



CUPERTINO

BOLLINGER ROAD

Corridor Safety Study

July 2021



In Partnership with:



Prepared by:

Kimley»Horn

1. Study Introduction

Bollinger Road is a 2.0-mile long east-west major collector street that connects between Lawrence Expressway and De Anza Boulevard, two major north-south arterials. The road lies along the border of Cupertino and San José, with Cupertino to the north and San Jose to the south. The road traverses through a residential neighborhood, which is home to four nearby elementary schools, Hyde Middle School, and Cupertino High School.

The City of Cupertino has commissioned the Bollinger Road Corridor Safety Study (“Study”) to identify improvements to create a safer and more accessible corridor for pedestrians, bicyclists, transit riders, and motorists. The project team was composed of staff from the City of Cupertino, the City of San José, and the consultant team Kimley-Horn. The study area for this effort is Bollinger Road from De Anza Boulevard to Lawrence Expressway and can be seen in **Figure 1**.

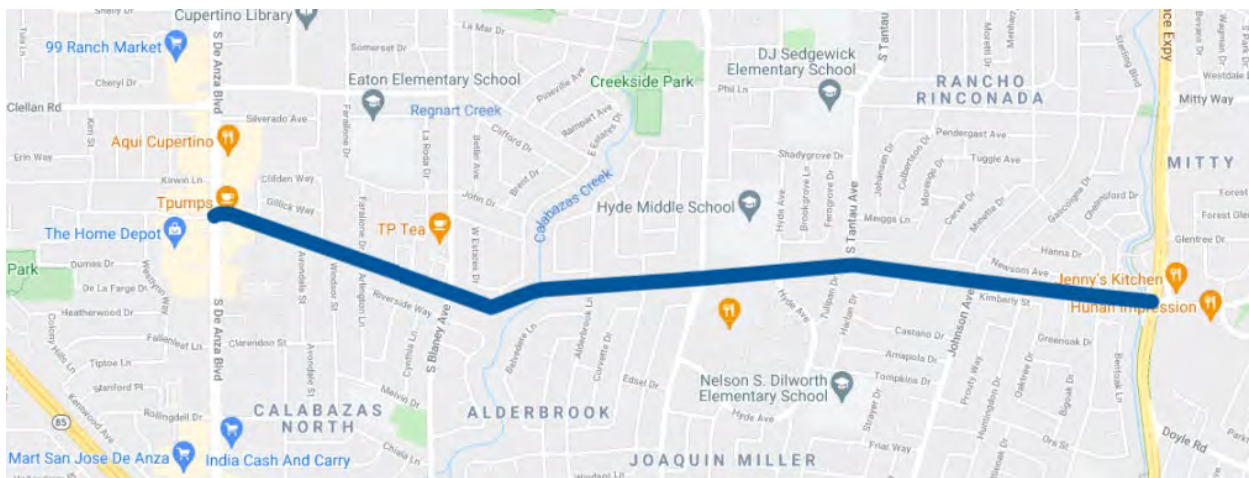


Figure 1. Study Area

As part of the Study, an analysis of existing conditions and a summary of past collisions along the corridor was conducted. This was followed by an online public survey that gathered public input on location-specific improvement needs along the corridor. The feedback from the community was evaluated and used to create two conceptual corridor alternatives. These proposed alternatives were then presented to the community in a neighborhood meeting. Feedback was collected during the meeting as well as through a summarized online survey. The efforts performed for the study are summarized in this report.

2. Existing Conditions

Bollinger Road is a four-lane roadway with two lanes in both the eastbound and westbound directions. The corridor has Class II bike lanes that run parallel to the vehicle travel lanes in both directions. On-street parking is available along most of the corridor in both directions. The parking is not time-constrained nor has any permit requirements. A roadway re-surfacing and re-striping project was recently completed prior to the start of this project in some segments of the corridor. The re-striping project added buffers to the Class II bike lanes in limited sections and high visibility crosswalks for some crossings.

Public transit along the corridor is provided by Santa Clara Valley Transit Authority (VTA) which operates Route 25 with several stops along the corridor in both directions. Most stops lack amenities such as shelters, trash receptacles, real-time arrival information, and benches.

The corridor has complete sidewalk coverage on both sides of the street for the length of the corridor. It should be noted that parts of the corridor have overgrown shrubbery which reduces the effective sidewalk width. One of the observed conditions was the limited number of pedestrian crossings along Bollinger Road. There are crossings available at the six signalized intersections and one unsignalized crossing at Harlan Drive. The side-streets approaching Bollinger Road also have limited sidewalk striping. This makes it challenging, especially for transit riders and students, to access their destinations or stops.

2.1 Collision Analysis

A collision analysis was conducted for the study area. The data was collected from the Statewide Integrated Traffic Records System (SWITRS) for a five-year period from January 1, 2015 to December 31, 2019. **Table 1** below shows the total collisions by mode, as well as how many incidents involved pedestrians, bicyclists, motorcyclists, and autos.

Table 1. Collision Summary by Accident Types

Collision Types	Number of Collisions by Type of Users (2015-2019)				Injuries* (Number of People)	Fatalities
	Auto	Pedestrian	Bicyclist	Motorcyclist		
Head-On	10	-	7	-	4	0
Sideswipe	13	-	0	-	3	0
Rear End	39	-	1	-	16	0
Broadside	37	-	1	1	14	0
Hit Object	21	-	3	1	9	0
Overtaken	4	-	0	-	1	0
Vehicle/Pedestrian	1	2	0	-	1	2
Other	6	-	4	-	4	0
Grand Total	131	2	16	2	52	2

Source: Statewide Integrated Traffic Records System (SWITRS), 2015-2019

* The total number of auto collisions captures all pedestrian, bicyclists, and motorcyclists accidents.

Two reported pedestrian collisions occurred in the area, both of which resulted in fatalities. These pedestrian collisions occurred at Miller Avenue and at Wunderlich Drive. 12% of collisions involved a bicyclist. To get a better understanding of the collisions that occurred, the location of each collision was also tabulated and can be found in **Table 2**.

Table 2. Collisions by Intersections

Intersection	Head-On	Sideswipe	Rear End	Broadside	Hit Object	Overturned	Vehicle/Pedestrian	Other	Not Stated	Vehicle/Bicyclist*	Total
Bollinger Rd & Alderbrook Ln	3	2	4	2	-	-	-	-	-		11
Bollinger Rd & Avondale St	-	1	4	-	-	-	-	-	-		5
Bollinger Rd & Blaney Ave	-	1	1	2	1	-	-	1	-	1	6
Bollinger Rd & Clifden Way	1	1	1	-	1	1	-	-	1		6
Bollinger Rd & De Anza Blvd	-	2	9	7	-	1	-	1	2	1	22
Bollinger Rd & Estates Dr	-	-	-	1	1	-	-	1	-		3
Bollinger Rd & Harlan Dr	1	-	2	-	-	-	-	-	-		3
Bollinger Rd & Hyde Ave	-	2	5	2	-	-	-	-	-	1	9
Bollinger Rd & Johnson Ave	-	-	3	-	1	-	-	-	-		4
Bollinger Rd & Lancer Dr	-	1	2	1	-	-	-	-	-		4
Bollinger Rd & Lawrence Exp	1	3	7	3	-	-	-	-	1		15
Bollinger Rd & Miller Ave	-	3	12	1	-	-	1	2	-	2	19
Bollinger Rd & Narcisco St	-	-	2	-	-	-	-	-	-		2
Bollinger Rd & Tantau Ave	-	2	1	3	4	-	-	-	1		11
Bollinger Rd & Whiteoak Dr	-	-	-	-	1	-	-	-	-		1
Bollinger Rd & Windsor St	-	-	-	1	-	-	-	-	-		1
Bollinger Rd & Wunderlich Dr	-	1	-	6	1	-	1	-	3		12
Grand Total	6	19	53	29	10	2	2	5	8	5	134

Source: Statewide Integrated Traffic Records System (SWITRS), 2015-2019

*Vehicle/Bicyclist collisions are accounted for under each violation type.

Cells highlighted in red indicate fatalities.

40% of all the collisions reported in the study area were rear-end collisions. 15% of those rear-end collisions were attributed to unsafe speed. 16% of the collisions were broadside collisions due to improper turning, driver or bicyclist under the influence, misuse of traffic signals or signage, and right-of-way conflicts.

Collisions are typically correlated to volume of traffic; streets with more vehicles or activity will have more collisions. This is reflected in the data for the intersections at De Anza Boulevard, Miller Avenue, and Lawrence Expressway, ranking as the locations with the most collisions. It should be noted, however, that locations such as Wunderlich Drive and Clifden Way had a relatively large number of collisions as well despite being lower volume residential streets. Both streets are in proximity to the major De Anza Boulevard and Lawrence Expressway intersections.

3. Community Priorities for Improvement

The study utilized community input to better understand improvement needs and focus areas. The public engagement process was modified in response to the COVID-19 pandemic to be entirely virtual, consistent with state and county health guidelines at the time of collection. This virtual process still allowed for multiple engagement points with the community and resulted in a significant level of response from residents.

An interactive corridor map and survey were created on Social PinPoint. Social PinPoint is a customizable community engagement platform. Notifications regarding the study and the round of outreach were posted on the City of San José and City of Cupertino website and social media channels. Additionally, postcards were e-blasted to residents in the study area. These websites can be accessed through the following links:

<https://engagekh.com/bollingerroad>

<https://www.cupertino.org/our-city/departments/public-works/transportation-mobility/bollinger-road-corridor-safety-study>

During this initial public input round, members of the public could comment from February 5 until February 26, 2021.

The survey included five questions asking respondents general demographic information, their mode of travel and relation to Bollinger Road. There were 247 survey responses. The responses to the questions can be found below:

- What is your relationship to Bollinger Road? Please select all that apply. (**Figure 2**)
- How often do you travel on Bollinger Road? (**Figure 3**)
- How do you travel on Bollinger Road? Select all that apply. (**Figure 4**)
- What is your race or ethnicity? (**Figure 5**)
- What is your age? (**Figure 6**)

