

DATE: June 16, 2026

TO: Council Transportation Committee

FROM: Joy Houghton, Senior Civil Engineer
Robert Gonzales, Principal Civil Engineer
Edward Arango, Assistant Public Works Director/City Engineer

VIA: Jennifer Ng, Public Works Director

SUBJECT: State Route 237 and Middlefield Road Interchange Improvements, Project 19-65

RECOMMENDATION

Receive an update and recommend that the City Council approve the staff-recommended design concept for State Route 237 and Middlefield Road Interchange Improvements, Project 19-65.

BACKGROUND

In 2005, the Santa Clara Valley Transportation Authority (VTA) solicited support and participation from the City regarding highway projects included in the Valley Transportation Plan (VTP) 2023, including State Route (SR) 237 and the Middlefield Road interchange. In 2006, the City and VTA entered into a cooperative agreement to fund and prepare a Project Study Report (PSR) for State Route 85, between El Camino Real and SR 237, and the Westbound SR 237 On-Ramp at Middlefield Road. The PSR evaluated alternatives to improve traffic operations on SR 85, between El Camino Real and SR 237, on the SR 85/El Camino Real interchange, and at SR 237/Middlefield Road interchange (see Figure 1). The PSR was completed in 2012 and approved by the California Department of Transportation Caltrans) in 2013.

