

Appendix E

**Updated Transportation Summary Report**

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# SAN RAFAEL TRANSPORTATION CENTER

Relocation Analysis, Environmental Clearance, and Preliminary Design



## Transportation Summary Report

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HIGHWAY & TRANSPORTATION DISTRICT



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# Executive Summary

## ES.1 Overview

The Golden Gate Bridge, Highway, and Transportation District (GGBHTD) is currently undertaking a project to identify a new location for the San Rafael Transit Center (SRTC). Sonoma-Marin Area Rail Transit (SMART) was recently extended to Larkspur, bisecting the existing transit center. This has impacted bus operations and passenger movements, creating the need for a new transit center. Through a community-driven process, several alternatives were developed and screened to identify potential new locations for the transit center. In 2018, a Notice of Preparation (NOP) was issued to begin an environmental analysis process per the requirements of the California Environmental Quality Act (CEQA). The NOP identified five project alternatives. Since the preparation of the NOP, the alternatives have been refined through subsequent design development and the number of build alternatives screened down to three.

The project team has conducted a detailed transportation evaluation of the three build alternatives under consideration, plus a no-build alternative. This report documents the evaluation methodology and the results of the analysis. The project team also prepared a detailed safety analysis of pedestrian, bicycle, and vehicular safety around the No-Build and Build alternatives. The safety analysis is included in Appendix D. The safety analysis identifies pedestrian and bicycle treatments that would be built with each of the alternatives to address safety needs. It also provides a safety assessment for each of the alternatives that focuses on pedestrian-vehicle conflicts and circulation around the SRTC site.

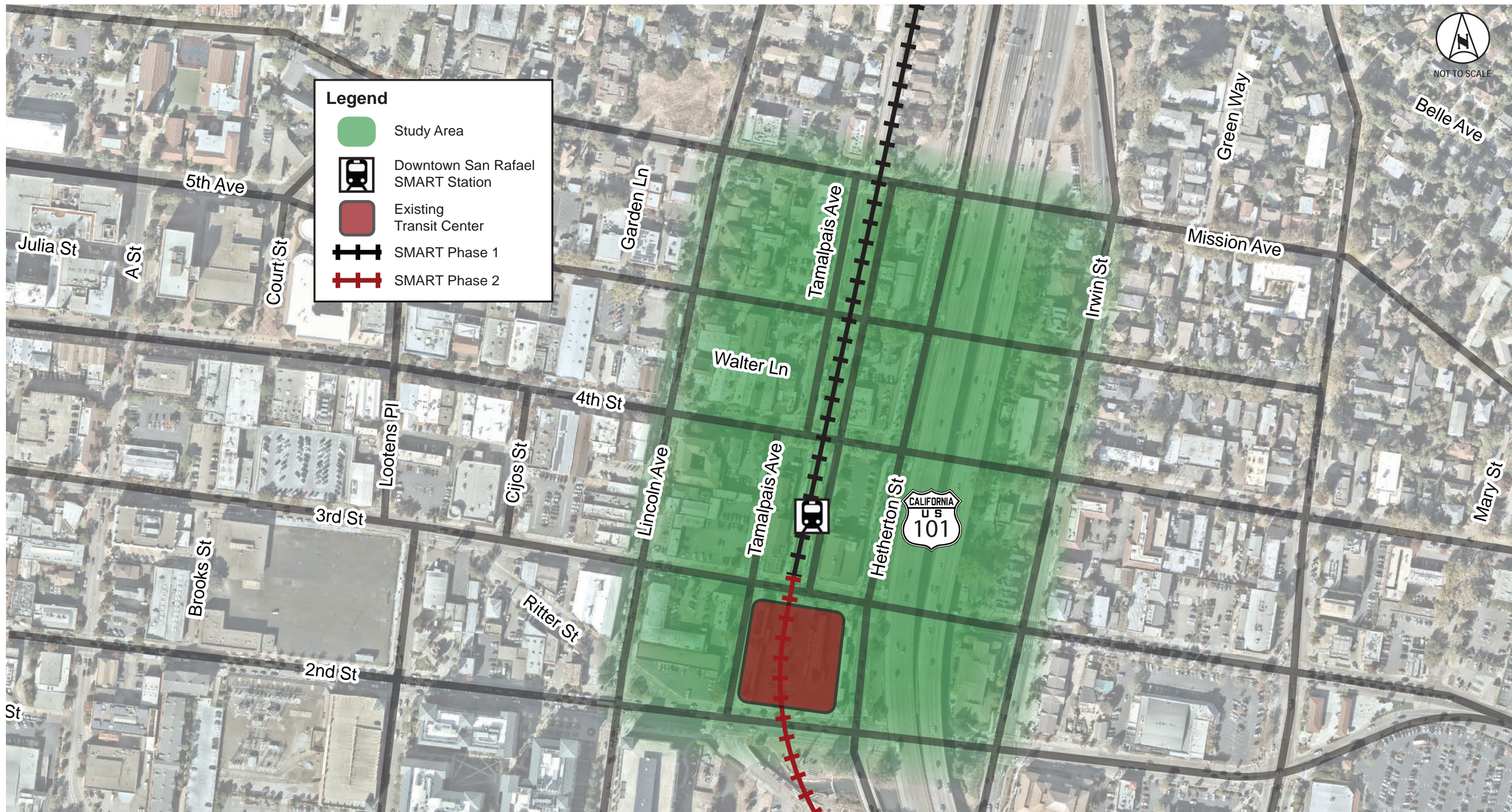
SRTC, also known as the C. Paul Bettini Transit Center, is owned by GGBHTD. GGBHTD operates Golden Gate Transit (GGT) regional and inter-county bus transit services. The current SRTC is located in Downtown San Rafael at the intersection of 3<sup>rd</sup> Street and Hetherington Street (see Figure ES-1).





# SAN RAFAEL TRANSPORTATION CENTER

Relocation Analysis, Environmental Clearance, and Preliminary Design



## ES.2 Alternatives

### ES.2.1 No-Build Alternative/Existing Transit Center Site

In the No-Build Alternative (shown in Figure ES-2), the transit center would remain at its current location, on the block bound by 2<sup>nd</sup> Street, Tamalpais Avenue, 3<sup>rd</sup> Street, and Hetherton Street. The “interim” transit center configuration constructed as part of the SMART extension would remain. Customer service and vendor facilities would remain at their current location on Platform D. Pick-up/drop-off curb space would remain on the west side of Platform D along Tamalpais Avenue. Bus access/egress would continue to occur via driveways along 2<sup>nd</sup> and 3<sup>rd</sup> Streets. Buses accessing southbound U.S. Highway 101 (US 101) would continue to berth curbside on the east side of Platform A.