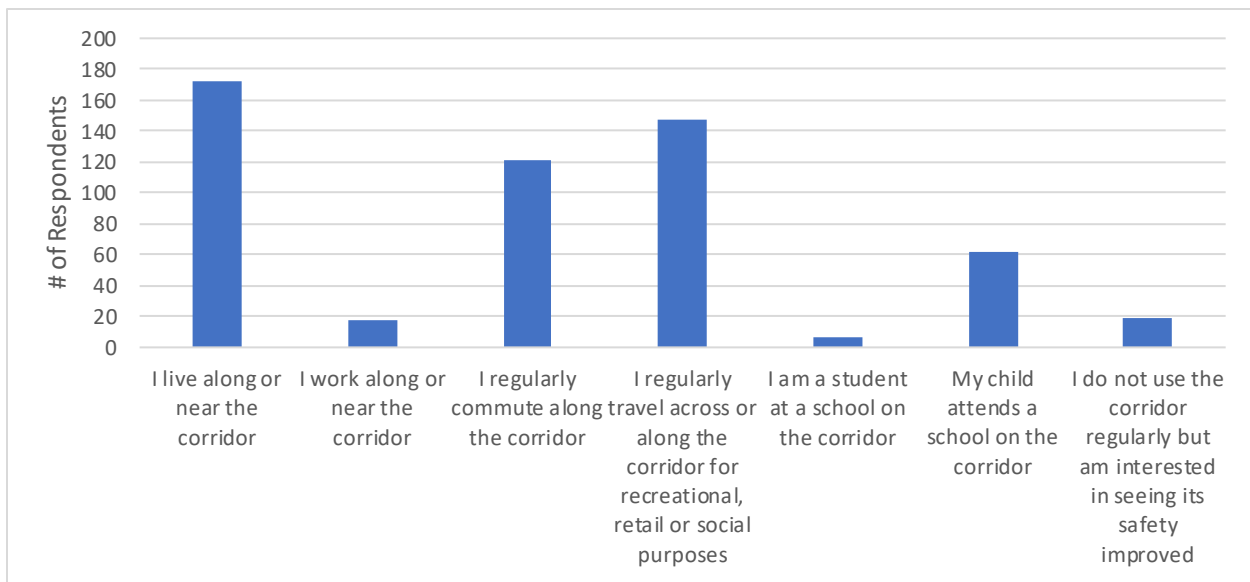


Figure 2. Survey Question – Relationship to Bollinger Road

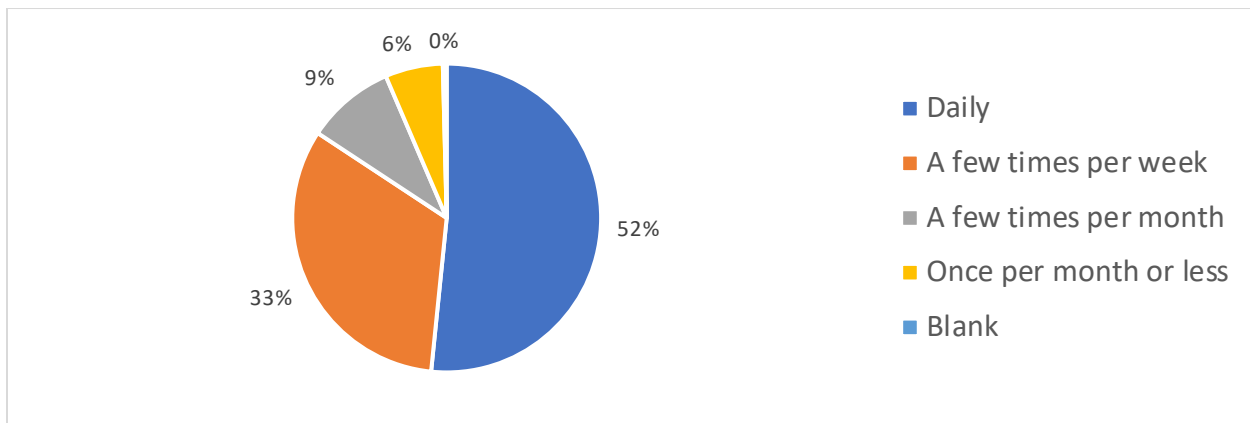


Figure 3. Survey Question – Regularity of Travel on Bollinger Road

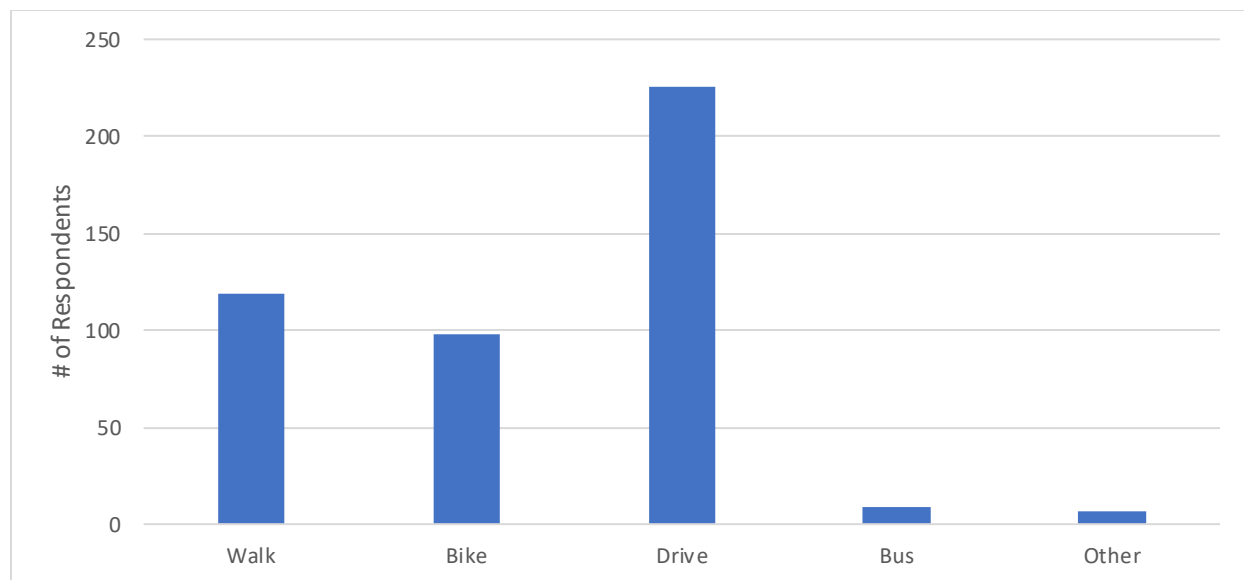


Figure 4. Survey Question – Mode of Travel on Bollinger Road

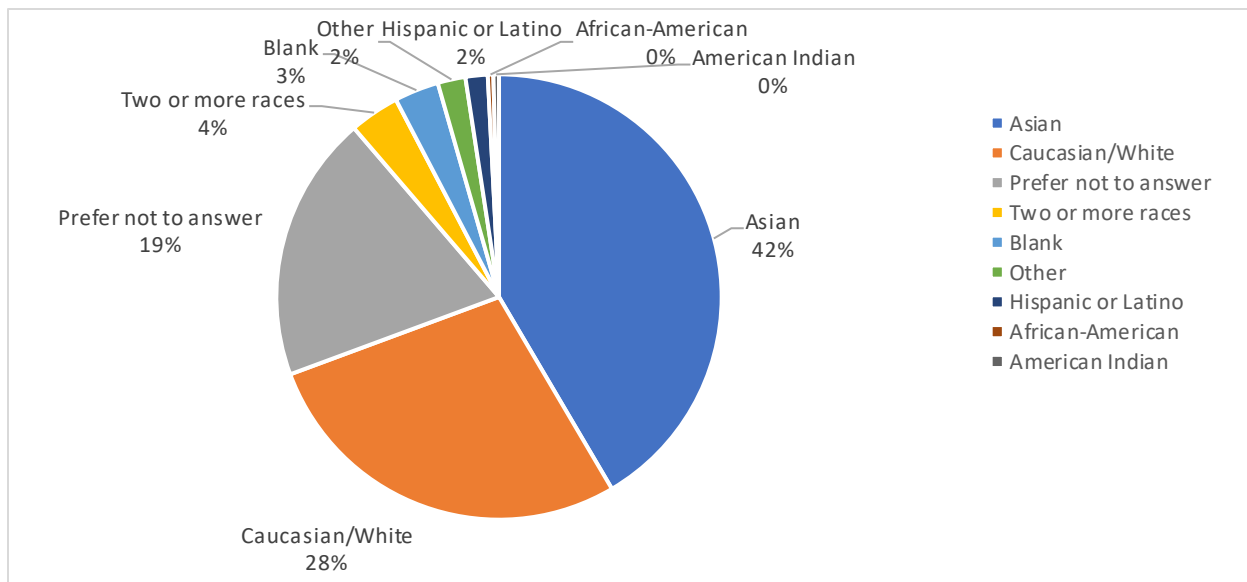


Figure 5. Survey Question – Race/Ethnicity of Respondents

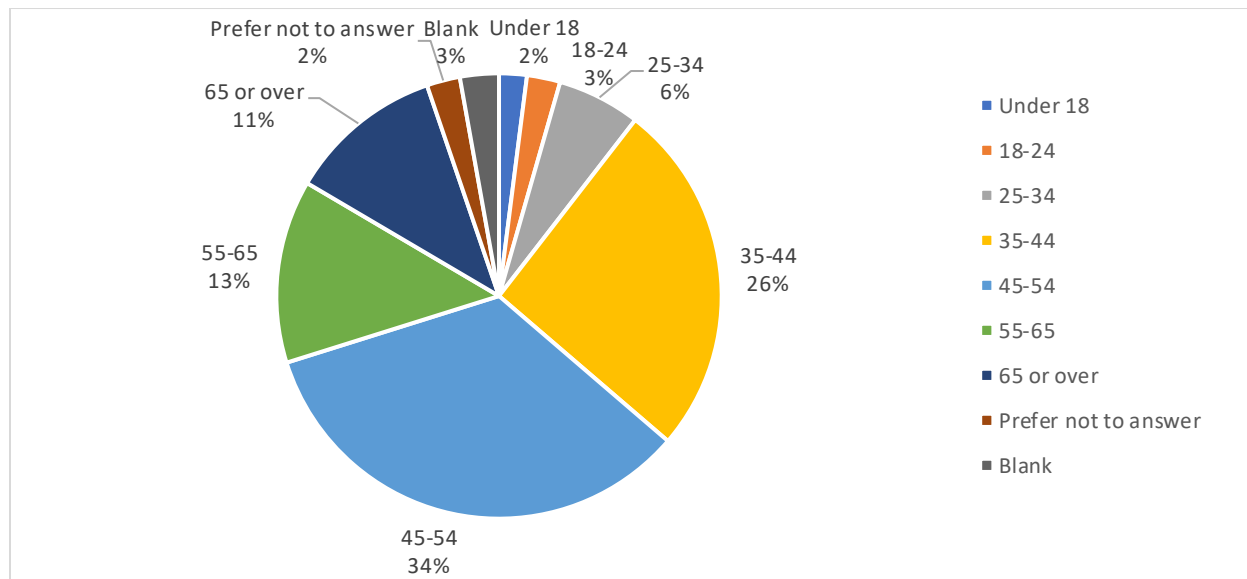


Figure 6. Survey Question – Age of Respondents

For the interactive corridor map, community members were asked to drag pins to provide ideas and suggestions, identify something they like, make a comment, or make a suggestion at specific locations within the project area. They were also able to review other individuals' comments and give each comment they supported a "thumbs-up" or "thumbs-down". There was no limit to how many comments each individual could post or the number of comments they could support or oppose. There were 147 interactive feedback map comments and 734 comment engagements (thumbs-up/thumbs-down). These pins from the community are shown in **Figure 7**.

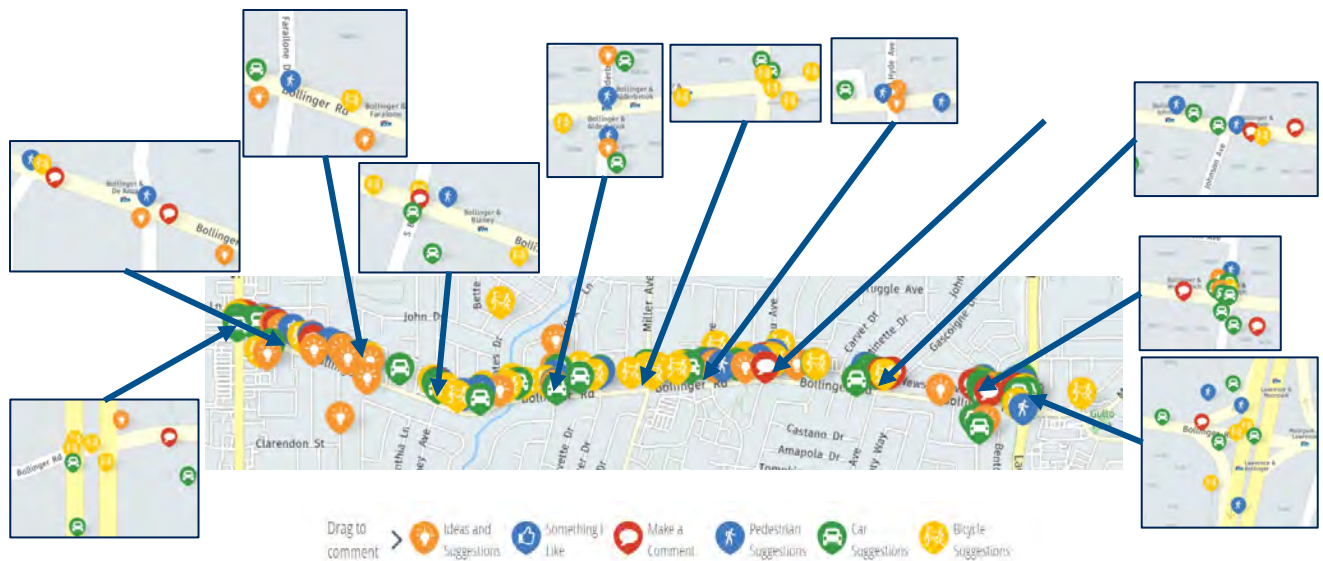


Figure 7. Interactive Map Feedback

These responses helped guide the project team on the areas of need and what the community deemed as priorities. These priorities are ranked in **Table 3** where the values closest to 5 indicate the highest priority and those closer to 1 being a lower community priority.

Table 3. Community Priorities

Category	Average Prioritization Rating
New or safer crossings at intersections for pedestrians and bicyclists	4.2
Safer or more comfortable bike lanes	3.8
Reduce vehicle speeds	3.7
Reduce vehicle congestion	3.7
Better lighting	3.6
Safer or more comfortable sidewalks	3.4
Improvements for people with disabilities	3.3
Better landscaping	2.7
Better access and amenities at bus stops	2.6

The priorities identified by the community were similar to the challenges identified by the project team while studying the existing conditions on the project corridor. These priorities included the

desire for more and safer pedestrian and bicycle crossings, improved bicycle facilities, and slower vehicle speeds. The community-mapped locations for improvement were most concentrated at signalized intersections and some of the unsignalized side-street approaches. Feedback and comments were carefully reviewed to ensure that proposed improvements aligned with the community's identified needs.

The feedback collected during this round of outreach is sorted in categories and provided in **Appendix A**.

4. Concept Development and Improvements

The responses and suggestions provided in the first round of outreach were used to guide concept development. After determining the needs, the project team identified specific improvements that would address the challenges on the project corridor. Two alternatives were created to reflect different priorities and strategies for improving the corridor. Alternative A includes a road diet where the road would be reduced to one travel lane in each direction, including the provision of a center two-way left turn lane. Alternative B maintains the existing lane configuration while providing spot improvements, primarily at intersections.

4.1 Safety Improvements

Although there are differences in the two alternative concepts, there were safety improvements identified that are common to both concepts. This section aims to describe these common elements as well as those particular to one of the concepts and how they improve safety.

The following safety improvement elements are provided in both concepts:

- Class IV Cycle Track



Source: Kimley-Horn

Cycle tracks provide separated travel lanes for bicycles in the road right-of-way. Separation from vehicle traffic is achieved via raised protection, which may consist of bollards, concrete curbs or planters, parked cars, or a combination of these features.

- Speed Feedback Signage



Source: Carmanah Technologies

Speed feedback signage provide drivers in vehicles with visual feedback of their speed in relation to the posted speed limit. When complemented with police enforcement, speed feedback signage can be an effective tool for reducing speeds at a desired location.

- High-Visibility Pedestrian Crossings



Source: NACTO

High-Visibility Pedestrian Crossings help make crosswalks and pedestrians more visible to vehicles, increasing yielding behavior.

- Bike Boxes



Source: NACTO

Bike boxes are green-painted areas installed at an intersection between the auto stop bar and the pedestrian crosswalk, allowing bicyclists to move to the front of the auto queue, making them more visible as they enter the intersection first.

- Two-Stage Turn Queue Boxes



Source: NACTO

Two-stage turn queue boxes are green-painted rectangles installed at intersections. These two-stage boxes allow bicyclists a space to safely queue when attempting a left-turn onto another street as well as improving their ability to safely make their turning movement. This allows cyclists to remain on the right-side of the road instead of being required to merge across to access a left-turn lane.

- Curb Radii and Free-Right Turn Removals



Source: Kimley-Horn

Curb radius affects vehicle turning speeds and pedestrian crossing distances. Reducing the corner radius requires vehicles to slow down and thus be more likely to yield to pedestrians in a crosswalk. Free-right turns occur where slip lanes exist or at intersections with 'pork-chop islands' when vehicles do not need to stop at a signal light before making the turn. Since these are designed for unimpeded vehicle movement, they may be more hazardous for pedestrians and removing them can enhance pedestrian safety.

- Leading Pedestrian Intervals (LPI)



Source: City of Long Beach

Leading Pedestrian Intervals give pedestrians a head start before the corresponding signal movement also turns green. This head start time can vary but is typically at least 3 seconds. LPI allows pedestrians to enter the crosswalk before cars enter the intersection and makes them more visible to drivers that are making a turn.