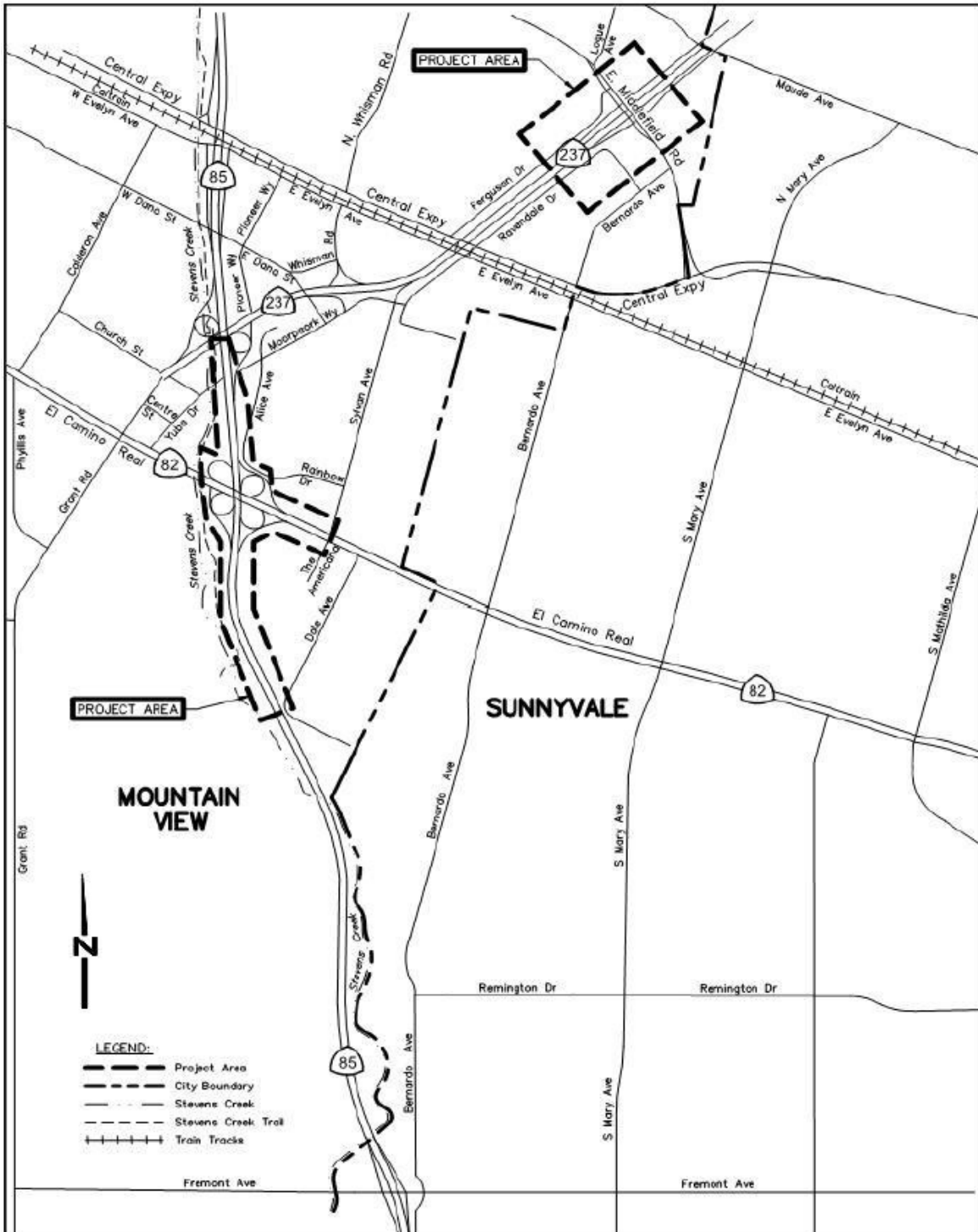


Figure 1: Project Study Report Project Areas

In November 2018, the City Council accepted \$11 million in Community Benefit funds from the development project at 700 East Middlefield Road and on [January 22, 2019](#) the City Council approved a capital improvement project, State Route 237 and Middlefield Road Interchange Improvements, Project 19-65 (Project) and appropriated funds in the amount of \$5.5 million to the Project utilizing the funds received from the first phase of the development project.

Council also authorized the City Manager to execute a Funding Agreement with VTA for project management services for the Project, committing staff and consultant resources to the Project Approval and Environmental Document (PA&ED) and Final Design phases of the project. Key terms of the agreement included the following:

- VTA serves as the lead agency responsible for all activities related to the PA&ED and Final Design phases;
- The City serves as the project sponsor and is responsible for public outreach and stakeholder engagement; and
- The City will provide up to \$4 million to VTA to fund the PA&ED and Final Design phases.

The Funding Agreement was executed on October 18, 2019, and the project was formally initiated in May 2020.

The Project intent is to reduce collision conflicts along Middlefield Road from Logue Avenue to the eastbound SR 237 off-ramp intersections and improve pedestrian and bicycle mobility and connectivity within the project area.

The SR 237/Middlefield Road interchange is challenging due to the number and close proximity of intersections in a relatively short stretch of Middlefield Road (see Figure 2). The result is a high collision rate and a challenging environment for pedestrians and bicyclists. The preliminary scope of work improves and simplifies the interchange to address these challenges.