### ES.2.2 4<sup>th</sup> Street Gateway Alternative

The 4<sup>th</sup> Street Gateway Alternative is shown in Figure ES-3. This alternative utilizes the two blocks bound by the SMART tracks, 3<sup>rd</sup> Street, Hetherton Street, and Fifth Avenue.

This alternative would include three curbside bays on the west side of Hetherton Street, between 4<sup>th</sup> Street and Fifth Avenue. To accommodate these curbside bays, southbound right-turns from Hetherton Street to 4<sup>th</sup> Street would be precluded. Other bus bays would be accessed via driveways on 3<sup>rd</sup> and 4<sup>th</sup> Streets and a driveway on Hetherton Street.

Along Hetherton Avenue, space would be provided for public plazas, bike parking, and building space for customer service and transit-supportive land uses. The segment of the existing Puerto Suello bike path located on the east side of the proposed site between 4<sup>th</sup> Street and Fifth Avenue would be realigned around the transit center site. The existing Victorian homes south of Fifth Avenue would either be removed or relocated.

The existing SMART pick-up/drop-off area on East Tamalpais would be removed. Pick-up/drop-off space for microtransit, taxis, shuttles, and passenger vehicles would be provided on the east side of West Tamalpais Avenue between 3<sup>rd</sup> Street and Fifth Avenue. Maintenance vehicle parking for five GGT vehicles would be provided on-site at the transit center on the block north of 4<sup>th</sup> Street, with one additional maintenance vehicle parking space provided on the east side of Tamalpais Avenue between 4<sup>th</sup> Street and Fifth Avenue.

### ES.2.3 Under the Freeway Alternative

The Under the Freeway Alternative is shown in Figure ES-4. This concept utilizes the block bound by 4<sup>th</sup> Street, Hetherton Street, Fifth Avenue, and Irwin Street, and the northern portion of the block bound by Hetherton Street, 3<sup>rd</sup> Street, 4<sup>th</sup> Street, and Irwin Street, generally located beneath US 101. Bus bays would be accessed via driveways on 4<sup>th</sup> Street, Irwin Street, and Hetherton Street.

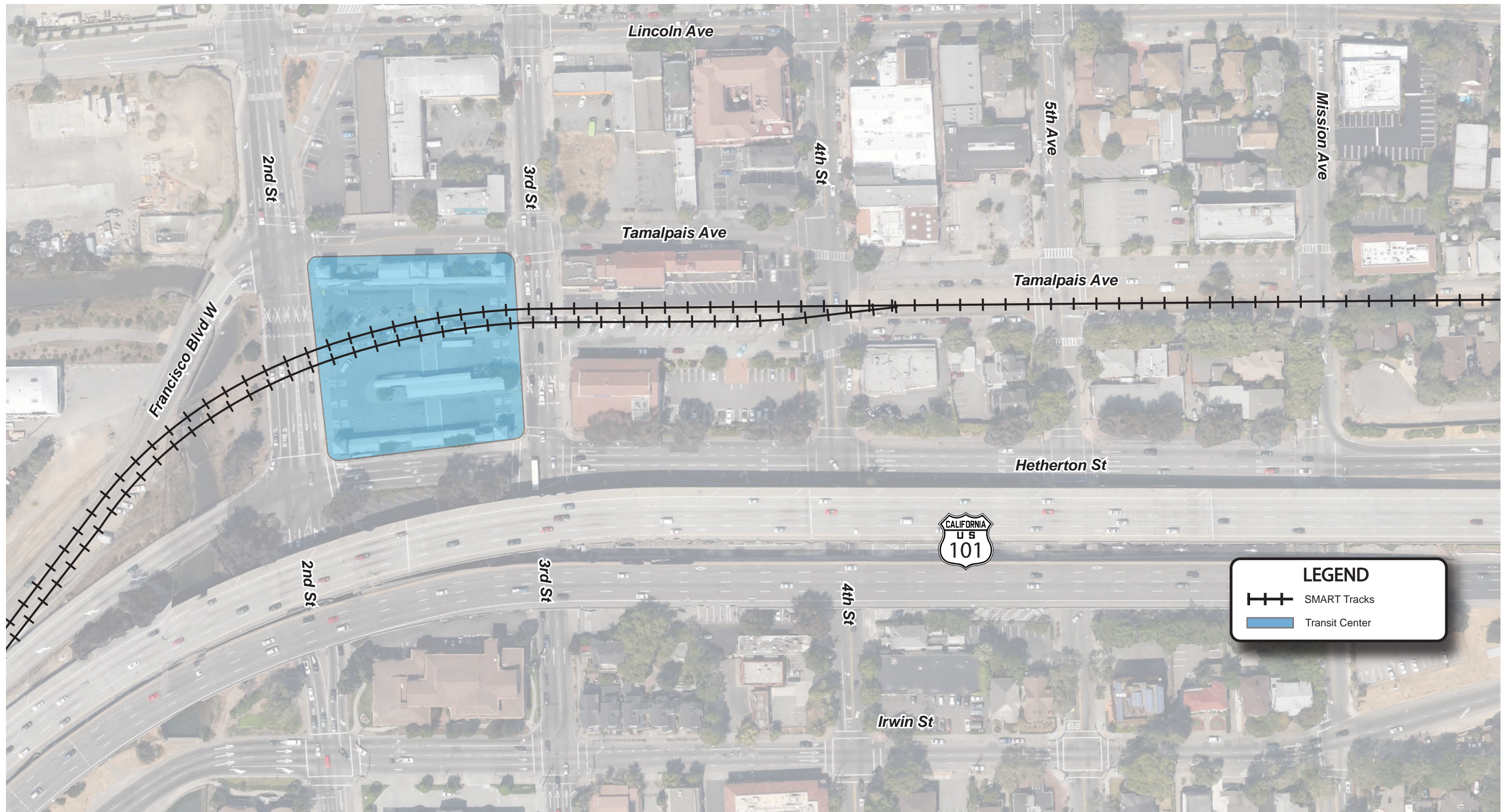
Space would be provided for public plazas, customer service, and/or transit-supportive land uses in the area outside of the US 101 envelope. This alternative would require three bridges/viaducts over Erwin Creek to connect Hetherton Street to the bus bays. Two bridges would be located on the block north of 4<sup>th</sup> Street and one would be located on the block south of 4<sup>th</sup> Street.

