategies was used to create a preliminary project plan. The preliminary plan was utilized to develop an order-of-magnitude cost estimate.

Given the initial feedback from the public outreach and cost estimating process, it was determined that to achieve all of the goals and wishes for the project would exceed the currently available funding. See Figure 2 for cost breakdown of entire project with alternatives. The City currently has several active projects around the Downtown SMART station and Bettini Transit Center. In order to avoid overlap with other projects already funded or under construction, the team and staff determined that the funding would be primarily allocated to the areas west of Tamalpais Avenue. Much of the corridor study area between Grand Avenue and Tamalpais Avenue has separately funded improvement projects already being studied, designed or constructed.

Through several additional meetings with City staff, workgroups and the community, the team prioritized the corridors needs, presented alternatives to the initial concept plan and prioritized project elements. Through the outreach process, alternatives were studied and refined to present a "preferred alternative" that met the primary objectives of the City and would be anticipated to fit within the available funding.

The final preferred alternative was presented to the community in an open public meeting. While some members of the community expressed the desire to be able to include more of the project elements which were outside the available funding, the reception of the project by the public was positive. No significant negative comment or feedback was provided at the meeting.

Figure 1: Project Timeline

THIRD STREET REHABILITION PROJECT PROJECT TIMELINE

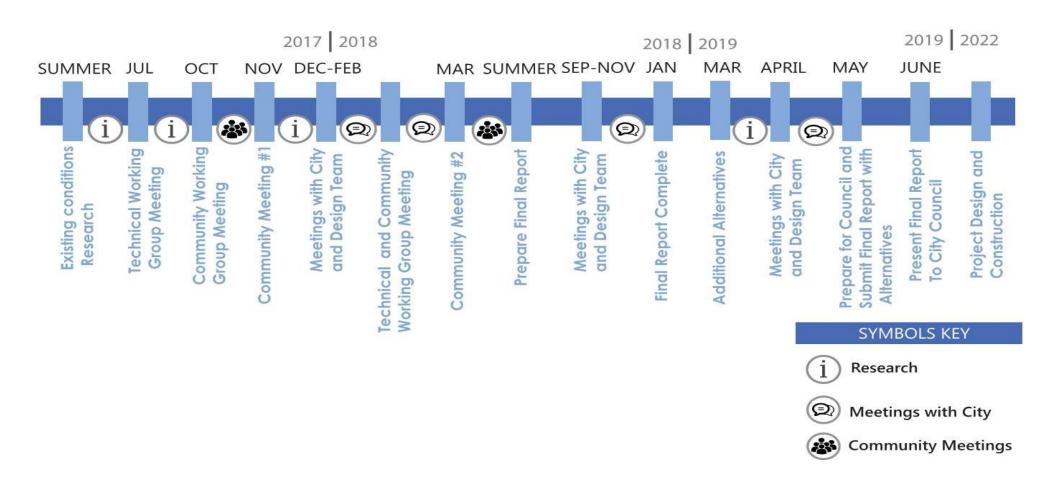
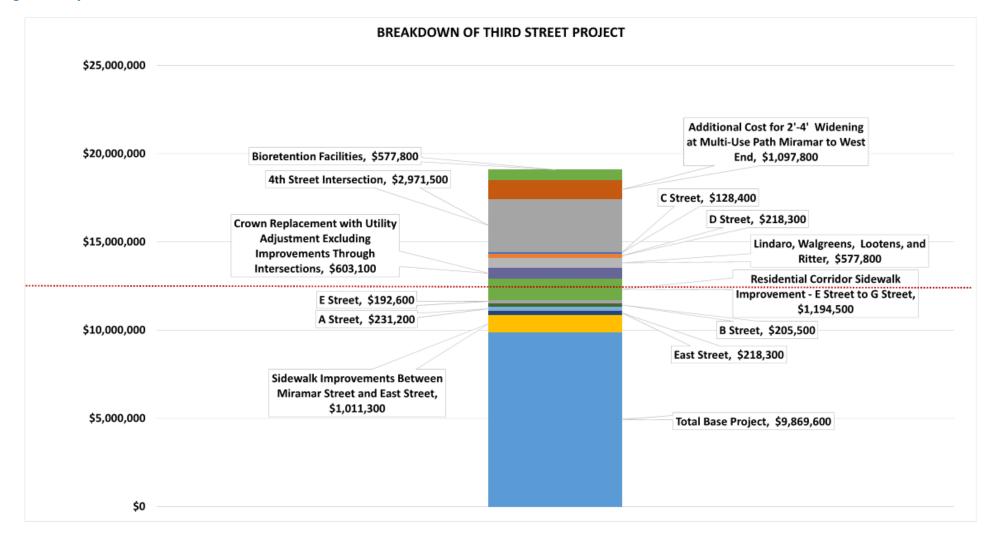