The following safety improvement elements are only provided in Alternative A:

- Rectangular Rapid Flashing Beacon (RRFB)



Source: Pedestrian Safety Guide and Countermeasure Selection System

A RRFB is a warning device that is activated by a button at a crosswalk. When activated, the beacon flashes yellow for a period of time that would allow a pedestrian to traverse the crossing, reminding drivers of their legal duty to yield to pedestrians using a crosswalk. Studies have shown that RRFB use increases driver yielding to pedestrians.

The following safety improvement elements are only provided in Alternative B:

- Pedestrian Hybrid Beacon (PHB)



Source: FHWA

A Pedestrian Hybrid Beacon is a traffic control device that is activated by a pedestrian or bicycle user trying to cross a roadway. The PHB provides a solid red indicator requiring drivers to stop and allow pedestrians to cross. It then flashes yellow during the “flashing don’t walk” time to allow autos to proceed once the pedestrian has safely crossed.

- Transit Islands



Source: San Francisco Bicycle Coalition

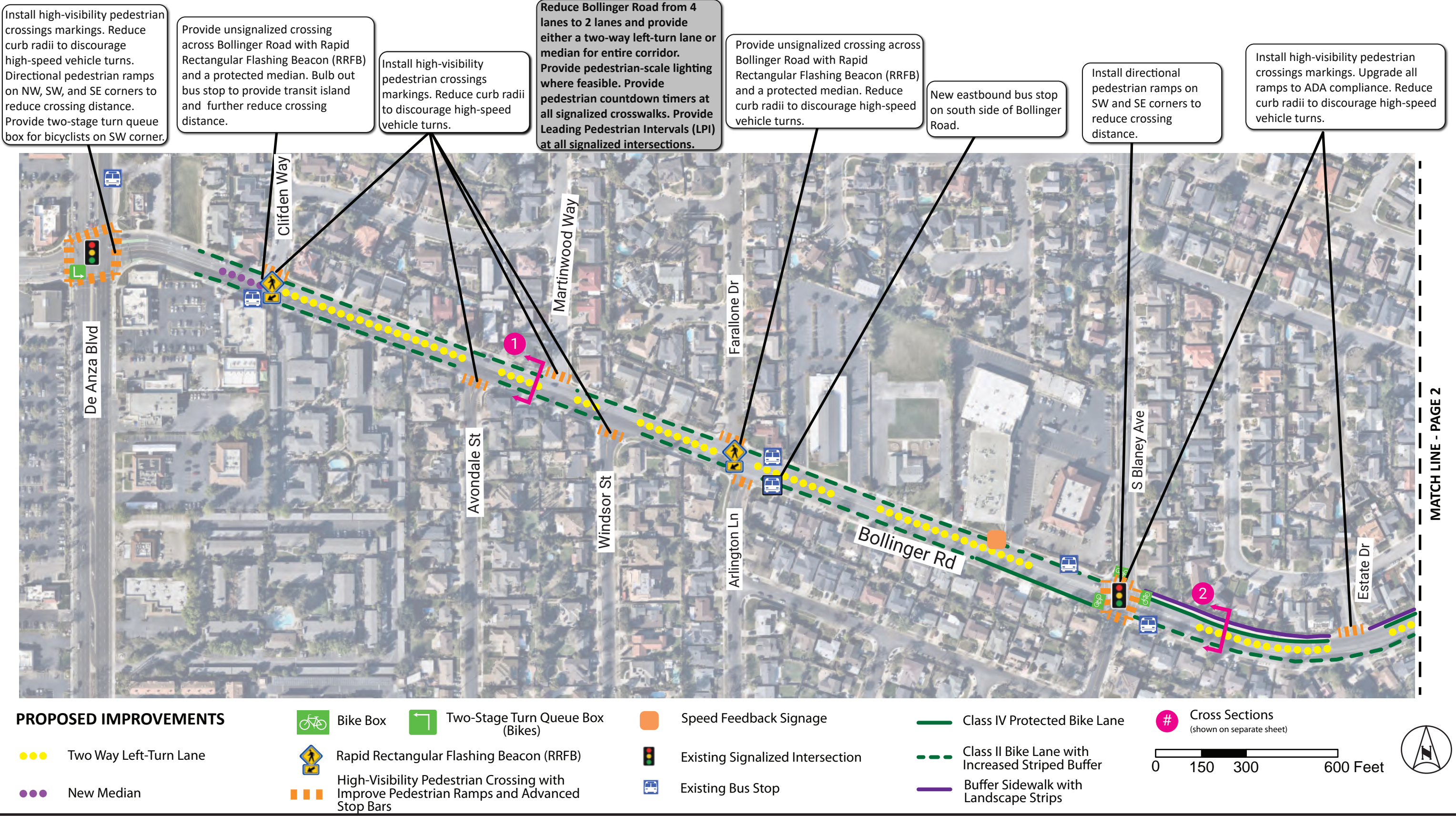
Transit islands are dedicated waiting and boarding areas for passengers that can help improve transit reliability and accessibility by allowing in-lane stops. Transit islands also eliminate bicycle-transit conflicts with the provision of a bicycle passageway behind the station.

4.2 Alternative A

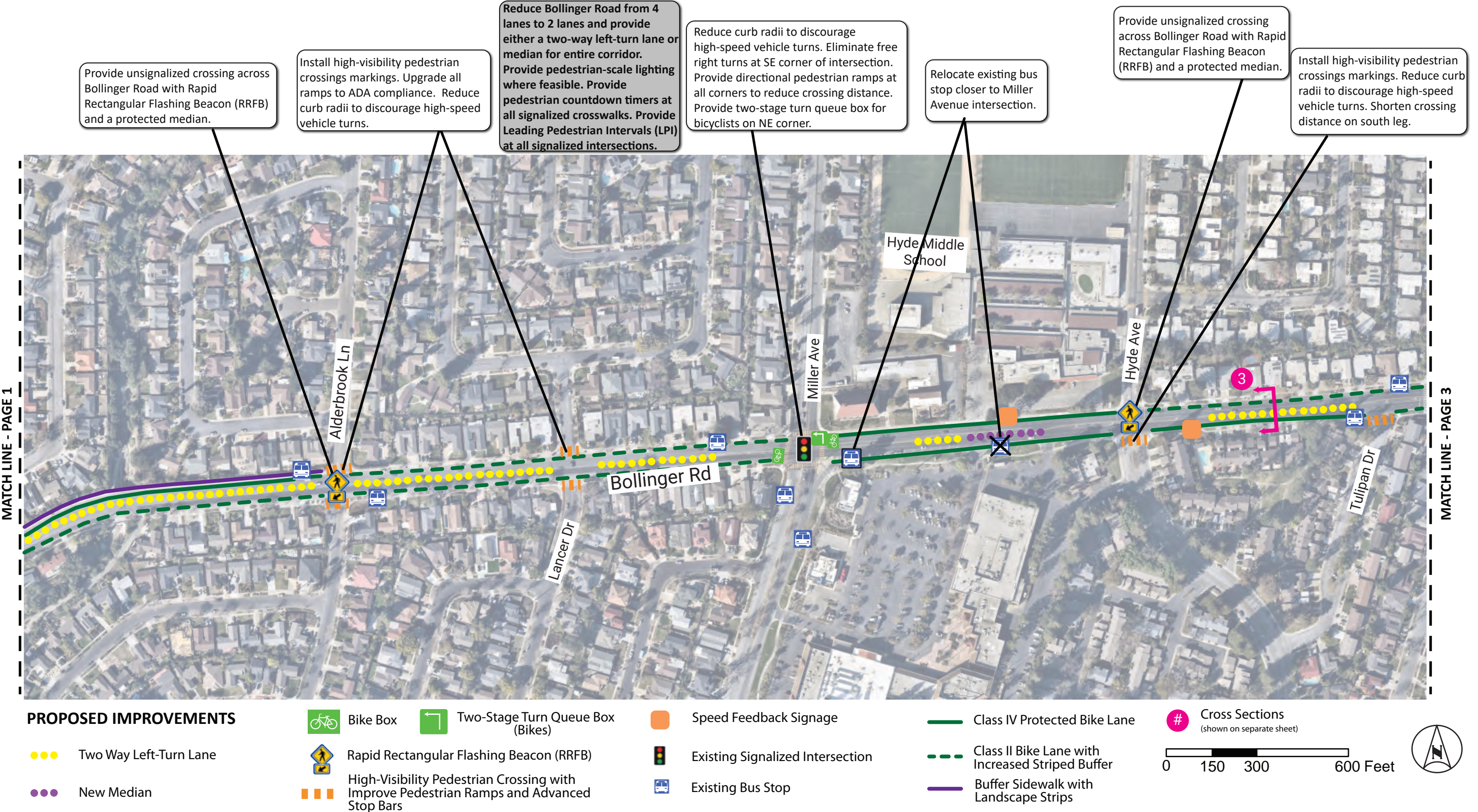
Alternative A includes a lane reduction on Bollinger Road, from two travel lanes in each direction to one travel lane in each direction and a two-way left-turn lane. Though there are similar elements between both alternatives, this concept provides more safety improvements for pedestrians and bicyclists. This includes longer stretches of protected Class IV bicycle facilities and more pedestrian crossings. This alternative includes some pedestrian crossings across Bollinger Road that are not shown in Alternative B because the reduced travel lanes allow for increased safety and comfort of pedestrian crossings. The safety elements included in this alternative are:

- Bike boxes
- Two-stage turn queue boxes
- RRFB
- Speed feedback signage
- Class IV protected bike lanes
- High-visibility pedestrian crossings

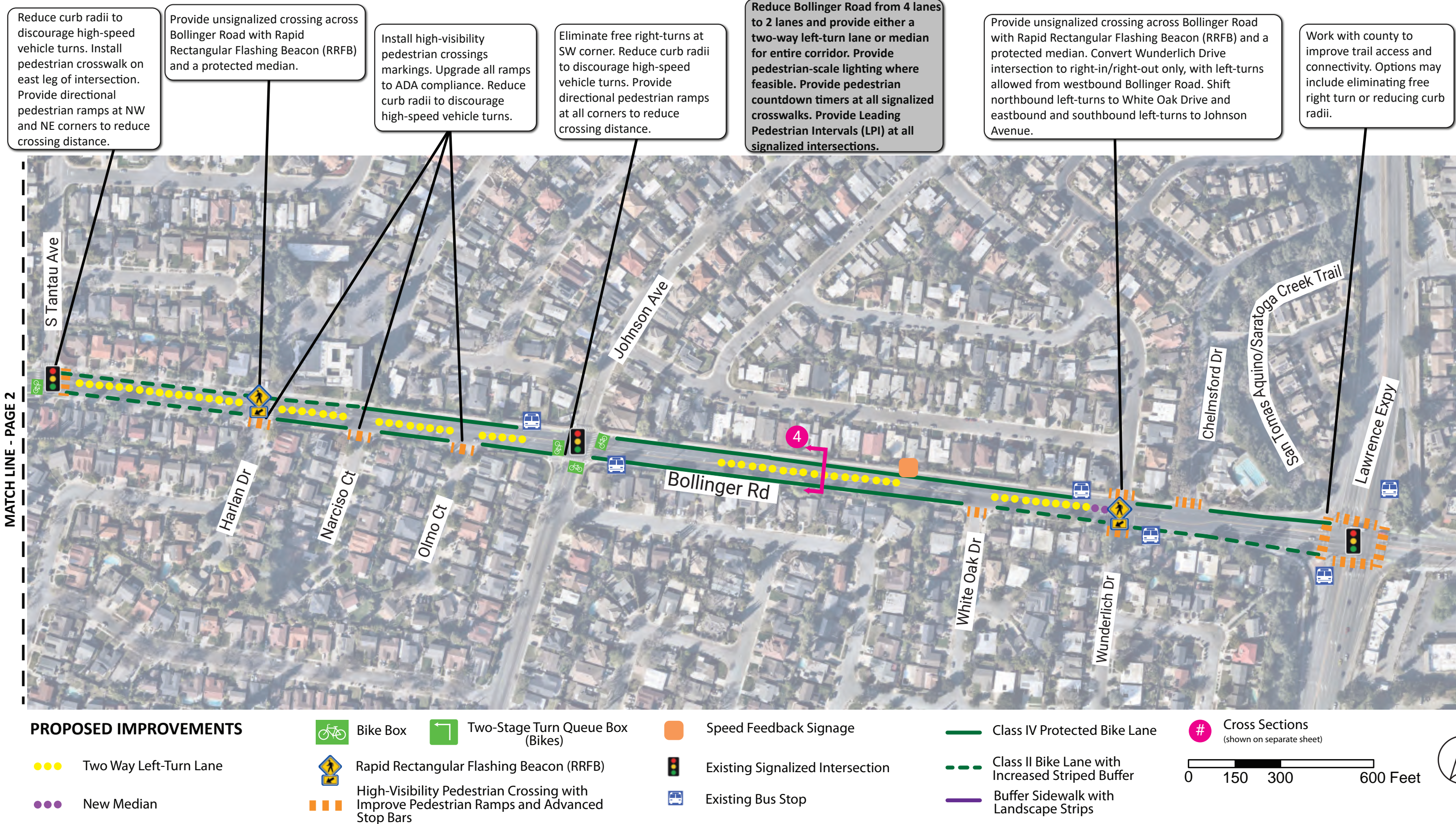
One potential drawback to this alternative is the possible increase in vehicle delays and congestion on the corridor. To better understand these impacts, a complete traffic analysis may need to be conducted. Parking protected bicycle lanes were considered as part of this alternative but were not ultimately included due to the number of residential driveway conflicts. The alternative is shown in **Figure 8**. The cost estimate for this concept is provided in **Appendix B**. The cross-section for the alternative is in **Appendix C**.