The under-freeway portions of this alternative are currently occupied by Caltrans-owned and maintained park & ride lots; this alternative would result in their removal from this location and relocation to a yet-to-be-determined site. Private property would also need to be acquired. Pick-



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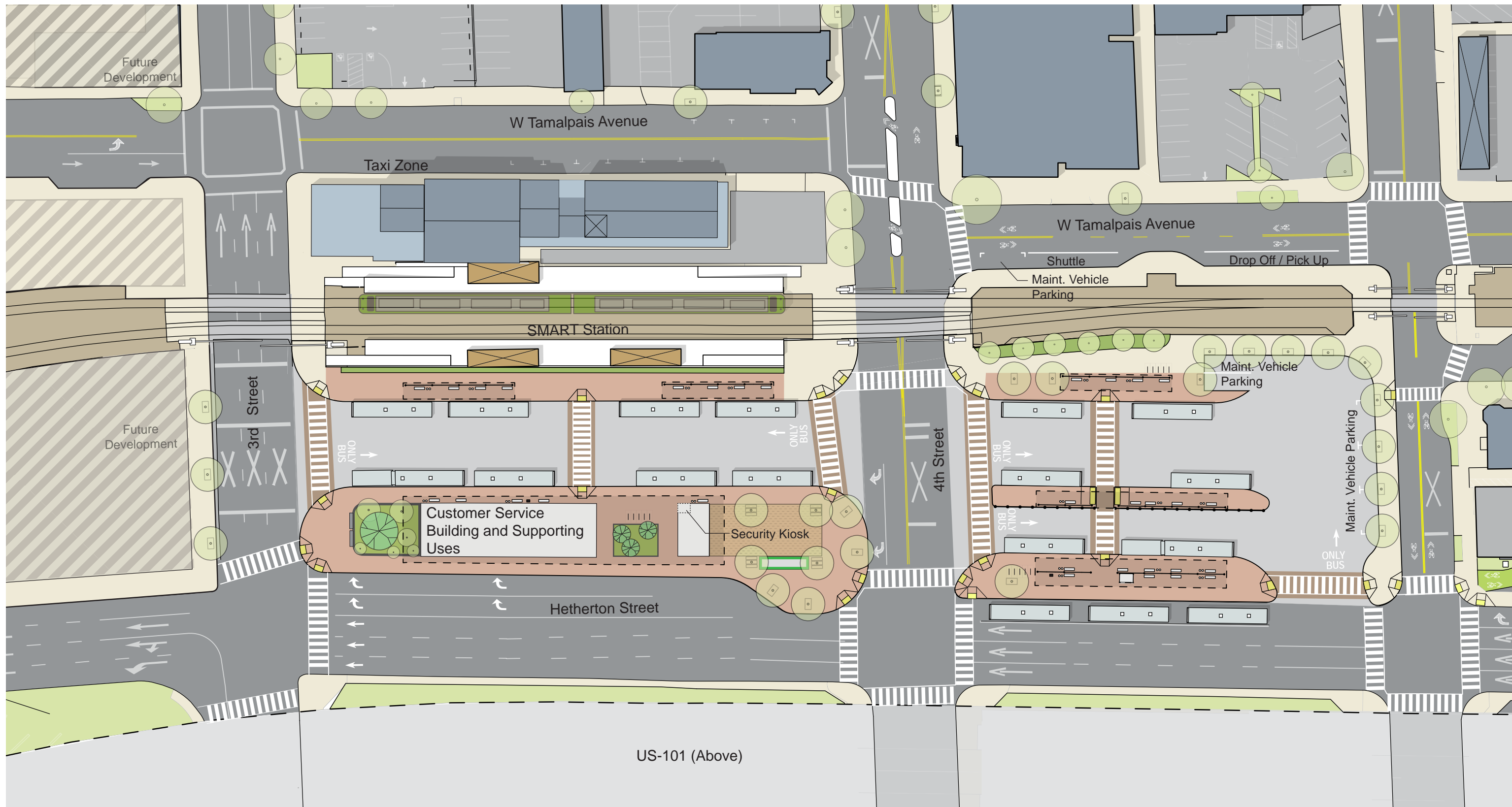
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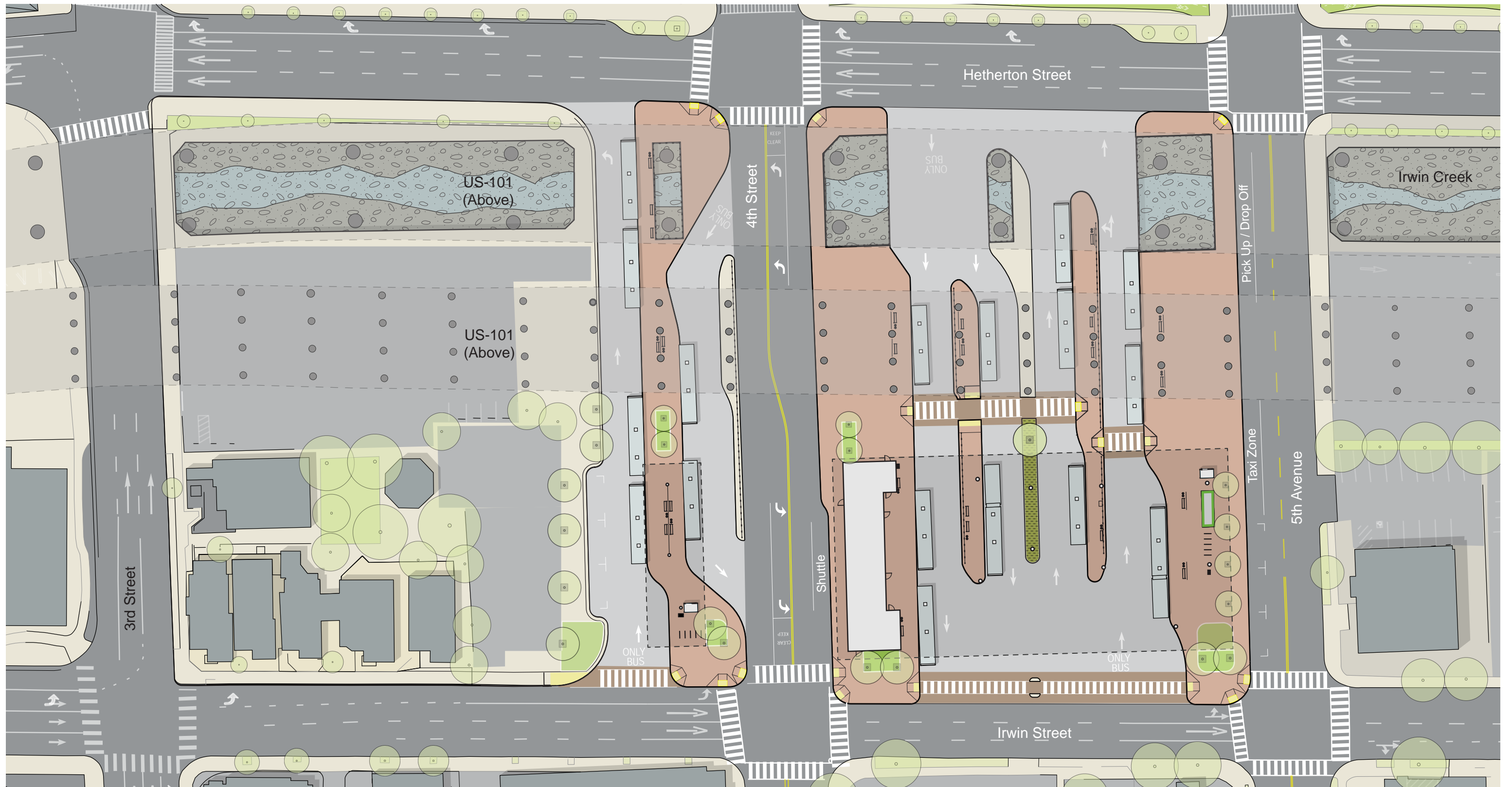
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up/drop-off space would be provided on the south side of Fifth Avenue between Irwin Street and Hetherton Street. Space for shuttles and microtransit would be provided along the north side of 4<sup>th</sup> Street, adjacent to the northern portion of the transit center. Maintenance vehicle parking for three Golden Gate Transit vehicles would be provided on the south side of Fifth Avenue between Irwin Street and Hetherton Street, and parking for an additional three vehicles would be located on the far southern edge of the site south of 4<sup>th</sup> Street.