Figure 2: Project Cost Breakdown



II. PROJECT BACKGROUND

The Transportation Authority of Marin (TAM) has established a Measure A Expenditure Plan which provides funds for major roads and related infrastructure projects within Marin County. The Measure A Strategic Plan allocated approximately \$15 million for projects in the County's five central planning areas. The Central Planning Area was also programmed with approximately \$1.5 million in State Local Partnership Program (SLPP) funds. The first priority project in the Central Marin planning area, the Fourth Street West End project, was completed in 2010 and utilized \$4 million of Measure A funds, leaving \$11 million from Measure A and \$1.5 million from SLPP funds for remaining projects.

In September 2016, the City Council authorized the allocation of \$300,000 in Measure A funding to study the Third Street project area and develop a preliminary plan for roadway rehabilitation. The San Rafael Department of Public Works hired a consultant team to work with staff and the community to study feasibility options for the Third Street Corridor between Fourth Street and Grand Avenue as shown in Figure 3. The options investigated to improve the corridor included pavement resurfacing, traffic improvements, street lighting, retaining walls for road widening and improved capacity, examination of bicycle and pedestrian improvements, and landscaping. Traffic improvements were also considered, including traffic signal modifications, signal/coordination timing improvements, signage and striping, and a potential fiber optic communication trunk line. The project segment from Tamalpais Avenue to Grand Avenue currently has several other projects that are either in design, under construction, recently constructed or identified as separate projects in the City's Capital Improvement Program. These projects include the SMART extension to Larkspur, the Transit Center relocation, and funded improvements at Hetherton Street, therefore due to projects occurring on the eastern end of the corridor, the project area was modified to be from Fourth Street to Tamalpais Avenue.

An outreach process integrating community members, local agencies, and utility companies occurred from Winter to Spring of 2018. It included two community meeting workshops, three focus group meetings with Community and Technical Working Groups. The feedback from the public outreach process was compiled and presented to Staff. The consultant team worked with Staff to develop a preliminary plan of the proposed project which balanced infrastructure requirements, requested improvements from the community and available funding.

Figure 3: Project Area



III. PUBLIC OUTREACH

City of San Rafael staff and the consultant team hosted various community outreach efforts to spread awareness of this project to residents and business owners. This includes two community meetings on November 13, 2017 and March 15, 2018. The team worked with the City of San Rafael, the Technical Working Group, and the Community Working Group to create a comprehensive list of issues and potential solutions along the corridor. In addition, there was a project specific webpage on the City of San Rafael's website with current project information and a project specific email address for the community to provide comments.

The Technical and Community Working Groups met during the first stages of the outreach process to present the scope of the feasibility study and to receive initial concerns that the groups would like analyzed. San Rafael Public Works, Police, Fire, Transit, utility companies, TAM, Parking Services, and the Community Development department were invited to attend the Technical Working Group Meetings. The initial meeting was held on July 26, 2017. The Community Working group invitees included BPAC, ADA Advisory Committee, Design Review Board, Downtown Business Improvements District, Safe Rotes to Schools, Chamber of Commerce, Kaiser, BioMarin, Eden Housing, Whistlestop, and Caltrans Bicycle Advisory Committee. The initial meeting for the Community group to discuss the upcoming community meetings approach was held on October 24, 2017. After meeting with the Working Groups, a public community meeting was held on November 13, 2017, to allow the public to offer their input on the project.

The City and Design Team put pencil to paper to incorporate the input they received into a proposed project. Once a preliminary plan was created, the Team met with the Technical and Community Working Groups at a joint meeting held on February 27, 2018. After this meeting, another public community meeting was held on March 15, 2018.