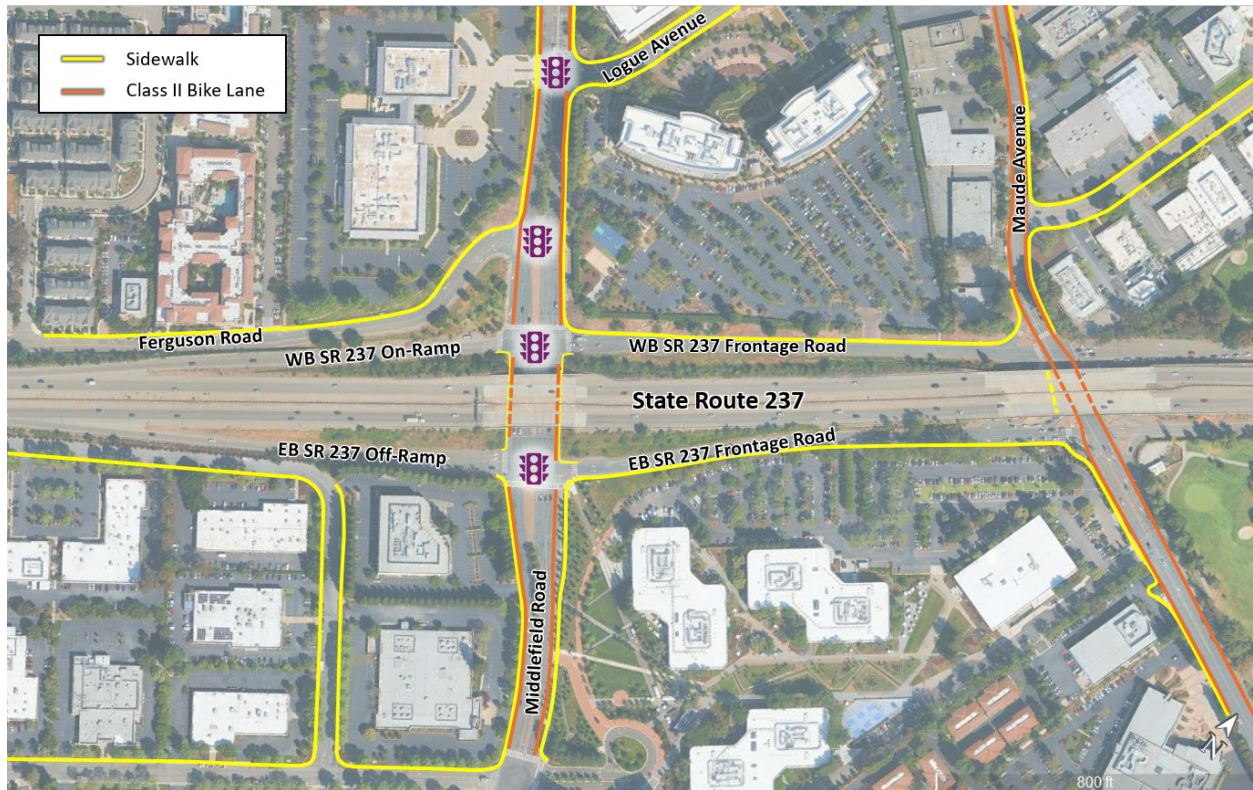


Figure 2: SR 237/Middlefield Road Layout

DISCUSSION

Existing Conditions

The project limits are shown in Figure 3 and include:

Middlefield Road, between Logue Avenue to SR-237 eastbound off-ramp and eastbound Frontage Road as well as portions of the westbound Frontage Road west of SR-237. Middlefield Road is a four-lane, commercially zoned local road, with four signalized intersections spaced approximately 300 feet apart in the project area.

The SR 237/Middlefield Road intersection operates as a partial interchange (only having an eastbound off-ramp and a west-bound on-ramp), with the other interchange movements happening at the Maude Avenue partial interchange. As a result, there are a series of extra vehicular movements from SR 237 onto frontage roads for vehicles looking to access either Middlefield Road or Maude Avenue.

There are continuous Class II bicycle lanes and four to six-foot sidewalks on both sides of Middlefield Road within the project limits. East of Middlefield Road, sidewalks and Class II bicycle lanes exist along the north and south sides of the westbound and eastbound Frontage Roads, respectively (see Figure 3).



Figure 3 – Existing Conditions

The SR 237/Middlefield Road interchange experiences safety challenges due to the close spacing of four signalized intersections within approximately 1,000 feet along Middlefield Road, including Logue Avenue, Ferguson Drive Road, and the two SR 237 ramps. This configuration contributes to a high rate of broadside collisions. In particular, the collision rate at the westbound SR 237/Middlefield Road/Frontage Road intersection exceeds the statewide average for intersections of this type.

In addition, the project area is significantly constrained for bicyclists and pedestrians. The Caltrain corridor functions as a north–south barrier, while SR 237 acts as an east–west barrier. Existing sidewalk widths within the project area do not meet current best practices, and widening the sidewalks would encourage pedestrian activity, including access to and from the Middlefield Light Rail Station.

Traffic Operations and Collisions

One of the main goals of the Project is to improve safety at the SR 237/Middlefield Road interchange. Previous analyses have considered that the close spacing of signalized intersections contributed to a high broadside accident rate at the intersection of Middlefield Road and the westbound SR 237 on-ramp and Frontage Road due to red-light violations. The four signals are all within 1,000 feet along Middlefield Road between Logue Avenue and the eastbound SR 237 off-ramp.

Traffic Operations

The project intersections were analyzed for key performance metrics, including Level of Service. Level of Service measures the quality of traffic flow and a driver's experience on the road and at intersections, based on the speed and number of cars using the road. The LOS of a road is designated by a letter grade of A (free flow) to F (most congested conditions). On Middlefield Road, all intersections within the project area currently operate at level of service (LOS) C or better during both the AM and PM peak hours according to analysis conducted for the Middlefield Road Diet Traffic Operations Study in 2025. An LOS C indicates stable flow and operations with very average delays (between 20-35 seconds). LOS C is within the City's thresholds of acceptable (with the minimum acceptable delay being LOS D).