CONCEPTUAL - FOR DISCUSSION ONLY



CONCEPTUAL - FOR DISCUSSION ONLY



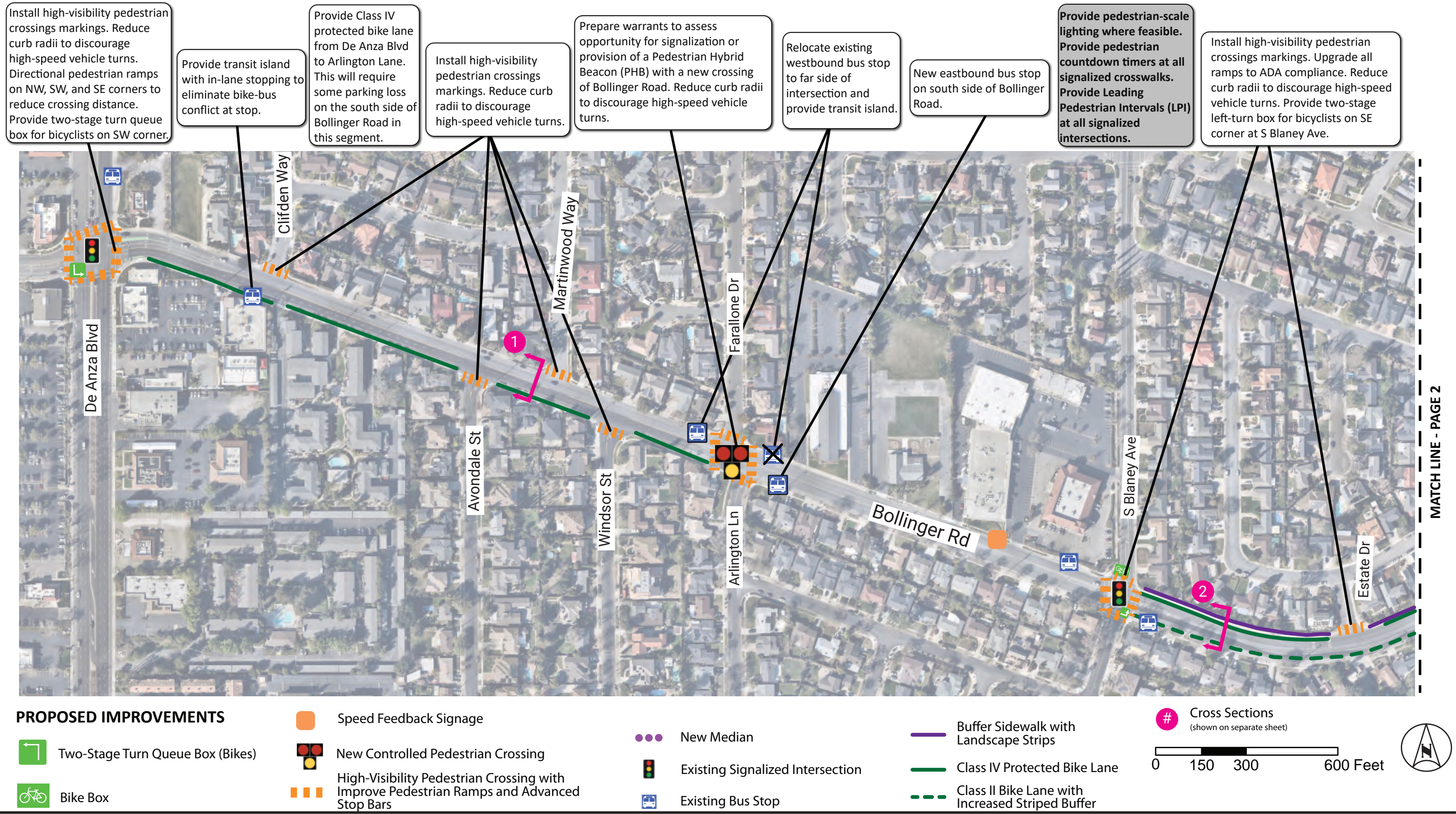
CONCEPTUAL - FOR DISCUSSION ONLY

4.3 Alternative B

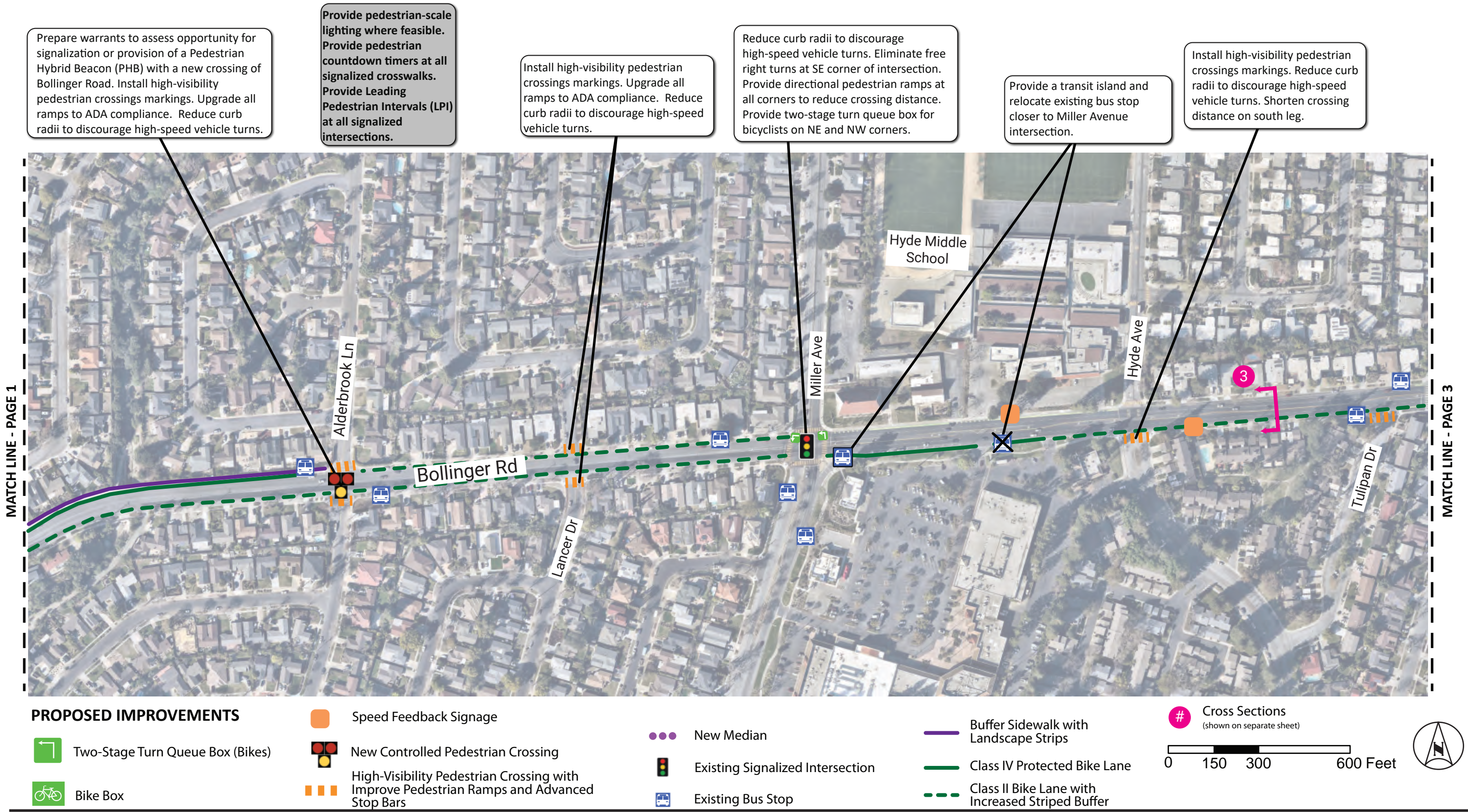
Alternative B maintains the existing lane configuration of two travel lanes in each direction. This concept is more limited in the safety improvements that can be recommended due to right-of-way constraints. There were still opportunities to provide protected Class IV facilities in limited segments while maintaining existing on-street parking. One of the main differences from Alternative A is the fewer number of pedestrian crossings. Maintaining four lanes of travel makes it undesirable to provide new uncontrolled pedestrian crossings due to safety concerns. Another difference from Alternative A is the inclusion of transit islands in limited locations. These in-lane bus stops would reduce transit delays and remove the bus-bike conflict at stops. These are not proposed in Alternative A as there is only one travel lane in each direction in that concept, which would prevent autos from bypassing a dwelling bus. The safety elements proposed in this alternative are:

- Bike boxes
- Two-stage turn queue boxes
- RRFB
- High-visibility pedestrian crossings
- Speed feedback signage
- Class IV protected bike lanes
- PHB

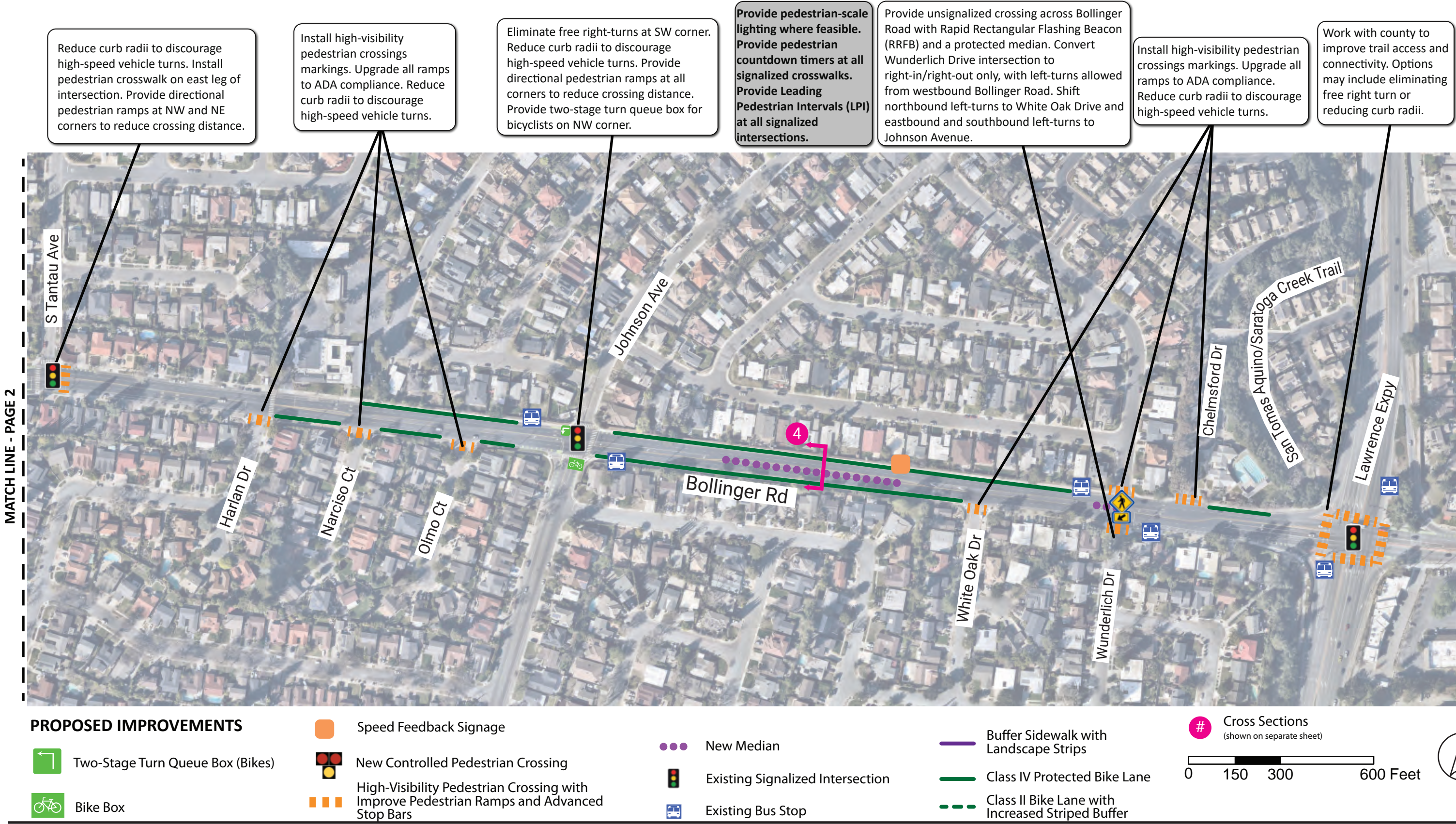
The alternative is shown in **Figure 9**. The cost estimate for this concept is provided in **Appendix B**. The cross-section for the alternative is in **Appendix C**.



CONCEPTUAL - FOR DISCUSSION ONLY



CONCEPTUAL - FOR DISCUSSION ONLY



CONCEPTUAL - FOR DISCUSSION ONLY

5. Community Input on Concepts

After the improvement concepts were developed, a virtual neighborhood meeting was held on May 19, 2021. Notifications were sent to residents and those who responded during the first round of outreach. These outreach for this event was similar to the first round of outreach. The meeting included a presentation introducing the study, explaining the existing conditions, summarizing the first round of outreach, and then explaining both proposed concepts along with their key attributes and differences. The meeting also included an interactive discussion session where attendees were able to provide written or verbal questions.

The feedback during this meeting was supportive and appreciative of the study efforts. There were some concerns regarding how improvements would impact traffic but most of the attendees had a positive view of Alternative A and liked many of the safety improvements proposed in the concept. All participants were informed that feedback on the alternatives is encouraged following the meeting, and information regarding the project website and how to provide suggestions and comments on the alternatives was provided.

The two improvement concepts were provided on the website and a survey was created to allow for feedback on the concepts. Similar to the interactive feedback map, respondents were able to drop pins at specific locations with "Something I Like", "Ideas and Suggestions", "Something I'd Like to Change", and "Make a Comment". The surveys were open for comments and feedback from May 12 until June 6, 2021.

The feedback for Alternative A is shown in **Figure 10** and the feedback received for Alternative B is shown in **Figure 11**.