Throughout the outreach process, some of the critical areas of concern were highlighted as items that needed to be further considered. Some of the key issues we heard are as follows:

- Pedestrian and bicycle safety is a top priority
 - Critical areas of concern:
 - Crossing the street at the SMART train station
 - Long crossing distance between A Street and Lindaro Street
 - Brooks Street (Future Senior Home near intersection)
 - Safe Routes to School
 - Provide visible location for children to cross and be seen
 - Enhance route from G Street to Miramar
- Overall funding strategies
- Varying vehicle speeds along corridor
 - Congestion near Highway 101
 - Speeding west of Lincoln Avenue
- · Street markings
 - Crosswalk striping (yellow in school zones)
 - Parking indication
 - Alert striping (Crosswalk Ahead, School Zone, etc)
- Better signage along corridor
 - Wayfinding + identity signage
- Traffic Signals
 - Outdated signal infrastructure

- Changes to signal timing could help improve overall traffic flow along the corridor, might help reduce sudden speeding
- Lack of tree canopy
 - Harsh environment walking along Third Street
- Fourth Street
 - Difficulty navigating through several crossings along bicycle route from Fourth Street to West Avenue
- Bike path between West Street to First Street on south side
 - o Fairfax to San Rafael Cross Marin Bikeway Feasibility Study

Through several additional meetings with City staff, workgroups and the community, the team prioritized the corridors needs, presented alternatives to the initial concept plan and prioritized project elements. Through the outreach process, the project was refined to present a preferred alternative that met the primary objectives of the City and would be anticipated to fit within the available funding. The elements of the project's preferred alternative presentation included:

- Pavement repair
- Americans with Disabilities Act (ADA) Accessibility improvements
- Re-striping and space allocation to control traffic flow and speed fluctuations
- Traffic signal improvements such as larger signal heads, back plates, pedestrian countdown heads, pedestrian push buttons, cabinets and video detection
- Improved crossings along routes to schools
- Curb "bulb-outs" to improve pedestrian visibility and regulate vehicular speeds at select intersections
- Signalization/crossing improvements at Brooks Street
- Improve sidewalk between Miramar Avenue and East Street
- Landscape enhancements
- Conduits for future adaptive signals and future street lighting
- Safety Lighting
- Project Design and Construction Management

Other key projects for the corridor which were considered, but were anticipated to be outside of available funds. Throughout the public outreach process, all of the project's elements were presented and at the first community meeting these elements were ranked through a dot exercise shown in Image 1. Due to budget constraints not all project elements along the corridor would be able to be funded, so after consultation with City staff and input from the community, some elements were removed from the preferred project. These project elements would not be precluded with the preferred project and could be further studied as separate projects as funding became available. These include:

- Road repair and modifications between Grand Avenue and Hetherton Street
- Additional 2-foot to 4-foot width for multi-use path segment from West to First Street
- Bio-retention facilities
- Redesign of Fourth Street/Second Street intersection

The final preferred alternative was presented to the community in an open public meeting on March 15, 2018. While some members of the community expressed the desire to be able to include more of the project elements that were identified to be outside the available funding, the reception of the project by the public was positive. No significant negative comment or feedback was provided at the meeting.

Image 1: Community Meeting #1- Comment board and ranking project elements



Image 2: Community Meeting #1- Comment board

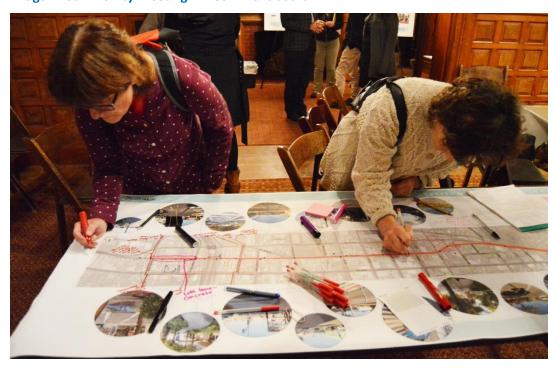
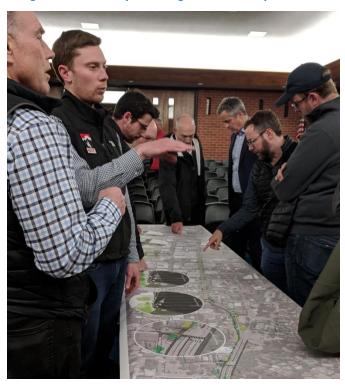


Image 3: Community Meeting #2- Presentation



Image 4: Community Meeting #2- Workshop



IV. PROPOSED PROJECT

Based on community input, previous studies, analysis of existing conditions, and available funding, the consultant team has compiled the following proposed improvements along the remainder of the corridor. Refer to Appendix A for plans and cross sections.