Table 1 – Intersection LOS from 575 Middlefield Road Traffic Impact Analysis (2025)

Intersection	AM Peak Hour LOS	PM Peak Hour LOS
Middlefield Road/Logue Avenue	B	B
Middlefield Road/ Ferguson Drive	B	B
Middlefield Road/WB Ramps*	C	C
Middlefield Road/EB Ramps*	C	C

*Owned/operated by Caltrans

Collisions

In 2012, a Traffic Operations Analysis was prepared in support of the 2013 PSR-PDS. The analysis identified two locations at eastbound and westbound SR 237 at Middlefield experiencing collision rates higher than the statewide average for similar intersection characteristics.

At the two intersections on Middlefield Road at SR 237, various data sources show the total number of collisions for the fifteen years between 2005 and 2020. History shows 26 collisions between 2005 and 2010, 31 collisions between 2011 and 2015, and 44 collisions between 2016-2020. The collision data history was not available for after 2020.

Minor improvements have been made at the intersections, such as traffic signal timing upgrades to increase efficiency of vehicular flow through this constrained area. However, the rising trend in the number of collisions suggests that without any further changes, Middlefield Road collision rates could continue to increase as traffic volumes increase in the area.

Collision data shows that approximately 75% of collisions in the study area occurred at Middlefield Road and the SR 237 ramps, specifically the southbound through traffic on Middlefield Road.

There are three types of conflicting movements, all involving southbound traffic, on Middlefield Road (see Figure 4):

1. Southbound through and westbound SR 237 ramp through movements
2. Southbound through and westbound SR 237 left-turning traffic movements; and
3. Southbound through and northbound left-turning traffic movements.

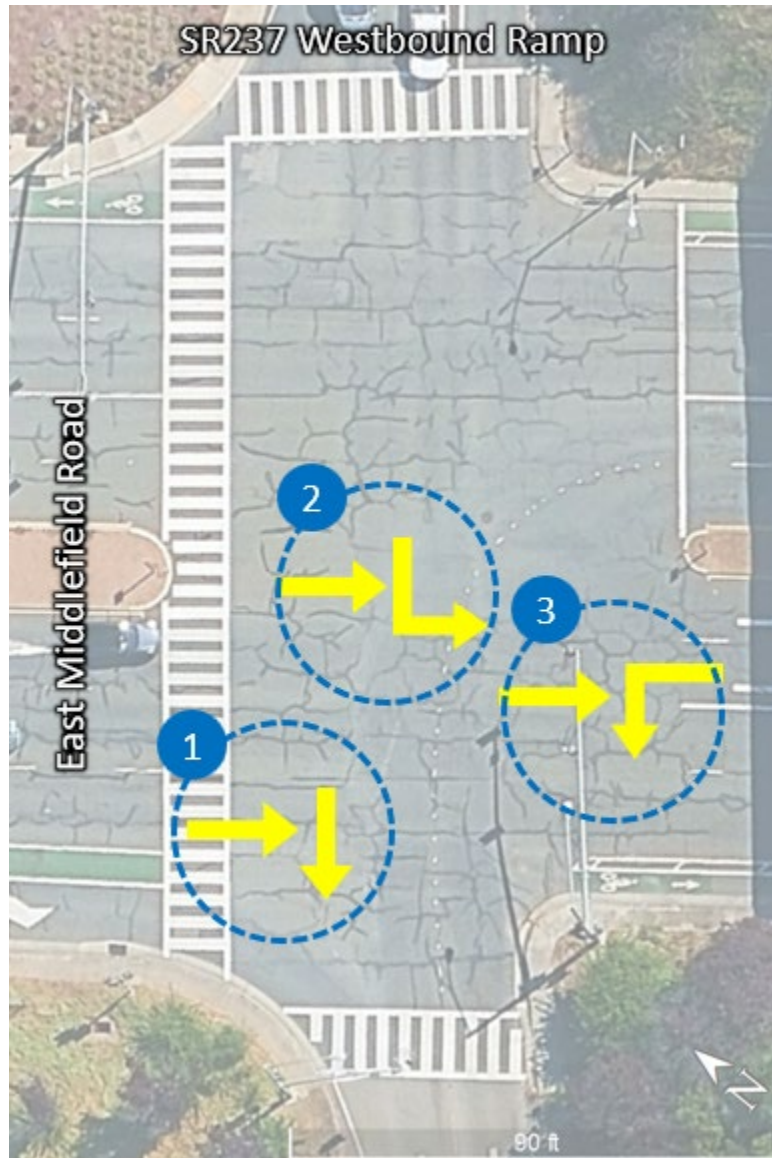


Figure 4: Conflicting Movements

Design Concept Alternatives

The preliminary scope of work is intended to improve and simplify the interchange by:

- Reducing the frequency and severity of collisions along Middlefield Road from Logue Drive to the eastbound SR-237 off-ramp intersections;
- Improving pedestrian and bicycle accommodations and access;

- Enhancing accessibility and connectivity to transit;
- Strengthening connections to local roadways and planned developments in the area; and
- Optimizing the use of existing right-of-way.