Alternative A received 66 comments and had 139 unique users view the engagement map. As can be seen in **Table 4**, there were more positive, or supportive, rather than negative comments on Alternative A. However, there were also more thumbs down, representing people who disagreed with those positive sentiments, than there were those who agreed. Similarly, there were fewer negative comments but more support for those comments that critiqued the concept. There was a nearly even split between people commenting or suggesting they wanted to change something with the concept as those who liked something with the concept. Most of the negative comments were associated with traffic concerns. There was very limited, if any, disapproval of any of the specific recommendations that would benefit pedestrian or bicycle safety.

Table 4. Alternative A Engagement Summary

Type of Engagement	# of comments	Thumbs Up	Thumbs Down
Positive Comments	24	55	92
Negative Comments	4	32	19
Spot Improvements	20		
Something I Like	15		
Something I'd Like to Change	12		
Unique Users	139		

Alternative B received 25 comments with 81 unique users viewing the engagement map. The engagement types are summarized in **Table 5**. Alternative B had more negative comments and things they would like to see changed in the concept. Most of the negative comments were seeking elements that are shown in Alternative A but were not included in Alternative B due to right-of-way constraints and safety concerns associated with providing those improvements while maintaining existing lane configuration.

Table 5. Alternative B Engagement Summary

Type of Engagement	# of comments	Thumbs Up	Thumbs Down
Positive Comments	3	2	0
Negative Comments	7	21	7
Spot Improvements	10		
Something I Like	3		
Something I'd Like to Change	11		
Unique Users	81		

The complete list of comments received for both alternatives is provided in **Appendix D**.

6. Conclusions and Next Steps

The Bollinger Road Corridor Safety Study was a high-level feasibility assessment of project needs, opportunities, and potential solutions for further consideration. The Study identified a range of improvements that would benefit pedestrian, bicycle, and auto safety along the Bollinger Road corridor. Based on this Study, funding for future project phases and project implementation can be pursued.

The Study found a high level of community support for improvements that prioritized pedestrian and bicycle safety on the Bollinger corridor. In particular, improvements that encouraged improved crossings on Bollinger Road and better access to schools were particularly well supported. Overall support for a road diet was strong among many community members, although not universal.

Once funding is identified further design and analysis work will be required. This includes a topographic and utilities survey of Bollinger Road, preliminary engineering and final design, and traffic analysis. The traffic analysis should determine the potential for the road diet (Alternative A) to increase congestion or divert traffic onto residential streets, and any corresponding mitigation measures to limit that impact. Community outreach efforts should continue in future project phases to ensure community awareness and support of the project.

The improvements proposed in this study are not expected to be constructed or implemented as one comprehensive project. There are likely to be opportunities for grant funding to implement portions of the project, consistent with grant funding availability or specific grant purposes. Potential funding sources include the 2016 Measure B sales tax, the statewide Active Transportation Program (ATP), and the statewide Highway Safety Improvement Program (HSIP). Additional elements for further study include the implementation of pedestrian-scale lighting along the corridor and improvements to trail access.

7. Appendix

Appendix A. Community-Identified Needs from Survey #1 (March 2021)

Type	Threads	Comment	Up Votes	Down Votes
Protected Bike Lanes			78	
Bicycle Suggestions	Bicycle Suggestions-06	Cars drive way too fast on Bollinger which makes it very unsafe for cyclists. We need protected bike lanes in both direct	19	5
Bicycle Suggestions	Bicycle Suggestions-01	The whole road needs a physically seperated bike lane from traffic. Please put this lane in between the sidewalk and the	19	8
Bicycle Suggestions	Bicycle Suggestions-11	Bike lanes should be protected along the length of Bollinger. If only painted (buffered), then at least near the curve east	18	2
Bicycle Suggestions	Bicycle Suggestions-08	Buffered bike lanes are required on this stretch of road for the entire length.	14	2
Bicycle Suggestions	Bicycle Suggestions-25	I have two middle school boys and they will be biking to their high school everyday. I would like to see Bollinger add a w	1	0
		Please add a separated bike lane for our kids to bike to school.		
		The cars speed very fast and it is dangerous to bike on this street.		
Bicycle Suggestions	Bicycle Suggestions-35	I also bike to work using this street.	0	0
Bicycle Suggestions	Bicycle Suggestions-38	Protected bike lanes are required along stretch of Bollinger due to the high speeds on Bollinger. If we are to retain stree	0	0
Bollinger/Wunderlich			75	
		Intersection with Wunderlich Dr is unsafe, and many accidents have happened here. This intersection is very busy, but gives insufficient visibility for drivers making left turns to and from Wunderlich.		
Car Suggestions	Car Suggestions-05	Adding a traffic light would make the intersection much safer.	16	3
Car Suggestions	Car Suggestions-07	Adding a smart traffic light at this intersection with protected left turns would benefit traffic during school start and fini	16	1
Car Suggestions	Car Suggestions-16	A safer option to turn left on to Wunderlich that leads to Murdock Portal Elementary School.	8	0
Make a Comment	Make a Comment-03	Adding a smart traffic light at this intersection with protected left turns would benefit traffic during school start and fini	7	1
Ideas and Suggestions	Ideas and Suggestions	Would be better if left turn is allowed here	3	9
Car Suggestions	Car Suggestions-19	crossing the road from wunderlich dr (sj side) to wunderlich dr (cupertino side) is very hard. There should be some light	2	0
Car Suggestions	Car Suggestions-20	The intersection is very close to Bollinger & Lawrence which makes it hard to add another traffic light here. Should	2	0
Pedestrian Suggestions	Pedestrian Suggestion	It's difficult for drivers to see the pedestrian crossing from Bollinger onto Wunderlich. Drivers are still driving fast after	2	0
Ideas and Suggestions	Ideas and Suggestions	On Bollinger between Lawrence and Johnson, there is no way for pedestrians to cross. There should be pedestrian cross	1	0
Ideas and Suggestions	Ideas and Suggestions	There should be a bumper or speed light control just before Wunderlich. Cars coming on the direction from Johnson to	1	0
Car Suggestions	Car Suggestions-32	Making a left turn from the Cupertino side of Wunderlich onto Bollinger is stressful and dangerous. People from Lawrer	1	0
Car Suggestions	Car Suggestions-33	Add a concrete median on Wunderlich Drive's Cupertino side to prevent left hand turns onto Bollinger. It will reduce ac	1	0
Car Suggestions	Car Suggestions-31	The dedicated left hand turn lane from Bollinger onto Wunderlich was eliminated when the streets were last repainted.	0	0
		Several pedestrians have been killed here jay-walking across Bollinger at night. I believe they are getting off at the bus stop and don't want to walk down to Lawrence for the light. They are practically invisible at night.		
		Better lighting?		
Pedestrian Suggestions	Pedestrian Suggestion	Move the bus stop?	0	0
		There is a need for a traffic light at Bollinger and Wunderlich. I know it is too close to the light at Lawrence and Bollinger but the new light can be coordinated with the light at Lawrence so there is less disruption to the Bollinger traffic.		
		This new light will make Wunderlich more useable for cars that now have to make U-turns or take a longer route just		
Ideas and Suggestions	Ideas and Suggestions	to avoid this intersection.	0	2
Bike/Ped Improvements at Bollinger/Lawrence			75	
Pedestrian Suggestions	Pedestrian Suggestion	Potential for vehicle/pedestrian collision for vehicles turn right from Lawrence Expressway onto Bollinger when runners	19	0
Car Suggestions	Car Suggestions-04	Reduce vehicle speeds, it's dangerous for pedestrians and cyclists along the street	11	3
Pedestrian Suggestions	Pedestrian Suggestion	There is a pedestrian crossing here, but no light for traffic to stop. Perhaps a pedestrian operated light will help.	7	0
Bicycle Suggestions	Bicycle Suggestions-16	there is no bike path at the intersection, need to create a space for cyclists to wait for the light to change	6	1
Pedestrian Suggestions	Pedestrian Suggestion	Cars traveling southbound on Lawrence turning to go west on Bollinger drive very fast here, often turn without looking	6	0
Car Suggestions	Car Suggestions-24	Change right turn from Lawrence onto Bollinger from a yield to a firm stop. Cars travel 50 mph, continue into high speed	5	0
Bicycle Suggestions	Bicycle Suggestions-18	Agree with others' comments on need for protected bike lane along the length of Bollinger from Lawrence to De Anza.	5	1
		During high-traffic hours, bicyclists traveling down Bollinger to cross Lawrence and proceed onto Moorpark have a lot of difficulty dodging right-turning automobiles from Bollinger onto Lawrence. I speak from pre-COVID-19 experience.		
Bicycle Suggestions	Bicycle Suggestions-22	Perhaps clear pavement markings starting at least 50 yards back from the intersection could help.	4	0
Bicycle Suggestions	Bicycle Suggestions-31	It is not obvious to automobiles crossing and turning at the intersection of bollinger and lawrence that bikes also may n	2	0
Pedestrian Suggestions	Pedestrian Suggestion	Agreed. This is a high-conflict intersection with vehicles at speed, cyclists and pedestrians. Redesign is required to slow	0	0
Trader Joe's Access			64	
Car Suggestions	Car Suggestions-02	This intersection should be reconfigured or widened to make be a dedicated turn lane exclusively for turn right into Tra	16	4
Ideas and Suggestions	Ideas and Suggestions	When exiting Trader Joe's onto Bollinger, one must turn right. Many people, however, are lazy or impatient and make a	15	0
Make a Comment	Make a Comment-02	People make dangerous left turn from Bollinger Rd across double yellow lines into Trader Joe parking lot	12	0
Make a Comment	Make a Comment-04	Install more barricades to stop the illegal and dangerous U-Turns form Trader Joe's. Why a TJ's was allowed to open in s	6	0
Pedestrian Suggestions	Pedestrian Suggestion	The entire section between DeAnza and past Trader Joe's is impassable as a pedestrian. Tpumps is a fav of our family, b	4	0
Car Suggestions	Car Suggestions-25	The right turn from Bollinger into the Trader Joe's parking lot causes dangerous backups (and fender bender accidents)	2	0
Car Suggestions	Car Suggestions-11	Add a curb in place of the plastic dividers to prevent illegal uturns when exiting trader joes onto bollinger	1	0
Bicycle Suggestions	Bicycle Suggestions-36	We need to accomodate bicycles turning left into Trader Joes's here. I understand that maybe we cannot accomodate c	0	0
Bollinger/Hyde			62	
Ideas and Suggestions	Ideas and Suggestions	A traffic light here would be very helpful	13	2
Pedestrian Suggestions	Pedestrian Suggestion	Crosswalk, please. I walk to Safeway and cross at Hyde.	13	0
Car Suggestions	Car Suggestions-13	Cars cueing for entry into the hyde lot tend to use the bike lane, perhaps the hyde parking lot can be reconfigured to en	9	1
Pedestrian Suggestions	Pedestrian Suggestion	Crosswalk with the larger stoplights that activate when there is a pedestrian crossing (similarly found on ECR in SV and !	7	0
Bicycle Suggestions	Bicycle Suggestions-14	Make it friendlier for students to bike	5	0
Car Suggestions	Car Suggestions-23	Add manhy more pylons to this area as it is always stopped up when parents leave Hyde and cross two lanes of traffic t	5	0
Car Suggestions	Car Suggestions-30	Many illegal u-turns here in the middle of the block when school is in session despite the traffic barrier.	2	0
Pedestrian Suggestions	Pedestrian Suggestion	Marked cross walks, preferably signaled ones, are needed across Bollinger at Hyde Ave, on both sides of Hyde.	0	0