IV.A. Corridor Wide Improvements

Proposed improvements to be implemented throughout the Third Street project from Tamalpais Avenue to east of Fourth Street-Second Street intersection include pavement rehabilitation, striping uniform lanes and high visibility crosswalks in key locations, increased tree canopy, accessibility improvements to curb ramps and sidewalks, and traffic signal upgrades. These Corridor Wide improvements are part of the Base Project cost shown in Figure 2.

The proposed project would explore reducing the cross section in the segments with the largest crown. During the construction document design phase the team would explore the depths of existing utilities to determine any conflicts that could occur from lowering the crown of the corridor.

Pavement. The project would fix damaged pavement, mill the surface, and place an asphalt overlay on the roadway between Tamalpais Avenue and west of Fourth Street. The road would be striped to include high visibility crosswalks in key locations, uniform lane line striping, and a parking buffer on the north side of Third Street between E Street and G Street. In conjunction with the asphalt repair, the project would update curb ramps at intersections to comply with ADA requirements and incorporate bulb-outs at key intersections to improve pedestrian safety and visibility.

Sidewalk. As part of the ADA Title II regulation, when performing pavement rehabilitation, all curb ramps adjacent to the new pavement need to meet the ADA requirements. In addition, based on the Precision Concrete Cutting Report in Appendix D, the team has included a recommendation to shave uneven sidewalks in the preferred project limits.

Traffic Signals. There are 10 signalized intersections along Third Street from Lincoln Avenue to Fourth Street. The traffic signals run with coordinated timing plans throughout the day, with three timing plans operating during the weekdays and two plans on the weekends. The signals operate with various Econolite brand controllers.

Several of the signalized intersections on Third Street are equipped with 8-inch traffic signal heads without visors. It is recommended that all of these be upgraded to provide 12-inch heads with visors (Lincoln Avenue, Lindaro Street, B Street, C Street, D Street, Shaver Street, and G Street). In addition, all of the mast arm poles along the corridor should be inspected to determine if they have the capability to accommodate more than one signal head assembly to increase the visibility of signal heads.

All signal heads should be converted to more energy efficient LEDs, and pedestrian countdown heads should be used for all signalized pedestrian crossings. All pedestrian push buttons and adding pedestrian countdown heads will be considered for each intersection to meet current ADA requirements. All the signalized intersections will include the addition of video detection.

Provision of a fiber optic traffic signal interconnect should also be considered along the Third Street corridor. Therefore, the project would install conduits and pull boxes for future adaptive signals and signal interconnects.

With the anticipated amount of upgrades to the signalized intersection, it would be prudent to install new signal controllers and cabinets. The project cost estimate includes the anticipated cost of cabinet upgrades in the budget for signalized intersections. At this time, the Department of Public Works anticipates installing the new controllers as a separate project prior to the commencement of construction with this Third Street project. The current project budget does not include costs associated with signal controller upgrades.

Safety Lighting. In an effort to increase pedestrian safety along the corridor, the project will include pedestrian lighting at all of the signalized intersections. The lighting will meet current standards at a minimum of 1-foot candle.

Trees. In an effort to make Third Street more enjoyable for its residents and visitors, the proposed project includes additional trees to line the street. Trees do much more than add green vegetation to the street; they help maintain certain levels of comfort both for separation from vehicles and providing shade that are needed to enjoy a stroll down the sidewalk. Trees also help reduce the heat island effect, because the tree crown tends to cover a significant portion of surrounding paving such as the sidewalk and adjacent roadway. Not only are trees beneficial to people walking down the sidewalk, but trees help aid in visual cueing for drivers. Studies show that motorists tend to drive slower when there is a significant tree canopy present. This tunnel effect creates the illusion of a more narrow street.

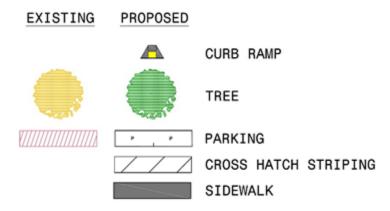
The project proposes to fill in the existing scattered trees for a more consistent pattern. An overall goal dealing with the sidewalk conditions would be to allow enough space for pedestrians and planting. The planting could act as a buffer between vehicles along Third Street and pedestrians walking down the sidewalk.