In 2020, the Project Team completed the preliminary investigative phase of the project to support the development and analyses of six concept alternatives, including two from the PSR that will meet the project purpose and need. The Project team developed six alternatives. These alternatives and their analysis are further detailed in Attachment 1. The alternatives are summarized and rankings are shown in Table 2.

Table 2: Alternatives Summary

Alternative	Roadway Improvements	Right of Way Impact	Estimated Construction Cost (2020 Dollars)	Scoring Ranking
1	<ul style="list-style-type: none"> • Slip on-ramp from westbound Frontage Road to westbound SR 237 between Maude Avenue and Middlefield Road. • Island to eliminate westbound through movement at the Frontage Road/Middlefield Road intersection. • Class IV bikeways with adjacent six-foot-wide sidewalks. • Protected intersections at Ferguson Drive, Frontage Road and east SR 237 Off-Ramp. 	Little to none	\$11.9M	1, but not approved by Caltrans*
2	<ul style="list-style-type: none"> • Slip-ramp from westbound Frontage Road to westbound SR 237 between Maude Avenue and Middlefield Road. • Extend median island to eliminate through and left turn movements from Frontage Road to Middlefield Road. • A hook ramp from Ferguson Drive and close ramp access at Middlefield Road. 	Little to none.	\$12.4M	5

Alternative	Roadway Improvements	Right of Way Impact	Estimated Construction Cost (2020 Dollars)	Scoring Ranking
	<ul style="list-style-type: none"> Class II and Class IV bikeways with adjacent six-foot-wide sidewalks. Partially protected intersection at Middlefield Road and eastbound Frontage Road. 			
3	<ul style="list-style-type: none"> Reconfigured lanes along Middlefield Road between Ferguson Drive and eastbound SR 237 off-ramp to accommodate enhanced pedestrian and bicycle facilities. Class IV bikeways with adjacent six-foot-wide sidewalks. Protected intersections at westbound Frontage Road, eastbound Frontage Road and Ferguson Drive. 	Little to none.	\$2.4M	2
4	<ul style="list-style-type: none"> Frontage Road realignment to intersect with Ferguson Drive at Middlefield Road. Class IV bikeways with adjacent six-foot-wide sidewalks. Protected intersections at westbound Frontage Road, eastbound Frontage Road and Ferguson Drive. Squared up intersection at Ferguson Drive/Frontage Road and Middlefield Road. 	~42,000 SF	\$19.8M	3
5B	<ul style="list-style-type: none"> A loop on-ramp to westbound SR 237. Class IV bikeways with adjacent six-foot-wide sidewalks, squared up intersections, and protected intersections at the new Middlefield/westbound Frontage Road intersection and at eastbound Frontage Road. 	~110,000 SF	\$54.5M	4
5C	<ul style="list-style-type: none"> A new loop on-ramp to westbound SR 237. Replace conventional four-legged intersection at the realigned westbound Frontage Road/Middlefield Road intersection and construct a roundabout. 	~95,000 SF	\$48.9M	6

Alternative	Roadway Improvements	Right of Way Impact	Estimated Construction Cost (2020 Dollars)	Scoring Ranking
	<ul style="list-style-type: none"> • Class IV bikeways with adjacent six-foot-wide sidewalks. • Protected intersection at eastbound Frontage Road. 			

*The analysis concluded that the proposed new point of access along SR 237, together with increased traffic volumes at the Middlefield Road/Ferguson Drive intersection, would result in higher predicted crash frequencies at these locations. Caltrans did not approve Alternative 1.

With Alternative 1 eliminated by Caltrans, the project team refined Alternatives 3 and 4 for Caltrans review. In 2023, Caltrans expressed support for advancing Alternatives 3 and 4 for further consideration.