General Comments		48	
Ideas and Suggestions	Ideas and Suggestions- Bollinger Rd. is a very wide, flat road which encourages speeding and makes it seem unfriendly to anything but cars. A	13	3
Ideas and Suggestions	Ideas and Suggestions- Bus stop islands should be present along the entirety of the road. This would make buses not need to wait long periods	9	2
Ideas and Suggestions	Ideas and Suggestions- I've been bike commuting through this zone for over 20 years. Overall speed/width way too dangerous for cyclists. Need	6	1
Car Suggestions	Car Suggestions-12 suggest the speed limit be reduced to 30 mph on bollinger between de anza / moorpark and williams	5	2
Bicycle Suggestions	Bicycle Suggestions-23 There is no space curbside here for both trash pick up and bike lane. So residents put their trash can and yard waste in	3	0
Ideas and Suggestions	Ideas and Suggestions- The speeds between Blaney/De Anza are dangerous. Here is another place that needs a stoplight/speedbump to facilita	1	0
Ideas and Suggestions	Ideas and Suggestions- This road has low visible marking. At night, it's especially hard to see the marking. Can we get fresh paint and illuminato	0	0
Pedestrian Suggestions	Pedestrian Suggestion- Please add cross walks at various intervals between north and south side of road	0	0
Car Suggestions	Car Suggestions-29 Install radar speed signs in both directions - at least one on each direction between the major intersections such as N Bl	0	0
Bicycle Suggestions	Bicycle Suggestions-09 Left turn boxes for cyclists should be provided at major crossings, or repaint/redesign intersections to accommodate lef	0	1
Bicycle Suggestions	Bicycle Suggestions-39 The home owners on the San Jose side along Bollinger leave their yard waste in the bike lanes. This is unsafe as it forces	0	0
Bollinger/Johnson		46	
Bicycle Suggestions	Bicycle Suggestions-02 Safer intersections/left turns for students commuting to school.	16	1
	Both side of Johnson/Bollinger intersections needs pedxing crossing. There is only one pedxing available for crossing Bollinger right now. My kids and many other kids bike or walk to Dilworth, Miller and Lynbrook. They have to cross Johnson Ave more then once at the intersection to reach the right side of their destination. This improvement can greatly decrease the congestion and possibility of accidents at this intersection during school hours. It should be on the first priority list.		
Pedestrian Suggestions	Pedestrian Suggestion- Thanks	11	0
Car Suggestions	Car Suggestions-14 the bike path ends at the intersection, need a place for bikes to stop when waiting for the light	6	0
Car Suggestions	Car Suggestions-27 EB the intersection at Johnson is often backed up in the afternoon commute, and slow to flow (compared to the rest of	3	0
Make a Comment	Make a Comment-06 Another poorly timed left turn signal. Needs to be adjusted for cars to get through it so the straight lanes are not blocke	1	0
Make a Comment	Make a Comment-11 Need to create space for vehicles to turn right without having to wait for bicyclists that are waiting to travel through the	1	0
Pedestrian Suggestions	Pedestrian Suggestion- This VTA bus stop needs shade and a trash pickup service.	0	0
Car Suggestions	Car Suggestions-37 The middle lane of east bound near the junction of Johnson Ave is too narrow. It cause potential car scratch or crash d	0	0
Bollinger/Alderbrook		42	
Car Suggestions	Car Suggestions-03 Major accidents happened at the intersection of Bollinger and Alderbrook. I personally witnessed one. Please make it sa	16	0
Car Suggestions	Car Suggestions-17 The alderbrook/Bollinger merge is very dangerous. Lots of cars are parked along Bollinger and turning left from Alderbr	7	0
Pedestrian Suggestions	Pedestrian Suggestion- Pedestrian crossing: we badly need some kind of protected pedestrian crossing. There are often elderly people crossing	7	0
Ideas and Suggestions	Ideas and Suggestions- Please add a signal here. Very dangerous to take a left or right turn. This is because there are lots of cars parked on Bolli	4	0
Pedestrian Suggestions	Pedestrian Suggestion- Marked cross walks, preferably signaled ones, are needed on both sides of Alderbrook Ln across Bollinger.	1	0
Ideas and Suggestions	Ideas and Suggestions- There needs to be a stoplight at Alderbrook and Bollinger. I have lived here since the 60's and there is NO SAFE WAY for	1	0
Bike/Ped Issues at Bollinger/De Anza		39	
Bicycle Suggestions	Bicycle Suggestions-07 This is a high-conflict area with cyclists, pedestrians and vehicles. The interchange needs to be redesigned to slow down	17	1
Bicycle Suggestions	Bicycle Suggestions-12 A short red-to-green light phase makes crossing De Anza straight on Bollinger extremely dangerous. A bicycle starting at	7	1
Ideas and Suggestions	Ideas and Suggestions- Perilous crossing for pedestrians to and from northeast (Taco Bell) corner of De Anza at Bollinger. Cars turning right fro	5	0
	Many vehicles proceed into the pedestrian walkway before stopping / rolling into a turn on to a right on red (North on DeAnza turning right onto Bollinger). In addition they often cut off pedestrians trying to use the walkway, or cyclists crossing near it. In addition they have a tendency to pinch cyclists in the bike lane.		
Car Suggestions	Car Suggestions-10 2 Suggestions: 1) Prohibit right on red, 2) Prohibit use of the bike lane for right turns with a curb/ protection	4	0
Bicycle Suggestions	Bicycle Suggestions-34 Allow bicycles to use the crosswalk (the wrong way) to avoid requiring cyclists to cross three lanes of traffic to cross de	0	0
Bicycle Suggestions	Bicycle Suggestions-20 I frequently ride my bike with traffic turning left from southbound de Anza onto Bollinger. In this maneuver, I am highl	0	0
Bollinger/Tantau/Tulipan		34	
Bicycle Suggestions	Bicycle Suggestions-05 Make it safer for bikes to turn left onto Lantau	14	1
Bicycle Suggestions	Bicycle Suggestions-13 Make it easier for cyclists to turn left from Tantau (southbound) onto Bollinger (eastbound). Currently the sensor will n	7	0
Bicycle Suggestions	Bicycle Suggestions-24 It would be nice for a "bike left turn" sensor (or button) to turn left from eastbound Bollinger to northbound Tantau. Ri	2	0
Ideas and Suggestions	Ideas and Suggestions- eset the timing on this and all lights. Many times this light turns left for no cars. This light will allow ONE car to turn and	1	0
Make a Comment	Make a Comment-08 The left turn from Bollinger into Tulipan must be prevented. It's too abrupt with no left turn lane so just asking for rear	1	1
Car Suggestions	Car Suggestions-38 I have lived on Bollinger Rd. for 37 years. Due to the 12 degree kink in Bollinger road at Tantau, we have a major autom	0	0
Pedestrian Suggestions	Pedestrian Suggestion- The Tulipan Bollinger bus stop needs shade and a bench. The elderly need a bench to wait for the bus.	0	0
Something I Like	Something I Like-1 As a bike commuter who uses Tantau to turn left onto Bollinger, as of mid-February 2021, I really appreciate the traffic	0	0
Make a Comment	Make a Comment-12 The road itself curves right at the intersection. I've often seen cars getting their lane mixed up as they cross the interse	0	0
Improvements at Bollinger/Miller		32	
Bicycle Suggestions	Bicycle Suggestions-04 Protected intersection, especially for students at hyde.	23	1
Bicycle Suggestions	Bicycle Suggestions-15 it is scary to cross the right turn lane when cycling east on bollinger just past miller at a minimum better bike path paint	4	0
	Miller southbound left turn lanes. There needs to be a dotted, reflective line separating the two left turn lanes in the intersection. Drivers often forget there are two left turn lanes here and cut into the outer lane when turning.		
Car Suggestions	Car Suggestions-39 Yes, there is already a sign on the traffic post, but sometimes it is hard to see at night.	0	0
Bicycle Suggestions	Bicycle Suggestions-29 It is not obvious to automobiles crossing and turning at the intersection of bollinger and miller that bikes also may need	0	0
Car Suggestions	Car Suggestions-35 Combined right turn/bike lane on Bollinger (West) onto Miller (North) is too narrow. It is unusable and causes back up	0	0
Curve/Visibility East of Blaney		26	
Bicycle Suggestions	Bicycle Suggestions-10 This curve is particularly scary for cyclists. Vehicles are traveling at a high rate of speed--usually faster than the posted li	16	0
Car Suggestions	Car Suggestions-28 Between Miller and Blaney (and again between Blaney/De Anza) is often a speedway due to limited lights/stops and roa	3	0
Pedestrian Suggestions	Pedestrian Suggestion- I think the area here could do with some street lights. It's a leg of my night walk journey where I end up having to turn c	1	0

East bound bike lane needs to have some protective pylons. This downhill dip and S-curve in the road causes many cars to cut into the bike lane and results in very close shaves.

This section is a bridge crossing Calabasas Creek. No residences or driveways will be blocked if a car/bicycle barrier

Bicycle Suggestions	Bicycle Suggestions-40 were to be installed	0	0
Make a Comment	Make a Comment-05 Narrow sidewalks and not easily used to stand away from traffic.	0	0
Bicycle Suggestions	Bicycle Suggestions-26 Somewhere along here eastbound bike lane meets parked cars past end of allowed parking, encroaching into bike lane.	0	0

Crossing at Bollinger/Cliffden 26

Ideas and Suggestions	Ideas and Suggestions- Need another safe crossing here for pedestrians and cyclists. This is a common crossing for people coming to or leaving	15	0
Ideas and Suggestions	Ideas and Suggestions- Cliffden and Gillick serve as employee and overflow parking for Trader Joe's. Popular VTA Route 25 stops at south side (S	4	0
Make a Comment	Make a Comment-10 Could we add some sort of pedestrian bridge here so we could safely cross the street either on foot or bicycle? I like to :	2	0
Pedestrian Suggestions	Pedestrian Suggestion Cross walks, preferable signaled, are needed at this intersection, at *both* sides of Cliffden Way.	1	0

Improvements at Arlington/Farallone and Bollinger 24

Ideas and Suggestions	Ideas and Suggestions- Need a safe crossing here for pedestrians and bicyclists. This is a commonly used crossing connecting the two neighborh	20	0
Ideas and Suggestions	Ideas and Suggestions- The angle and slope of the street make it difficult to see oncoming cars when exiting south from Farallone. Perhaps a "s	1	1
Pedestrian Suggestions	Pedestrian Suggestion Cross walks are needed across Bollinger at both sides of Farallone Drive and Arlinbgton Lane, preferably signalled ones.	0	0

Auto Improvements at Bollinger/Lawrence 27

Car Suggestions	Car Suggestions-01 Left turn lanes onto Lawrence Expressway is too short. It causes daily backup in the morning until about 10am. The traf	17	1
Car Suggestions	Car Suggestions-22 Eastbound Bollinger left turn onto Lawrence Expwy backs up during morning commute. Is there a way to lengthen the l	3	0
Make a Comment	Make a Comment-07 Cars exiting Lawrence sure seem to beleive they have the ROW over cars with green lights. Add some type of raidod mar	2	0
Make a Comment	Make a Comment-09 People exiting Wunderlich Dr, and White Oak Dr, squeeze into the left turn lanes that are crowded in the morning. Unsa	0	0
Car Suggestions	Car Suggestions-34 During school days, after dropping off the student, Portal parents want to turn right from Wunderlich to Bollinger and t	0	0

Bollinger/Blaney 25

Car Suggestions	Car Suggestions-15 Blaney & Bollinger- Needs to have a light to go straight and a separate light for turning left.	9	0
Pedestrian Suggestions	Pedestrian Suggestion We need a bigger side walk to cross. There is not even enough space to stand for the light to change. And there is not a	7	0
Car Suggestions	Car Suggestions-08 Need left turn signals on Blakey.	5	0
Bicycle Suggestions	Bicycle Suggestions-28 It is not obvious to automobiles crossing and turning at the intersection of bollinger and Blaney that bikes also may nee	0	0

Bollinger/Avondale 23

Ideas and Suggestions	Ideas and Suggestions- We need a crosswalk, traffic light or center turn lane here. I've seen countless, serious car accidents happen here over t	8	0
Make a Comment	Make a Comment-01 We have lived on Avondale for 13 years, & seen numerous accidents on this corner. We have written to the city in	7	0
Ideas and Suggestions	Ideas and Suggestions- Need a traffic light here or maybe a center turn lane. Car is trying to make a left here and there are pedestrian j walking	4	1
Pedestrian Suggestions	Pedestrian Suggestion Cross walks are needed here, preferrably signalled ones, on both sides of Avondale Street.	0	0

Auto Issues at Bollinger/De Anza 13

Car Suggestions	Car Suggestions-06 Southbound De Anza's two left turn lanes onto Bollinger are tight and shifting, resulting in cars drifting wide into the ne	12	1
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Bollinger/Windsor 10

Ideas and Suggestions	Ideas and Suggestions- It would be safer to have a left turn lane on Bollinger Rd for cars to turn left onto Windsor St. Now there is no left turn	5	0
Ideas and Suggestions	Ideas and Suggestions- Please do not put a signal light at Bollinger and Windsor Street. Years ago a light was added at Clarendon and De Anza ;	2	0
Pedestrian Suggestions	Pedestrian Suggestion Cross walks are needed at Winsor Street, preferably signaled ones.	0	0

Off-Corridor 8

Bicycle Suggestions	Bicycle Suggestions-03 Safer intersections. This area is also very dangerous for kids at hyde middle.	1	0
Ideas and Suggestions	Ideas and Suggestions- There are no street lights here. It's pitch dark at night.	1	0
Ideas and Suggestions	Ideas and Suggestions- We need a speed bump here to slow down traffic cutting through on Windsor and Clarendon. Drivers do this to avoid t	1	0
Bicycle Suggestions	Bicycle Suggestions-32 A bicyclist needs to cross traffic to continue going straight on moorpard, suggest that the bike lane be marked going acc	0	0
Ideas and Suggestions	Ideas and Suggestions- There is a concrete curbed island on the left side turn lane for northbound Miller traffic before you get to Stevens Creek	0	0

Bollinger/Lancer 7

Car Suggestions	Car Suggestions-09 Please make few feet on the road side as no parking. This will help drivers joining from lancer to clearly see the oncomir	5	0
Pedestrian Suggestions	Pedestrian Suggestion Marked cross walks are needed at both sides of Lance Dr across Bollinger, preferably signaled ones.	0	0

Bollinger/Estates 6

Car Suggestions	Car Suggestions-18 2 problems with cars on bollinger going into Estates dr. Due to the curving road, eastbound cars which are stopped to r	2	0
Car Suggestions	Car Suggestions-26 Make the Estates intersection a stricter right turn entrance/exit only. Drivers wanting to enter/exit other direction (fron	1	0
Pedestrian Suggestions	Pedestrian Suggestion Marked cross walks are needed at Estates Dr across Bollinger, preferably signaled ones.	0	0

Bike Lane Between Hyde/Tantau 4

Bicycle Suggestions	Bicycle Suggestions-21 West bound bike path narrows significantly here. Combine that with the (often) parked cars make the interaction betw	2	0
Bicycle Suggestions	Bicycle Suggestions-41 Eastbound bike lane gets very narrow in here between Hyde and Tantau. Cyclists usually dodge trash carts here once a	0	0

Pavement Issues 3

Ideas and Suggestions	Ideas and Suggestions- Pavement from Miller almost to Lawrence is uneven and sometimes has potholes because of previous work. Resurface	2	0
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Road Diet 2

Car Suggestions	Car Suggestions-36 Bollinger is for the most a moderate to light trafficed road. We should be able to reduce it to one lane in each direction	1	0
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Orchard Farms Shopping Center Access 3

Bicycle Suggestions	Bicycle Suggestions-33 Cars turning into the safeway complex need to cross the bike lane, suggest that the bike lane be marked whenever it ne	0	0
Bicycle Suggestions	Bicycle Suggestions-19 This spot requires great care from both drivers and cyclists, since cars often make a sudden right turn into the shopping	0	1
Bicycle Suggestions	Bicycle Suggestions-37 Provisions needs to be made for a bike crossing here from needed protected bicycle lanes on the other side of the road	0	0

<i>Bollinger/Harlan</i>			3	
		In the 4-7pm timeframe most evenings, this coming left out of Harlan onto Bollinger or left from Bollinger onto Harlan becomes really hard. (Ironically, even right from Harlan onto Bollinger is hard.) Cars line up all across the intersection and there is basically nothing to stop them coming.		
		I don't know what the right solution here is: the traffic to/from Harlan is generally very light. Smart "on demand"		
Car Suggestions	Car Suggestions-21	lights? Other solutions?	1	0
Bicycle Suggestions	Bicycle Suggestions-42	Eastbound bike lane shifts to the right at the Harlan intersection due to the widening of the car lanes + no street parkin	0	0
<i>Bollinger/Martinwood</i>			1	
Pedestrian Suggestions	Pedestrian Suggestion	Cross walks are needed here, preferably signaled ones.	0	0



HELP US IMPROVE BOLLINGER ROAD!