In addition the design team should evaluate the existing tree species along the corridor to assess whether to recommend replacement for either invasive species or existing species that commonly push up sidewalk. See Appendix C for the City Preferred tree species list.

IV.B. Commercial Downtown Zone

For the proposed project limits the Commercial Downtown zone is from Tamalpais Avenue to E Street. Community comments and issues are traffic congestion to speeding, long distance between crosswalks, inconsistent tree canopies, pedestrian visibility at intersections, on-street versus off-street parking and visibility issues on a vertical curve. Below is a more detailed description of the proposed project per intersection from east to west.

Image 5: Symbols and Legend for Proposed Project Figures



Lindaro Street Intersection

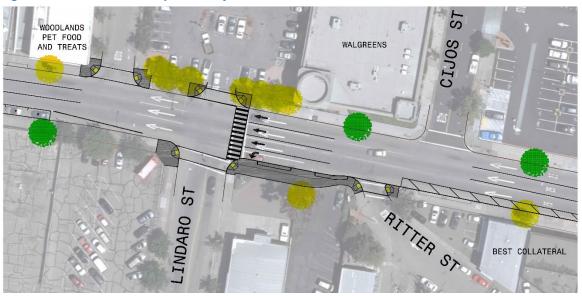
As shown in Figure 4, the existing intersection is a four-legged intersection with the north leg serving as a driveway to the Walgreens shopping center.

The proposed project, as shown in Figure 5, will extend out the curb on southeast corner to widen the sidewalk along the left turn pocket. On the north side the City and design team will work with the shopping center to reconfigure the driveway to increase visibility and pedestrian safety along the sidewalk.

Figure 4: Lindaro Street Existing Condition



Figure 5: Lindaro Street Proposed Project



A Street Intersection

Brooks Street intersection

The proposed development at the former PG&E site on Third Street between Lindaro and Brooks Street includes a senior housing element. The community raised concerns about the long distance between signalized crossings for seniors. Currently the closest crossings are at A Street, approximately 200 feet to the west and Lindaro Street, approximately 450 feet to the east. The existing Brooks intersection is shown in Figure 6.

The applicant for future development of the parcel west of Brooks Street and south of Third Street is analyzing traffic and pedestrian movements along this stretch of Third Street. Mitigations identified in conjunction with this private development are anticipated to be placed as project conditions of approval and will be the responsibility of the private applicant. The applicant is currently conducting a traffic impact analysis and recommended mitigations. Below is a proposed condition consistent with the corridor wide improvements. The concept is shown hereon for reference, but will ultimately be determined by the final traffic analysis and mitigations appropriate for the private project. The anticipated costs associated with the improvements shown below are not included in the project budget.

The proposed project shown in Figure 7 to install a new traffic signal or pedestrian beacon with a crosswalk on the east side at the Brooks Street intersection to improve pedestrian circulation and safety. If a new signal is installed, it would be timed with the existing signals on Third Street to minimize traffic delays for this additional crossing.

Figure 6: Brooks Street Existing Condition

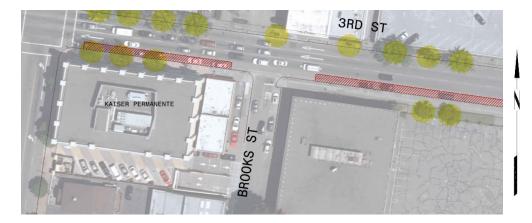
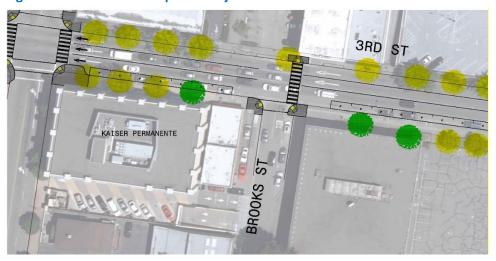


Figure 7: Brooks Street Proposed Project



A Street Intersection

A Street intersection

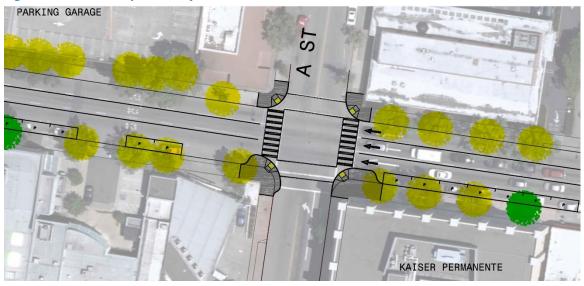
According to data collected in October 2017 for a re-timing project in Central San Rafael, this intersection was identified as one of the higher volume pedestrian crossing locations with Kaiser Permanente at the southeast corner. The existing intersection is shown in Figure 8.