#### **ES.2.4 Whistlestop Block Alternatives**

Two alternatives were developed that place the transit center in the same area, centered on the existing Whistlestop building along West Tamalpais Avenue. These two alternatives were considered separately in the Draft Environmental Impact Report; however, they share the same transportation network, with the only difference in access and circulation consisting of a re-alignment of West Tamalpais Avenue. Since the transportation network is nearly identical between the two alternatives, they were modeled together as the Whistlestop Block Alternatives for the purposes of this report.

The Adapt Whistlestop Alternative is shown in Figure ES-5. This alternative co-locates the transit center on the same block as the existing SMART station, by utilizing area from west of West Tamalpais Avenue to 3<sup>rd</sup> Street, Hetherton Street, and 4<sup>th</sup> Street. West Tamalpais Avenue between 3<sup>rd</sup> Street and 4<sup>th</sup> Street would be limited to buses only, and curbside bays would be provided on both sides of the street. A portion of the curb space on West Tamalpais Avenue would be dedicated to microtransit and shuttles. To the east of the SMART tracks, bus bays would be accessed via driveways on 3<sup>rd</sup> and 4<sup>th</sup> Streets. The existing taxi and pick-up/drop-off area on East Tamalpais would be relocated to a newly constructed access road between 3<sup>rd</sup> Street and 4<sup>th</sup> Street. The Whistlestop building would remain in place and be modified, renovated, and reconfigured to serve as GGT customer service and operations building space. Some of the space within the building could be allocated for non-GGT uses. Maintenance vehicle parking for six GGT vehicles would be provided on the new access road between 3<sup>rd</sup> Street and 4<sup>th</sup> Street, adjacent to the pick-up/drop-off area. Eight parking stalls would be provided on the east side of West Tamalpais Avenue between 2<sup>nd</sup> Street and 3<sup>rd</sup> Street. A portion of the planned North South Greenway would be installed as part of the project between 2<sup>nd</sup> Street and 4<sup>th</sup> Street along West Tamalpais in the form of a raised Class IV two-way cycle track.