Visit the Corridor Safety Study webpage
to share your feedback and priorities.

<https://engagekh.com/bollingerroad>

*Remember to comment by
2/26/2021*



Appendix B. Estimate of Conceptual Project Costs

Estimate of Conceptual Project Costs

Alternative A (Road Diet)

From DeAnza Blvd to Lawrence Expy



Date Prepared:	June 30, 2021
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Item			Unit	Quantity	Unit Cost	Extended Cost	Notes
1	Curb Ramps/Reconstruct and Reduce Curb Radius		EA	61	\$27,000.00	\$1,647,000	Includes demolition of existing sidewalk/curb return and installation of new curb return radius, sidewalk, and ramp. Assumes 2' sawcut from new curb return.
2	Concrete Sidewalk		SF	9,000	\$30.00	\$270,000	Includes sidewalk cost, demolition/modification to existing - along corridor only. Assume sidewalk reconstruction feasible along full length of identified locations.
3	Raised Concrete Median		LF	500	\$300.00	\$150,000	Includes 2' sawcut/demo either side, new curb either side of median, and 12' HMA section.
4	Median Hardscape		SF	1,600	\$20.00	\$32,000	Includes hardscape within median, does not include curb for raised median. Assumed only 50% of median hardscape, other 50% landscape.
5	Raised Concrete Buffer		LF	8,200	\$225.00	\$1,845,000	Includes 2' sawcut/demo and new curb on both sides of buffer, and 12' HMA section. Curb cuts spaced accordingly to maintain existing drainage pattern.
6	Relocate/Install New Bus Stop		EA	2	\$35,000.00	\$70,000	Assumes new bus pad needed at relocated stop, demolition/repaving of existing bus pad, and amenities. Assume 60' x 10' pad.
7	Transit Island		EA	1	\$40,000.00	\$40,000	Assumes 10' Transit Island, bus pad, amenities, and curb reconstruction. Assume 60' Length
8	Signing & Striping		LS	1	\$600,000.00	\$600,000	Assumes striping, markings, signs and removal of existing striping.
9	RRFB (Rectangular Rapid Flashing Beacon)		EA	6	\$50,000.00	\$300,000	Each RRFB includes assembly and equipment for both crossing directions at each intersection.
10	Speed Feedback Sign System		EA	4	\$5,000.00	\$20,000	
11	Intersection Signal Improvements		EA	6	\$30,000.00	\$180,000	Includes minor signal work at signalized int for bikedged accessibility, such as pedestrian countdown timers and leading pedestrian intervals (LPI).
SUB-TOTAL MAJOR CONSTRUCTION ITEMS						\$5,154,000	Notes
Utility Coordination & Minor Modifications			% of sub-total major construction items		1.0%	\$51,600	Minor utility adjustments at new sidewalk, new median areas, and curb return reconstructions.
Landscaping			% of sub-total major construction items		8.0%	\$412,400	Planter areas in raised concrete buffer for cycle track, landscape in median, and adjacent to new sidewalk along corridor.
Erosion Control			% of sub-total major construction items		2.0%	\$103,100	Standard BMP & drainage inlet protection.
Drainage			% of sub-total major construction items		1.0%	\$51,600	Minor adjustments, relocations, and potential new infrastructure at reconstructed curb returns.
Traffic Control / Detour			% of sub-total major construction items		8.0%	\$412,400	Standard traffic control %
Mobilization			% of sub-total major construction items		5.0%	\$257,700	Standard mobilization %
Minor Contract Revisions			% of sub-total major construction items		10.0%	\$515,400	Standard contract revisions %
SUB-TOTAL CONSTRUCTION COSTS						\$6,958,200	Notes
Engineering, Environmental, Permitting, & City Oversight			% of sub-total construction costs		17.0%	\$1,182,894	2% is assumed for City Oversight
Construction Management/Materials Testing, & City Oversight			% of sub-total construction costs		12.0%	\$834,984	2% is assumed for City Oversight
SUB-TOTAL DESIGN AND PROJECT ADMIN						\$2,017,878	
SUB-TOTAL						\$8,976,078	Notes
Contingency (30%)			% of sub-total		30.0%	\$2,692,900	
Total Project Cost Estimate							\$11,669,000

Opinion of Probable Construction Costs

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Estimate of Conceptual Project Costs

Alternative B (No Road Diet)

From DeAnza Blvd to Lawrence Expy



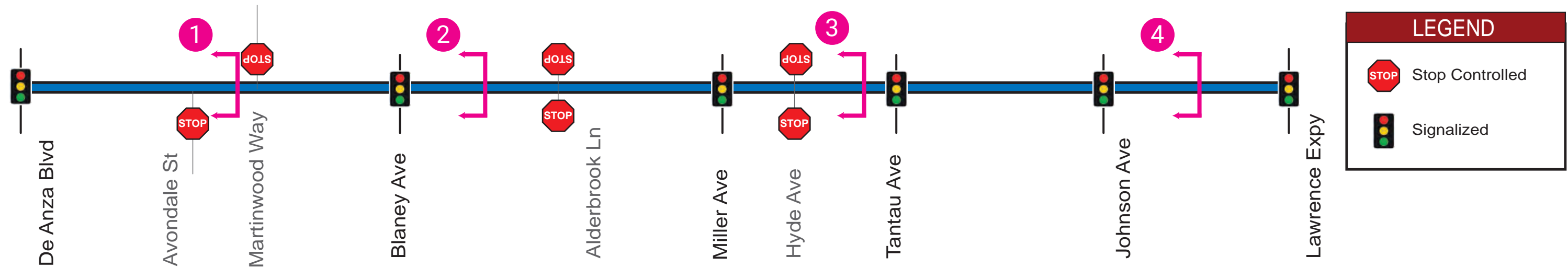
Date Prepared:	June 30, 2021
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Item			Unit	Quantity	Unit Cost	Extended Cost	Notes
1	Curb Ramps/Reconstruct and Reduce Curb Radius		EA	61	\$27,000.00	\$1,647,000	Includes demolition of existing sidewalk/curb return and installation of new curb return radius, sidewalk, and ramp. Assumes 2" sawcut from new curb return.
2	Concrete Sidewalk		SF	9,000	\$30.00	\$270,000	Includes sidewalk cost, demolition/modification to existing - along corridor only. Assume sidewalk reconstruction feasible along full length of identified locations.
3	Raised Concrete Median		LF	500	\$300.00	\$150,000	Includes 2" sawcut/demo either side, new curb either side of median, and 12" HMA section.
4	Median Hardscape		SF	2,900	\$20.00	\$58,000	Includes hardscape within median, does not include curb for raised median. Assumed only 50% of median hardscape, other 50% landscape.
5	Raised Concrete Buffer		LF	7,200	\$225.00	\$1,620,000	Includes 2" sawcut/demo and new curb on both sides of buffer, and 12" HMA section. Curb cuts spaced accordingly to maintain existing drainage pattern.
6	Relocate/Install New Bus Stop		EA	2	\$35,000.00	\$70,000	Assumes new bus pad needed at relocated stop, demolition/repaving of existing bus pad, and amenities. Assume 60' x 10' pad.
7	Transit Island		EA	2	\$40,000.00	\$80,000	Assumes 10' Transit Island, bus pad, amenities, and curb reconstruction. Assume 60' Length
8	Signing & Striping		LS	1	\$500,000.00	\$500,000	Assumes striping, markings, signs and removal of existing striping.
9	RRFB (Rectangular Rapid Flashing Beacon)		EA	1	\$50,000.00	\$50,000	Each RRFB includes assembly and equipment for both crossing directions at each intersection. Locations that are noted to be determined from a warrant are not included.
10	Speed Feedback Sign System		EA	4	\$5,000.00	\$20,000	
11	Intersection Signal Improvements		EA	6	\$30,000.00	\$180,000	Includes minor signal work at signalized int for biked/ped accessibility, such as pedestrian countdown timers and leading pedestrian intervals (LPI).
SUB-TOTAL MAJOR CONSTRUCTION ITEMS						\$4,645,000	Notes
Utility Coordination & Minor Modifications			% of sub-total major construction items		1.0%	\$46,500	Minor utility adjustments at new sidewalk, new median areas, and curb return reconstructions
Landscaping			% of sub-total major construction items		8.0%	\$371,600	Planter areas in raised concrete buffer for cycle track, landscape in median, and adjacent to new sidewalk along corridor.
Erosion Control			% of sub-total major construction items		2.0%	\$92,900	Standard BMP & drainage inlet protection
Drainage			% of sub-total major construction items		1.0%	\$46,500	Minor adjustments, relocations, and potential new infrastructure at reconstructed curb returns
Traffic Control / Detour			% of sub-total major construction items		8.0%	\$371,600	Standard traffic control %
Mobilization			% of sub-total major construction items		5.0%	\$232,300	Standard mobilization %
Minor Contract Revisions			% of sub-total major construction items		10.0%	\$464,500	Standard contract revisions %
SUB-TOTAL CONSTRUCTION COSTS						\$6,270,900	Notes
Engineering, Environmental, Permitting, & City Oversight			% of sub-total construction costs		17.0%	\$1,066,053	2% is assumed for City Oversight
Construction Management/Materials Testing, & City Oversight			% of sub-total construction costs		12.0%	\$752,508	2% is assumed for City Oversight
SUB-TOTAL DESIGN AND PROJECT ADMIN						\$1,818,561	
SUB-TOTAL						\$8,089,461	Notes
Contingency (30%)			% of sub-total		30.0%	\$2,426,900	
Total Project Cost Estimate							\$10,516,400