The proposed project shown in Figure 9 will add bulb-outs at the corners, to increase pedestrian visibility and reduce the crossing distance. Along the east and west crossing of Third Street, high visibility ladder crosswalk striping will be installed.

Figure 8: A Street Existing Condition



Figure 9: A Street Proposed Project



B Street Intersection

B Street Intersection

The existing B Street intersection is shown in Figure 10.

The project shown in Figure 11 proposes to bulb-out the southern corners to provide enhanced pedestrian visibility, reduce crossing distance, and stabilize vehicular speeds.

Figure 10: B Street Existing Condition



Figure 11: B Street Proposed Project



E Street Intersection

E Street Intersection

This existing intersection as shown in Figure 12 is located on the top of a hill at a sweeping turn. Clear sight lines and pedestrian safety are a big concern.

In Figure 13, the proposed improvements show the west side of the intersection with bulb-outs to reduce the crossing distance for pedestrians and improve visibility between vehicles and pedestrians. In addition, at the bulb-outs on the west side of the intersection will install larger trees west of the crosswalk to attempt to block the setting sun in the evening. Also, the bulb-outs on the south side are proposed to have a tighter radius to slow cars making a left onto E Street.

Figure 12: E Street Existing Condition

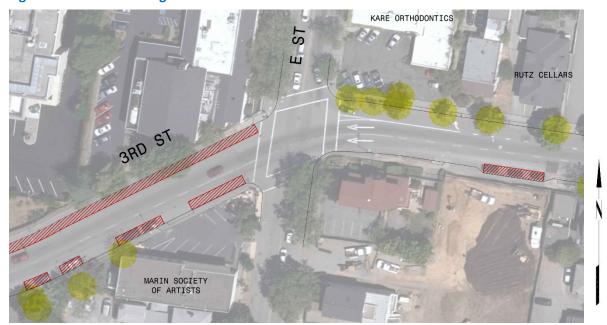
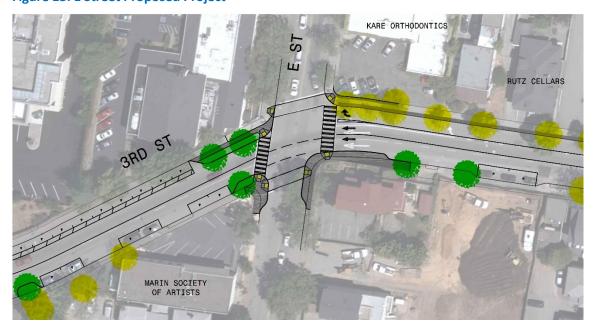


Figure 13: E Street Proposed Project



IV.C. Residential Zone

The Residential zone is from E Street to Fourth Street. Community comments and issues include speeding, pedestrian crossings, wide travel lanes, visibility on the vertical curve, and narrow sidewalk on south side along hill long. Below is a more detailed description of the proposed project from east to west.

North Side Shaver Street to Miramar Avenue.

Figure 14 shows the existing roadway configuration in this section of road. Third Street west of E Street slopes down a hill on a curve as vehicles move towards Hayes Street. The existing travel lanes are very wide and the sidewalks are narrow. Residents along this zone have expressed concerns over the vehicle speeds and about the challenges of exiting their driveways.

In Figure 15, the proposed improvements include narrowing the travel lanes to 11-12 feet wide, adding trees, extending the curb and sidewalk to narrow the road, providing a buffered parking area, widening the sidewalk, and bulbing out the corners at the intersections. On the south side of the street between Miramar Avenue and East Avenue, the project proposes to widen the sidewalk. A rendering cross section of the road at G Street as shown in Figure 19 shows the widened sidewalk on the south side.



Figure 14: Shaver Street to Miramar Avenue Existing Condition

Figure 15: Shaver Street to Miramar Avenue Proposed Project



South Side Miramar Avenue to East Street

The existing sidewalk along the south side of Third Street between Miramar Avenue and East Street is narrow and the existing hillside is eroding onto the pedestrian walkway. Miramar Avenue across to the north side of G Street has been identified as a Safe Route to School. The existing layout of Third Street between Miramar Avenue and East Street is shown in Figure 16.