In 2024, the project team developed preliminary design concepts for Alternatives 3 and 4 to further evaluate their feasibility. Due to the right-of-way acquisition requirements associated with Alternative 4, Alternative 3 was subsequently refined to include improvements along the westbound Frontage Road, including traffic-calming features such as a raised median and narrowed travel lanes to reduce vehicle speeds approaching Middlefield Road. These additions increased the project costs from the previous cost estimate in 2020 (Table 2), but are still within the project budget.

Staff Recommended Alternative

The conceptual design for Alternative 3 (see Figure 5) includes the following proposed improvements:

- Installation of traffic-calming features along the westbound Frontage Road, including raised medians, pavement markings, radar feedback signs, landscaping, and narrowed travel lanes.
- Construction of Class IV bikeways and widened sidewalks along the westbound Frontage Road between Middlefield Road and Maude Avenue.
- Installation of Class IV bikeways on Middlefield Road extending north of Ferguson Drive and south of the eastbound Frontage Road.
- Implementation of protected intersection improvements at the following intersections:

- Middlefield Road/Ferguson Drive
- Middlefield Road/westbound SR 237 on-ramp
- Middlefield Road/eastbound SR 237 off-ramp

These improvements would include realigned bicycle approaches in a Class IV configuration, reduced curb radii, reconstructed Americans with Disabilities Act (ADA) curb ramps, and new pedestrian and bicycle crossings.

- Deployment of technology improvements at intersections within the project area, including:
 - Signal interconnect and signal timing optimization along Middlefield Road between Ferguson Drive and the SR 237 eastbound off-ramp;
 - Modified traffic signal operations with separate bicycle and pedestrian signal phases;
 - Installation of new nearside signal heads for the southbound Middlefield Road approaches at the SR 237 westbound and eastbound ramp intersections; and
 - Installation of reflective backplates for traffic signal heads along Middlefield Road at the project intersections.
- Updated intersection lane striping and signage along Middlefield Road and the westbound Frontage Road.



Figure 5 – Preferred Alternative – Alternative 3

Project Status and Schedule

The project is currently in the Project Approval/Environmental Document (PA/ED) phase and has received concurrence from Caltrans on the required environmental, traffic reports, and technical memorandums needed for project approval. **Staff is seeking a CTC recommendation that the City Council approve the staff-recommended design concept.** Once approved by Council, staff will submit the approved design concept to Caltrans along with supporting technical studies (including biological resources, cultural resources, and other technical analyses) and project documentation (right-of-way requirements, preliminary geotechnical findings, hydrology and drainage analysis, etc.). Caltrans approval of the recommended concept alternative and supporting documentation is required before the project can advance to the final design phase.

Completion of the PA/ED phase is anticipated by the end of 2026. The final design phase is expected to begin in early 2027 and conclude by summer 2028, followed by an approximately two-year construction period, including contract procurement.

Project Cost Estimate and Funding

The project cost estimate for the staff-recommended Alternative 3 is currently \$24.8 million, as summarized in Table 3 below.

Table 3– Project Cost Estimate

Activity	Cost Estimate (In million dollars 2028)
Alternative Evaluation	\$ 2.0
Project Approval/Environmental Document Phase	\$ 1.0
Final Design	\$ 1.5
Construction	\$ 11.8
Construction Support	\$ 3.5
Contingency	\$ 5.0
TOTAL PROJECT COST	\$ 24.8

Should Alternative 3 be approved, the project is fully funded through the final design phase using 2016 Measure B Highway Program funds and City Community Benefit funds associated with the development project located at 700 East Middlefield Road. The total project budget includes \$22.5 million in 2016 Measure B Highway Program funds and \$4 million in City Community

Benefit funds, for a combined total of \$26.5 million. Sufficient funding has been identified to support the construction of the project upon completion of the design phase.

NEXT STEPS

Staff will provide the BPAC with an informational update on June 24, 2026, including a summary of feedback received from the CTC. Following evaluation of the CTC feedback, staff will forward a recommendation to the City Council for approval of the design concept in fall 2026.

PUBLIC NOTICING

In addition to the City's standard agenda and posting requirement, notices were mailed to residents and property owners within 1,000 feet of the project area and distributed to persons who have signed up for project updates, and representatives of VTA.

Attachment: 1. State Route 237/Middlefield Road Improvements Alternatives Analysis

cc: PWD, APWD – Arango, APWD – Boyer, CTE, PCE – Gonzales, SCE – Houghton