Opinion of Probable Construction Costs

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Appendix C. Cross Sections

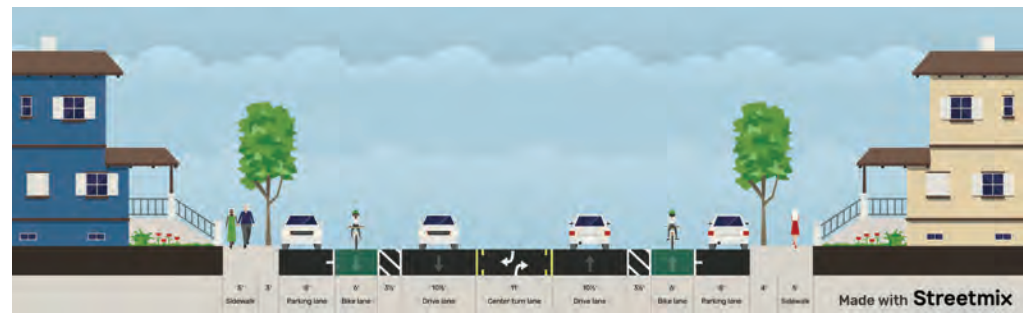


Existing Cross Section

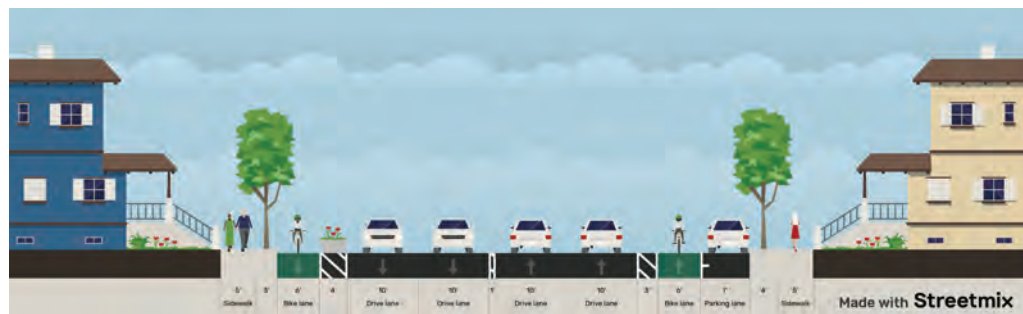
1 De Anza Blvd to Blaney Ave



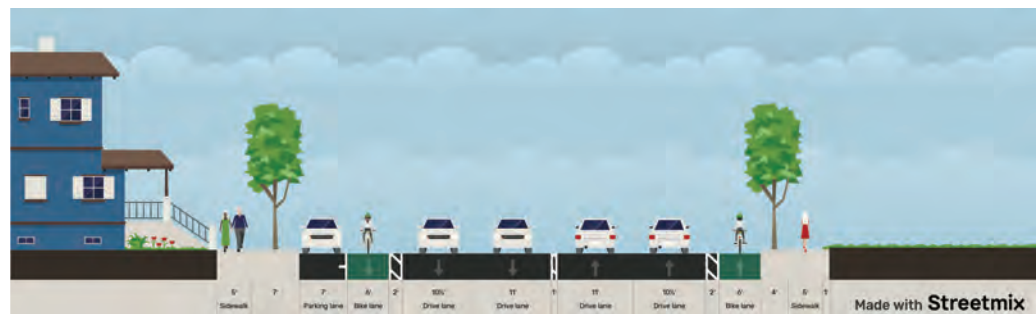
Alt A
Lane Conversion

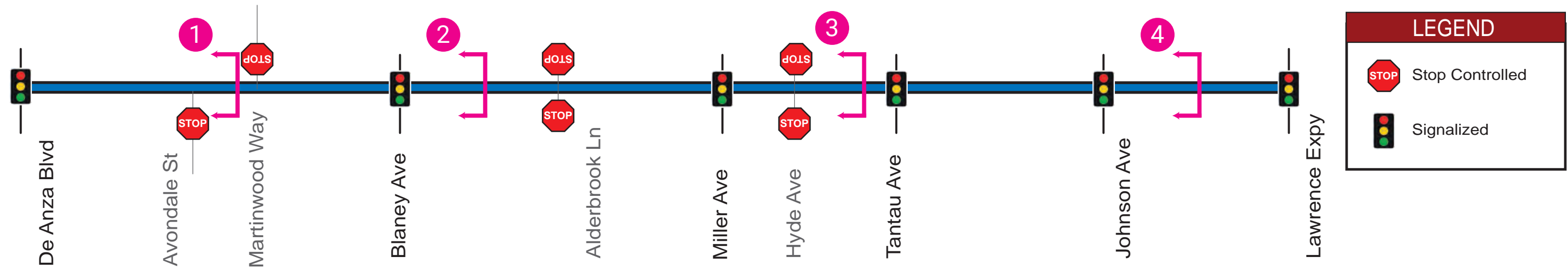


Alt B
Maintain Existing Lanes



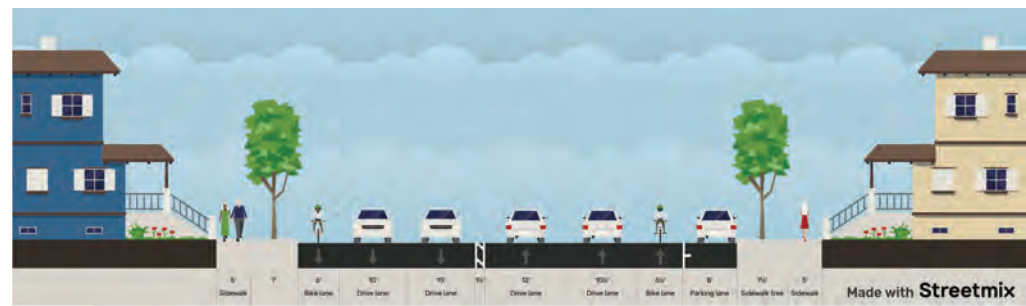
2 Blaney Ave to Miller Ave





Existing Cross Section

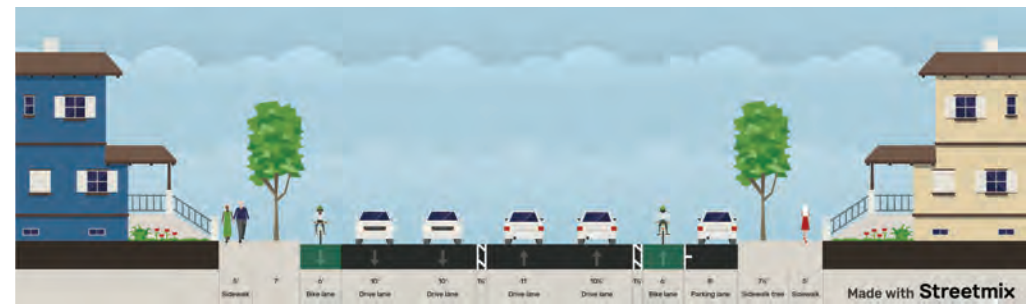
3 Miller Ave to Tantau Ave



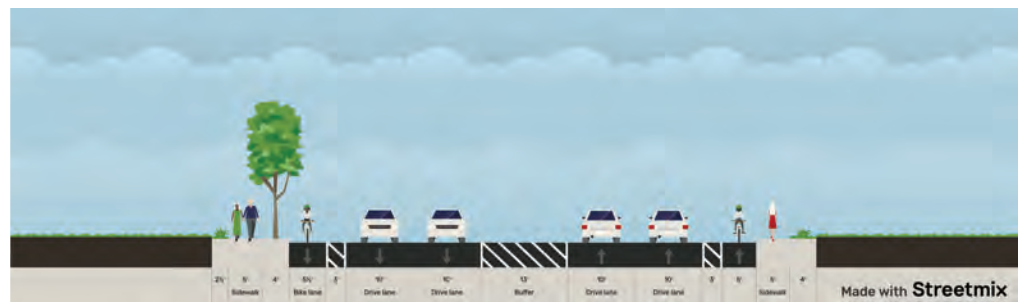
Alt A Lane Conversion



Alt B Maintain Existing Lanes



4 Tantau Ave to Lawrence Expy



Appendix D. Community Comments on Conceptual Designs from Survey #2 (May 2021)

Positive Comments	Thumbs Up	Thumbs Down
All bike lanes should have solid barriers to prevent drivers from parking/driving in the bike lanes	10	14
Bike lanes should be fully protected, otherwise their safety is minimal	6	11
Consider bus boarding islands to speed buses and reduce bus/bike conflicts	5	11
love the markings, pedestrian ramps and radii reductions!	1	0
love the RRFB!	4	0
love alternative A!	4	9
Drivers constantly turn right out of Hyde Middle School and merge into the median lane to make an illegal U-Turn.	0	1
These changes will make this intersection safer for everyone.	2	0
Having a crossing over Bollinger at Hyde Ave intersection has been on our wish list all these 16 years we've lived in Fairgrove neighborhood. We've crossed the road here often over the years, but that is only possible during lower traffic hours. Lack of crossing has encouraged many Fairgrove residents to go to Safeway and other mall services by car, a distance of only few hundred walkable yards. Crossing also increases the safety of Hyde students going for their after school bobas.	1	0
Providing two-way left turning center lane is very helpful for all the residents who have a driveway facing Bollinger: easier access in and out of driveway during high traffic hours, and left turns onto properties will not slow the whole traffic.	4	10
The RRFB and dedicated center turn lane will make this area so much safer for cars, bikes, and pedestrians. Perhaps each RRFB crossing can be slightly raised to further slow down traffic.	5	2
Thank You for the RRFB and pavement marked crosswalk at Clifden Way! Please consider adding multi-sensory alerts (sounds and visible signals) for pedestrians who have activated the flashing beacon but may not be aware that it is flashing because of visual impairment or because they cannot see lights flashing on the pavement from their position on the sidewalk.	1	0
I like the 2-lane plan. Between the curves, elevation changes, narrowing at creek over crossings, and heavy cross-traffic use, Bollinger Rd has challenges that are underappreciated by many travelers. The 2-lane option offers the best overall safety improvements.	1	6
This is a key crossing for those going to Cupertino Library but right now it has no crosswalk.	1	0
LOVE the protected bike lanes. Consider bus boarding islands to reduce conflict between cars, buses, and bikes.	1	6
It's common to see people driving 50 mph on this curve.	0	0
Going to two lanes with a center turn lane is great for reducing speeding and ensuring regular traffic flow. There are so many driveways along Bollinger. It makes sense to have a separate turn lane instead of making people start their turn from inside a traffic lane. This configuration has been successful in many other roads in the South Bay.	2	6
Bike lanes need hard barriers. Also consider parking protected bike lanes, like on Stelling.	1	4
I like the crosswalk at Lancer. I work at Hyde, and feel this in a dangerous spot and there is no way to get across without going all the way to Miller.	2	0
like the bike lane	1	0
Having a protected bike lane along all of Bollinger is critical. There are no parallel neighborhood streets. Students at Hyde and Lynbrook need safe bike travel, not to mention anyone else accessing businesses on Bollinger. Cycling is a practical form of transportation, not a niche hobby.	2	6
Having a protected bike lane along all of Bollinger is critical. There are no parallel neighborhood streets. Students at Hyde and Lynbrook need safe bike travel, not to mention anyone else accessing businesses on Bollinger. Cycling is a practical form of transportation, not a niche hobby.	1	6

I really applaud having a pedestrian crossing here. It's critical for bus users to be able to cross at this location, and I understand that there have been serious accidents in the past. Given the width of the road, there should definitely be high-intensity flashing beacons available for crossing.	0	0
introduce traffic calming measures (speed bumps, signage, whatever works) to reduce speed as drivers enter the neighborhood. Compress or otherwise mitigate the sweeping curves of Rancho to slow down drivers and protect cyclists and pedestrians.	0	0
My child takes this route when biking to school and friends. Eliminating the free right turns on Bollinger will give me peace of mind. Bollinger Road is part of my neighborhood, not a race track. It must serve cyclists and pedestrians as much as it serves motorists.		
SUM	55	92
Negative Comments	Thumbs Up	Thumbs Down
Do not reduce Bollinger from 4 lanes (2 each way) by introducing a dedicated left turn lane etc. All 4 lanes are required to handle the traffic. In the past, when Bollinger got backed up, people would cut through the adjacent neighborhoods at high speed, making the situation even more dangerous. Leave Bollinger for the through traffic and preserve the neighborhoods for biking, walking, etc.	14	5
slowing traffic may make sense, but reducing lanes from four to two is a recipe for disaster.	11	7
if you reduce to two lanes, the traffic lanes will be solid with cars and a left turn center lane will be of no use at all. Keep all four lanes.	1	5
I have concerns that reducing each side to one lane, with a designated middle turn lane, will back traffic up during heavy traffic. I also worry about the center lanes being abused by individuals trying to weave in and out of traffic in this scenario. I would like to see traffic slow down to the speed limit (it would allow for safer slowdowns when cars signal to turn, and opportunities to merge to the other lane), but I do not think reducing the number of lanes is the best way to go about it.	6	2
SUM	32	19
Spot Improvements	Thumbs Up	Thumbs Down
provide 2 stage queue turn box on all 4 corners at deanza and bollinger	3	0
prohibit right on red at this intersection	3	11
provide 2 stage bike queue turn box at all 4 corners	4	0
Provide an entrance to the hyde parking lot to avoid automobile queueing the bike lane on bollinger	3	1
Make this median longer to keep people from making left turns (u-turns) out of the Hyde parking lot. Shopping customers can go out of the parking lot onto Miller instead of turning left onto Bollinger.	1	1
Create a cement barrier to prevent drivers from making an illegal U-turn coming out of HMS.	3	4
What really is needed at this intersection is enforcement of the traffic light by the Sheriff Dept. People on Bollinger run the traffic light to make a left turn onto DeAnza long after the light has turned red. This results in people leaving Home Depot, etc. then either having a very short light or also running the yellow light to go straight on Bollinger past DeAnza. I have never seen the Sheriff or Highway Patrol doing enforcement at this intersection.	3	0
Modify entry into Hyde to eliminate queuing for entry to Hyde. If you narrow the road to 1 lane each way and allow the current situation you will effectively close Bollinger Ave during kid pick up time. Close the entrance from Bollinger to Hyde and only allow entry from Hyde street (with a divider preventing left turn into the lot for people turning off Bollinger to Hyde). Force the queue to be on Hyde street, not Bollinger.	1	14
Please introduce traffic controls to slow down cars coming off of Lawrence.	6	0

I think that the bus stop at Bollinger and Miller should be put midway between the intersection and the first driveway out of the shopping center. The bus could block people turning right from miller onto Bollinger is it is too close to the intersection and it will be too close to the driveway out of the shopping center. You have to be able to see around the bus.	1	0
All of Bollinger Road seems to have been created for cars to go faster than is safe, but this stretch of road, between Blaney and Alderbrook, is curved in a way that particularly invites speeding. Please consider options to further slow down traffic here.	7	0
Factor in that many people come out of Chelmsford Dr. and make a U-turn at Wunderlich Dr. to go east.	1	0
If cut-through traffic can be anticipated under the 2-lane plan, maybe some neighborhood streets can be closed to through traffic.	0	6
Fatal collisions have occurred here. The turn radius is far too wide and is designed to encourage speeding. Create a protected intersection for bicycles.	2	0
Add transit signal priority to allow buses to pass through intersections faster and avoid red lights. VTA route 25 is a major bus route and lots of people rely on it. Cupertino and San Jose should work with VTA's Fast Transit Program. They can do a lot to make the bus faster and easier to ride.	3	3
This bus stop has no shelter or bench.	0	0
New stop needs to have a shelter and bench like the old one.	0	0
Can you put in a crosswalk here across Bollinger? There is no place to cross except at Miller, so kids run across the street	5	0
Add transit signal priority so that buses can avoid long waits at major intersections.	0	6
Crosswalk is needed here to complete the pedestrian network.	1	0

Positive Comments	Thumbs Up	Thumbs Down
Transit island with shelter will greatly enhance the bus experience and reduce traffic conflict.	1	0
Like	0	0
Agree to this. Even better to add road flashers that lines this pedestrian crosswalk	1	0
SUM	2	0
Negative Comments	Thumbs Up	Thumbs Down
Bike lanes do not follow the whole length of the road and almost all of them lack meaningful protection	7	0
Bike lane configuration on the north side of bollinger seems to be missing	3	0
need more pedestrian uncontrolled high visibility Rapid Flashing Light crossings in option B!	3	0
Do not reduce the curb turn radius. People need to be able to turn onto Chelmsford drive without getting rear ended by traffic behind them on Bollinger.	2	3
Speeds get way too high here, especially with two lanes in each direction and very wide travel lanes. Feels like I'm on Central Expressway.	3	2
Bike lane must be consistently protected across the whole length of the road. Consider: Would you let your child ride to school here?	2	2
Extend bike lane to allow for further motor visibility.	1	0
SUM	21	7
Spot Improvements	Thumbs Up	Thumbs Down
provide bike 2 stage turn queue boxes at all 4 corners	3	0
provide bike 2 stage turn queue boxes at all 4 corners	3	0
provide bike 2 stage turn queue boxes at all 4 corners	2	0
prohibit right on red at this intersection	1	6
Add a light for the right turn from Lawrence to Bollinger that can be activated by a pedestrian walk button. People ignore pedestrians currently. Also activate the stop light when people are making a left from Lawrence onto Bollinger (heading toward Tantau). People make the right turn when they do not have the right of way, making it dangerous.	1	0
Add Traffic cameras with automatic ticket issuance for people who run the red light. This is a constant problem, especially for people turning left from Bollinger onto DeAnza. I have never seen the Sheriff's dept do enforcement at this intersection.	1	0
Extend the left only lane for turning from Bollinger onto Johnson to eliminate people cutting into the oncoming traffic lane to avoid the backup of people ahead of them waiting for the light to change.	0	0
Add transit signal priority to speed up buses and prevent delays at intersections. Work with VTA's Fast Transit program. Many people, especially elders and young students rely on the bus. They need transit that is fast, safe and reliable. In the future, consider turning the parking lane or one of the travel lanes into a bus only lane.	1	0
Need pedestrian crosswalk here to complete connected Pedestrian network.	0	0
Add pedestrian crosswalk to Complete the pedestrian crosswalk network.	0	0