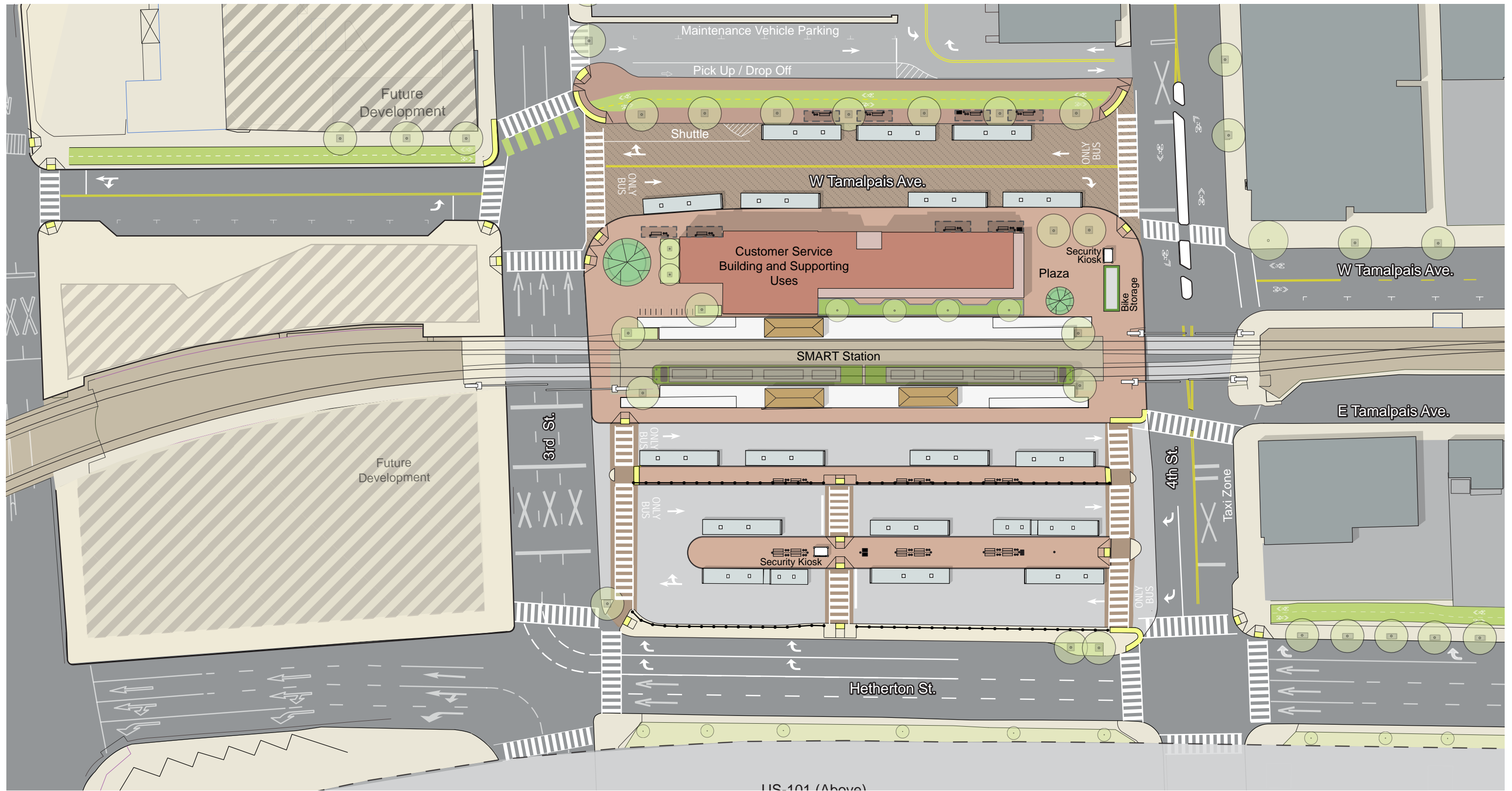
The Move Whistlestop Alternative is shown in Figure ES-6. In this alternative, a portion of the Whistlestop building would be relocated to or rebuilt on the west side of West Tamalpais Avenue between 3<sup>rd</sup> and 4<sup>th</sup> Streets. As part of this relocation, West Tamalpais Avenue between 2<sup>nd</sup> and 4<sup>th</sup> Streets would be shifted east so that it is directly adjacent to the SMART tracks and more closely aligned with West Tamalpais Avenue north of 4<sup>th</sup> Street. The relocated or reconstructed building would include GGT customer service and operations building space, as well as supporting retail uses. Space on the southwest corner of the intersection of West Tamalpais Avenue and 4<sup>th</sup> Street would be provided for public plazas, customer service, bike parking, and/or transit-supportive land uses. The taxi and pick-up/drop-off area and six maintenance vehicle parking stalls would be provided on the new access road west of West Tamalpais Avenue. A total of 16 parking stalls would be provided on West Tamalpais Avenue between 2<sup>nd</sup> Street and 3<sup>rd</sup> Street.

In both Whistlestop Alternatives, a new driveway would be installed on 4<sup>th</sup> Street between Tamalpais Avenue and Lincoln Avenue to replace the removed driveway on West Tamalpais Avenue that provides



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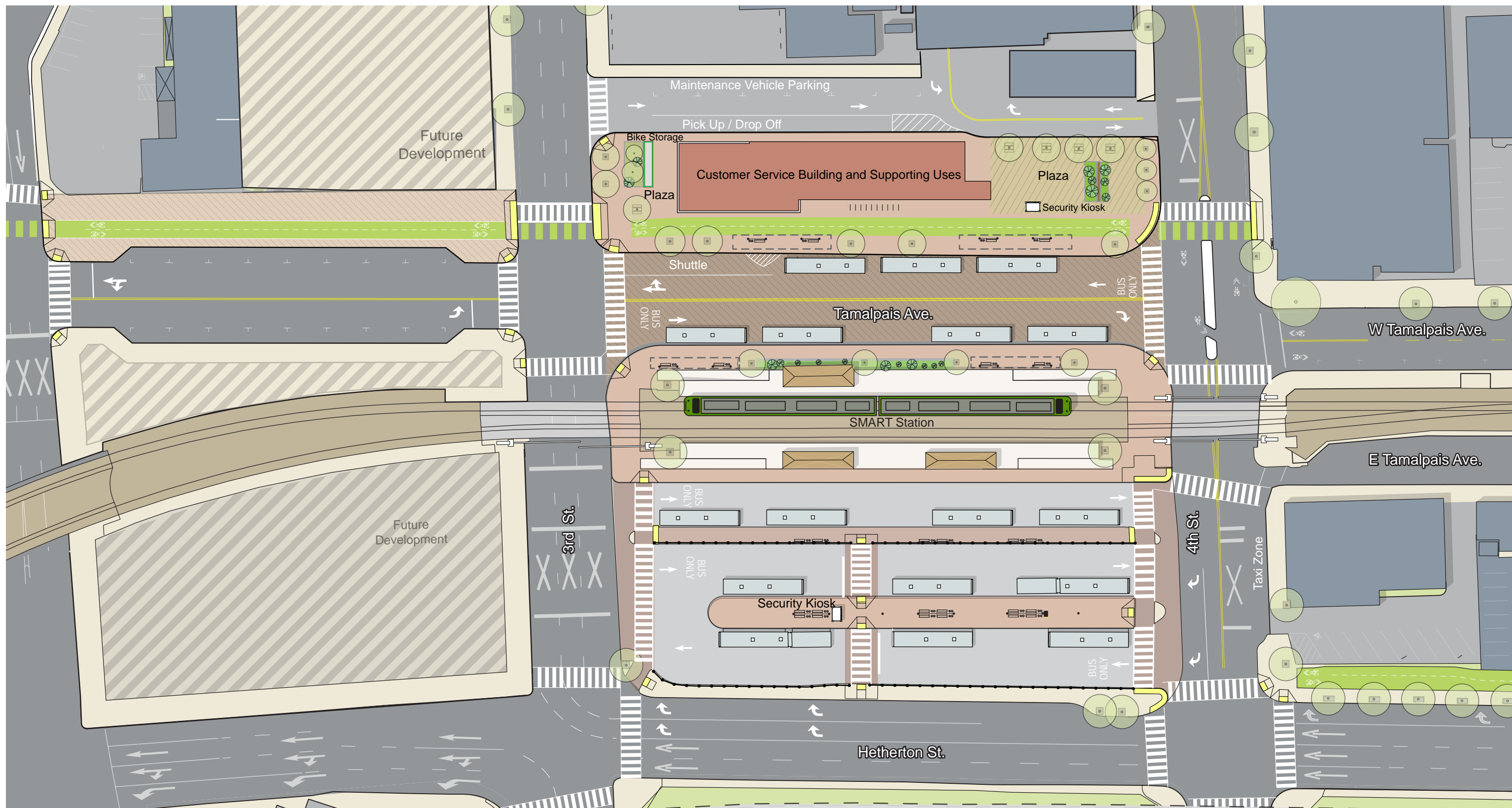
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Relocation Analysis, Environmental Clearance, and Preliminary Design