The proposed project shown in Figure 17 will re-allocate space and striping to allow for two twelve foot lanes and widen the sidewalk on the south side to a total width of 8-10 feet including obstructions. This work will include relocation or undergrounding of the joint utility poles. Future projects along the south side include extending the widened sidewalk to West End Avenue and widening the trail to 12 feet wide by adding a retaining wall and removing on street parking.

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Figure 16: Miramar Avenue to East Street Existing Condition

Figure 17: Miramar Avenue to East Street Proposed Project



G Street Intersection

This project proposes to bulb-out the sidewalk at the corners on the north side of the intersection to provide more refuge for pedestrians waiting to cross and increased visibility for vehicles. Figure 18 shows existing conditions and Figure 19 illustrates the proposed conditions.

Figure 18: G Street Existing Rendering



Figure 19: G Street Proposed Rendering



South Side East Street to Miracle Mile

The existing sidewalk along the south side of Third Street between East Street and the West End Avenue/ Miracle Mile is narrow due to existing driveways, landscape and overhead utility poles. At East Street, an existing Rectangular Rapid Flashing Beacon (RRFB) crosswalk connects to the north at Jack in the Box. To the west of the Miracle Mile intersection, West End Avenue has bicycle sharrows leading bicycles to the intersection. The existing layout of Third Street between East Street and the West End Avenue is shown in Figure 20.

There are two proposed options shown in Figure 21 and Figure 22. Option A shown in Figure 21 proposes to remove nine existing on-street parking spaces between West End Avenue and East Street and provide a buffered Class II bike facility that will connect to the widened sidewalk to Miramar Avenue. At East Street, Option A proposes to remove the left turn pocket into the Jack in the Box and create a pedestrian refuge in the middle of the crossing. This directs left turning and U-turn traffic to the G Street intersection. The RRFB would be replaced to allow pedestrians to also activate the crosswalk at the new the median refuge. Option B shown in Figure 22, proposes to remove or create a narrow center median between West Street and East Street. This option shifts the travel lanes to the north creating space to provide a buffered bike lane, while maintaining seven of the nine existing parking stalls. At West Street and East Street, the left turn pockets would be removed as part of this lane shift.



Figure 20: East Street to Miracle Mile/ West End Avenue Existing Condition

Figure 21: East Street to Miracle Mile/ West End Avenue Proposed Project- Option A

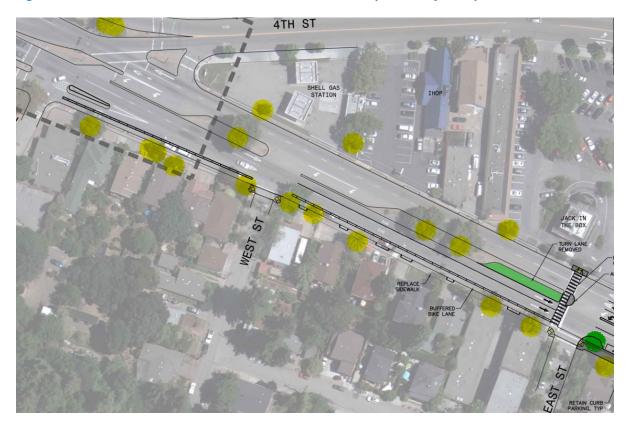


Figure 22: East Street to Miracle Mile/ West End Avenue Proposed Project- Option B



V. FUNDING

Funding originates from Measure A, administered by the Transportation Authority of Marin. From this grant the project has \$12.5 Million at its disposal, \$9 million of which will go to street resurfacing, ADA curb ramps, design, and traffic control. Using experience from similar projects, the consultant team developed a streetscape plan that would fit within the allowable budget and identified as the proposed project above. Measure A requires that the money go to repaving the corridor, so the majority of the cost of improvements comes from repaving the road.

The cost estimate takes into account final design, management, testing, escalation and construction for the items shown on the conceptual streetscape drawings. At this time, it is anticipated that all the projects listed as the proposed project will fit within the available funding, however this will need to be determined by the design team and market conditions at the time of planned construction. Non-priority items were removed from the overall project. The alternatives considered are listed in Appendix D. It is recommended that the design team and staff study the alternatives and consider include them as add alternatives in the final project design documents. See Figure 2 for funding breakdown.