access to the condominium complex at Lincoln and 4<sup>th</sup> Street. This new driveway would also be utilized for egress from the new pick-up/drop-off and maintenance parking access road. An existing curb cut on 3<sup>rd</sup> Street would be utilized to access the remnant of the existing parcel at the northwest corner of Tamalpais Avenue and 3<sup>rd</sup> Street, west of the pick-up/drop-off area.

### ES.3 Analysis Methodology

The transportation analysis in this report encompasses a study of transit circulation, vehicular traffic, and non-motorized transportation including pedestrians and bicyclists, and parking. All three transit center alternatives, plus the No-Build Alternative, were analyzed under Existing (Year 2020) and Year 2040 conditions.

Roadway geometrics, vehicle/bicycle/pedestrian counts, travel-time data, and signal-timing data were collected and used as inputs to conduct the transit and traffic analyses. The inputs were applied to VISSIM 9 software package to develop microsimulation models of the no-build and each of the three build alternatives under Existing (Year 2020) and Year 2040 conditions. The modeling produced estimates of changes to circulation time for buses under each alternative, as well as changes in vehicle delay and travel time for vehicular traffic. In addition to microsimulation modeling, data on parking, pedestrian volumes, ridership, and transfer activity were utilized to analyze the effects on non-motorized transportation modes and parking.

### ES.4 Transit Analysis

Bus circulation was quantified based on the total circulation time of individual bus routes traveling through the microsimulation model for each peak hour; the estimated circulation time for each route was determined by taking the average circulation time of 10 runs of the model.

The total circulation time for all routes, in seconds, is presented in Table ES-1 for Existing (Year 2020) models and Table ES-2 for Year 2040 models. The percent change for delay compared to the baseline (No-Build) analysis is also presented.

**Table ES-1: Total Circulation Time in Network – Existing (Year 2020) Conditions**

Total Circulation Time by Routes		% Change
No-Build A.M. Peak Hour	27,492 sec	
No-Build P.M. Peak Hour	25,739 sec	
4th Street Gateway A.M. Peak Hour	25,550 sec	-7%
4th Street Gateway P.M. Peak Hour	24,133 sec	-6%
Under the Freeway A.M. Peak Hour	21,863 sec	-20%
Under the Freeway P.M. Peak Hour	22,487 sec	-13%
Whistlestop Block A.M. Peak Hour	23,664 sec	-14%
Whistlestop Block P.M. Peak Hour	21,583 sec	-16%

As shown in the table, in Year 2020 conditions, all build alternatives would result in a reduction in total circulation time relative to the No-Build Alternative. The Under the Freeway Alternative and the Whistlestop Block Alternatives result in a greater than 10 percent reduction in transit travel time in both peak hours.

**Table ES-2: Total Circulation Time in Network – Year 2040 Conditions**

Total Circulation Time by Routes (s)		% Change
No-Build A.M. Peak Hour	34,808 sec	
No-Build P.M. Peak Hour	26,856 sec	
4 <sup>th</sup> Street Gateway A.M. Peak Hour	38,547 sec	+11%
4 <sup>th</sup> Street Gateway P.M. Peak Hour	24,416 sec	-9%
Under the Freeway A.M. Peak Hour	29,300 sec	-16%
Under the Freeway P.M. Peak Hour	27,740 sec	+3%
Whistlestop Block A.M. Peak Hour	27,386 sec	-21%
Whistlestop Block P.M. Peak Hour	23,056 sec	-14%

As shown in the table, in Year 2040 conditions, the Whistlestop Block Alternatives provides a greater than 10 percent reduction in transit travel time in both the a.m. and p.m. peak hours relative to the No-Build Alternative. The Under Freeway Alternative provides a reduction in one peak hour, but results in an increase in circulation time in the other peak hour. The increase is the result of routing additional buses through heavily constrained intersections on 4<sup>th</sup> Street.

### ES.5 Traffic Analysis

The microsimulation models developed for each transit center alternative were used to analyze existing (Year 2020) and Year 2040 traffic operations and levels of service. The overall network results for existing conditions are shown in Table ES-3.

**Table ES-3: Network Evaluation – Existing Conditions**

Scenario		Avg Delay/Vehicle	Avg # Stops/Vehicle	Net Change in Delay/Vehicle	Net Change in Delay/Vehicle (%)
Baseline (No-Build)	A.M. Peak Hour	175 sec	4		
	P.M. Peak Hour	123 sec	6		
4 <sup>th</sup> Street Gateway	A.M. Peak Hour	200 sec	4	+25	+15%
	P.M. Peak Hour	144 sec	6	+21	+12%
Under the Freeway	A.M. Peak Hour	170 sec	4	-5	-3%
	P.M. Peak Hour	115 sec	5	-8	-5%
Whistlestop Block	A.M. Peak Hour	175 sec	4	0	--
	P.M. Peak Hour	121 sec	5	-2	-1%

As shown in the table, in the a.m. peak hour, the Under the Freeway Alternative has a small reduction in vehicle delay, the Whistlestop Block Alternatives have no change, and the 4<sup>th</sup> Street Gateway Alternative would result in an increase in delay per vehicle. In the p.m. peak hour, the Under the Freeway Alternative achieves a delay reduction, the Whistlestop Block Alternatives have minimal change, and the 4<sup>th</sup> Street Gateway Alternative would result in an increase in delay per vehicle.

The overall network results for Year 2040 conditions are shown in Table ES-4.

**Table ES-4: Network Evaluation – Year 2040 Conditions**

Scenario		Avg Delay/Vehicle	Avg # Stops/Vehicle	Net Change in Delay/Vehicle	Net Change in Delay/ Vehicle (%)
Baseline (No-Build)	A.M. Peak Hour	276 sec	6		
	P.M. Peak Hour	156 sec	8		
4th Street Gateway	A.M. Peak Hour	313 sec	7	+37	+13%
	P.M. Peak Hour	155 sec	7	-1	-1%
Under the Freeway	A.M. Peak Hour	314 sec	6	+38	+14%
	P.M. Peak Hour	153 sec	6	-3	-2%
Whistlestop Block	A.M. Peak Hour	248 sec	6	-28	-10%
	P.M. Peak Hour	151 sec	8	-5	-3%

The change in delay for all alternatives in both peak hours is equal to or less than 10 percent, except for the 4<sup>th</sup> Street Gateway Alternative and Under the Freeway Alternative in the a.m. peak hour, where the delay per vehicle increase is 13 percent and 14 percent respectively. Both peak hours see a decrease in delay per vehicle with the Whistlestop Block Alternatives.

## ES.6 Non-Motorized Transportation

The transit center alternatives were analyzed to evaluate their connectivity to downtown and local destinations, as well as their ability to connect passengers between different transit services. The 4<sup>th</sup> Street Gateway Alternative is nearest to Downtown San Rafael, which is the greatest trip attractor for passengers at the transit center. The Under the Freeway Alternative is located the farthest away from downtown with the additional barrier of Hetherton Street.

The Whistlestop Block Alternatives consolidate all bus bays within one block along with SMART and closes a public street, meaning that pedestrians do not have to cross any street open to auto traffic to transfer between buses or between a bus and SMART. The 4<sup>th</sup> Street Gateway Alternative requires the greatest amount of 4<sup>th</sup> Street crossings for bus-to-bus transfers. The Under the Freeway Alternative requires the most challenging transfer to SMART, as it requires crossing busy Hetherton Street for that transfer movement.

For bicycle connections, the Whistlestop Block Alternatives would best promote the City’s planned bicycle network by constructing two blocks of the planned North South Greenway Class IV bikeway on Tamalpais Avenue as a high-quality, raised two-way Class IV facility. The 4<sup>th</sup> Street Gateway Alternative would require removal or realignment of one block of the Puerto Suello bike path but would provide effective connections to the Mahon Creek Path and the Puerto Suello bike path. The Under the Freeway

Alternative would not closely integrate with the City’s planned network nor would it affect any planned facilities.

### ES.7 Safety

The safety analysis of the blocks immediately surrounding the Project alternatives identified that the intersections around the transit center and SMART station recently have had collision rates higher than statewide averages. This emphasizes the need to consider pedestrian and bicycle safety and access improvements as a key element of the SRTC Project.

All of the Project alternatives provide several safety advantages relative to the No-Build Alternative. This includes a reduction in pedestrian-vehicle conflicts for most users and the implementation of pedestrian safety treatments, such as high-visibility crosswalks, leading pedestrian intervals (LPis), and enhanced lighting.

Of the build alternatives, the Whistlestop Block Alternatives provide the greatest benefit to pedestrian and bicycle safety by achieving the greatest reduction in pedestrian-vehicle conflicts, placing the transit center closest to the primary destination of downtown San Rafael, locating all transit services within the same block to limit conflicts for transferring passengers, incorporating effective pedestrian safety features, and providing a high-quality bicycle facility to close a critical gap in the City’s bicycle network.

### ES.8 Parking

Each of the alternatives involve some amount of parking removal. The Whistlestop Block Alternatives would remove on-street parking on Tamalpais Avenue between 2<sup>nd</sup> Street and 4<sup>th</sup> Street but would replace most of them with new on-street parking stalls between 2<sup>nd</sup> Street and 3<sup>rd</sup> Street. The 4<sup>th</sup> Street Gateway Alternative would convert existing on-street spaces to curb space used for transit center-related pick-up/drop-off or maintenance vehicle parking. The Under the Freeway Alternative also requires use of some on-street spaces and results in the removal of 72 spaces in existing Caltrans park & ride lots under US 101; Caltrans would require that these spaces be relocated to an undetermined location elsewhere. The overall changes in public parking are shown in Table ES-5.

**Table ES-5: Net Change in Public Parking**

Alternative	Removed		Added		Net Change	
	On-Street	Off-Street	On-Street	Off-Street	On-Street	Off-Street
<b>4th Street Gateway</b>	26	0	0	0	-26	0
<b>Under the Freeway</b>	16	72	0	0 <sup>1</sup>	-16	-72 <sup>1</sup>
<b>Adapt Whistlestop</b>	25	0	8	0	-17	0
<b>Move Whistlestop</b>	25	0	16	0	-9	0

<sup>1</sup> The impacted 72 spaces at the Caltrans park & ride lots will be required to be replaced at a similar location within the existing park & ride driveway; however, no replacement parking area has yet been identified.

## 1.0 Introduction

The Golden Gate Bridge, Highway, and Transportation District (GGBHTD) is currently undertaking a project to identify a new location for the San Rafael Transit Center (SRTC). Sonoma-Marín Area Rail Transit (SMART) was recently extended to Larkspur, bisecting the existing transit center. This has impacted bus operations and passenger movements, creating the need for a new transit center. Through a community-driven process, several alternatives were developed and screened to identify potential new locations for the transit center. In 2018, a Notice of Preparation (NOP) was issued to begin an environmental analysis process per the requirements of the California Environmental Quality Act (CEQA). The NOP identified five project build alternatives. Since the preparation of the NOP, the alternatives have been refined through subsequent design development and the number of build alternatives screened down to three.

The project team has conducted a detailed transportation evaluation of the three build alternatives under consideration, plus a No-Build Alternative. This report documents the evaluation methodology and the results of the analysis.

### 1.1 Project Description

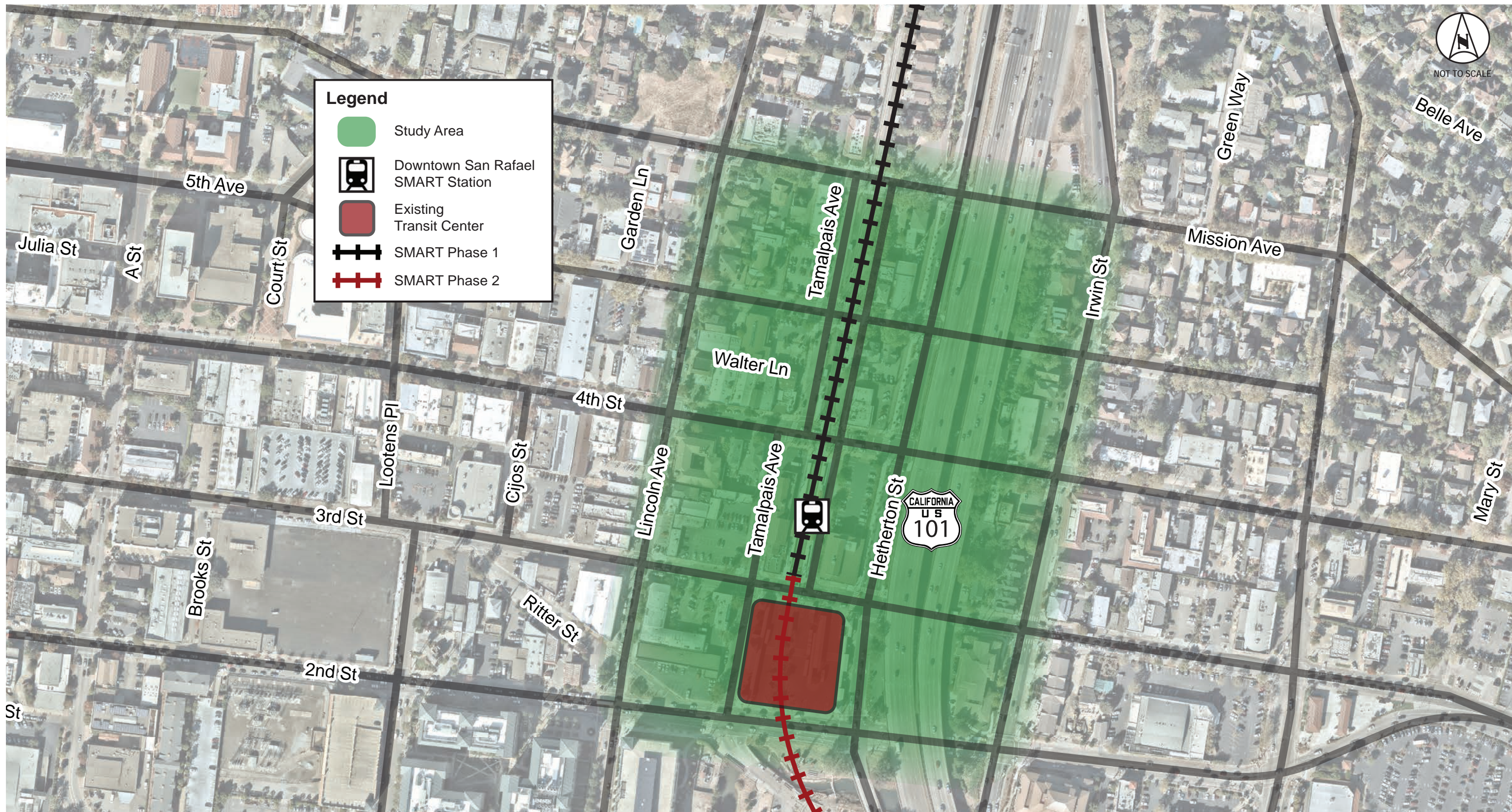
The SRTC, also known as the C. Paul Bettini Transit Center, is owned by GGBHTD. GGBHTD operates Golden Gate Transit (GGT) regional and inter-county bus transit services. The transit center is located in Downtown San Rafael at the intersection of 3rd Street and Hetherton Street (see Figure 1-1). With more than 500 bus trips daily and 17 operating bus bays, the transit center is the largest transit hub in Marin County, providing access to the regional transportation network for area residents and a key transfer point for residents, employees, visitors, and students in San Rafael and the greater North Bay region. The transit center primarily serves bus routes operated by GGT and Marin Transit, but it is also served by airporter, Greyhound, and paratransit services. On weekdays, nearly 9,000 people board/alight buses at the transit center to make their necessary transportation connections. Downtown San Rafael is an important destination, with nearly half of the passengers travelling to or from downtown, and the remaining riders making transfers to other destinations. The bus bays currently are fully occupied at times during the peak-period pulse, leaving little room for growth in bus service.

The new transit center (Project) will include similar facilities to the existing transit center, with additional amenities planned to upgrade technology, provide connections to emerging transportation modes, and enhanced public spaces. Similar to the existing transit center, 17 bays will be provided along with pick-up/drop-off curb space for private autos, taxis, transportation network companies (TNCs), and microtransit. To support transit center operations, the facility will include parking for maintenance/operations vehicles, relief facilities for drivers and other staff, and public restrooms. Other passenger amenities will include facilities, space for customer service and complementary retail, signage/wayfinding, bike parking, security kiosk(s), and urban design elements.



# SAN RAFAEL TRANSPORTATION CENTER

Relocation Analysis, Environmental Clearance, and Preliminary Design



## 1.2 Alternatives

### **No-Build Alternative/Existing Transit Center Site**

In the No-Build Alternative, the transit center would remain at its current location, on the block bound by 2<sup>nd</sup> Street, Tamalpais Avenue, 3<sup>rd</sup> Street, and Hetherton Street. The “interim” transit center configuration constructed as part of the SMART extension would remain. Customer service and vendor facilities would remain at their current location on Platform D. Pick-up/drop-off curb space would remain on the west side of Platform D along Tamalpais Avenue. Bus access/egress would continue to occur via driveways along 2<sup>nd</sup> and 3<sup>rd</sup> Streets. Buses accessing southbound U.S. Highway 101 (US 101) would continue to berth curbside on the east side of Platform A.