Appendix D:

Separated Bikeway 35% Design Concept and Cost Estimate for Northern Segment of Richmond Parkway

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Richmond Parkway 35% Plans

Key Improvement Types

The following treatments are detailed in the 35% plan set and will be critical for project success on the corridor.

Carrall Street, Vancouver, Canada

Separated bike lanes will be elevated to the sidewalk level to physically separate bicyclists from motor vehicle traffic, enhance bicyclist comfort and safety, and provide new landscaping and/or bioretention opportunities in the buffer.

Walnut Avenue, Fremont

Raised driveways at private intersections will provide a continuous, flat surface for pedestrians and cyclists. Where driveways are within the public right-of-way or where future driveways are developed, signs and design features will alert drivers that they are crossing a pedestrian/bike facility.

El Portal Drive, San Pablo

Bioretention facilities may be installed in the roadway buffers or landscaping. The next design phase will determine appropriate treatments.

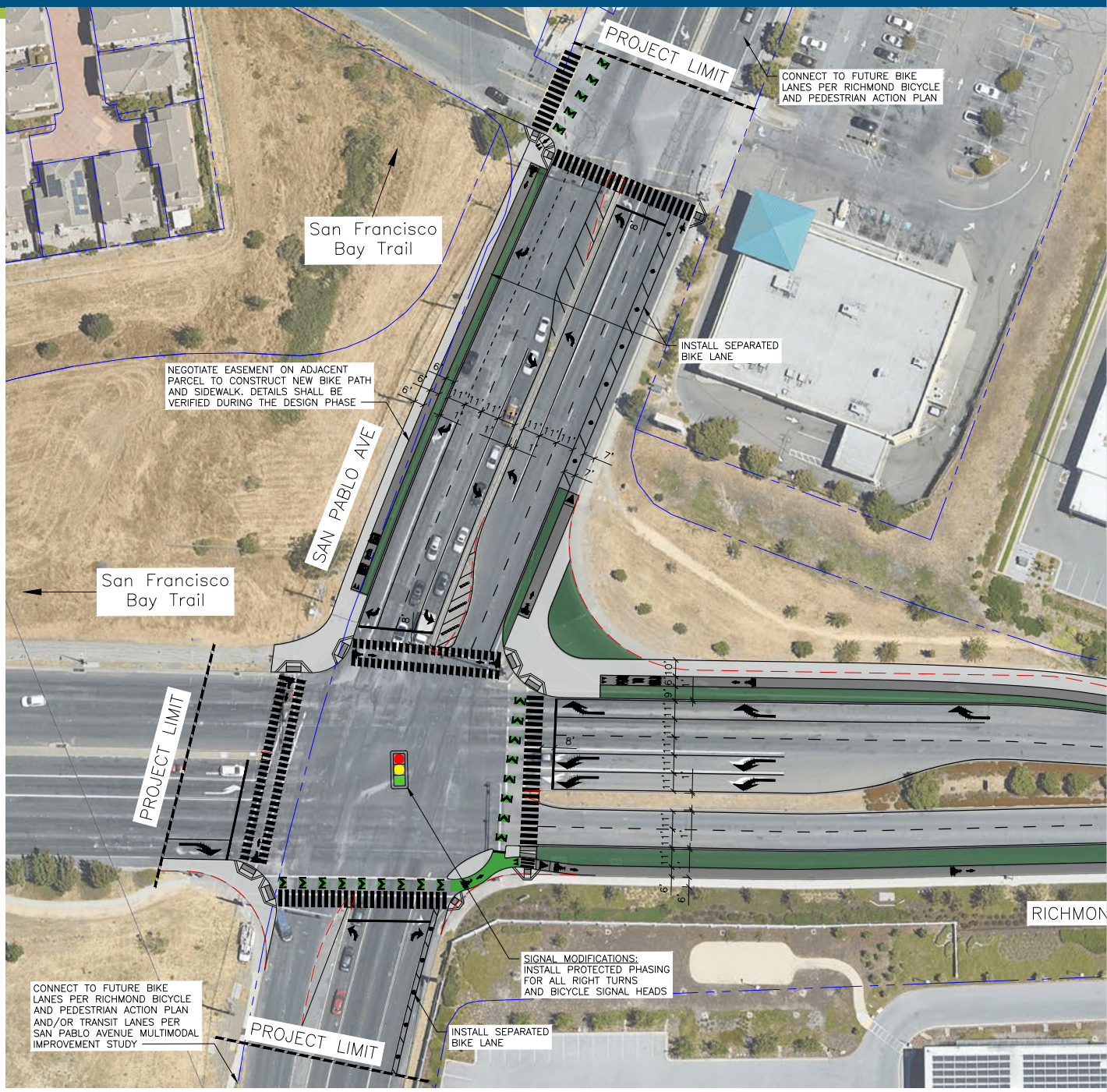
Webster Street, Alameda

Walnut Avenue, Fremont

Protected intersections are designed to keep bicyclists fully separate from vehicles until the intersection, enhancing visibility and safety by reducing right-turning vehicle speeds and giving bicyclists a head start in crossing the street. These will be combined with protected right-turn signal phasing for vehicles to enhance safety for cyclists and pedestrians by separating them in time from conflicting vehicle traffic.

Telegraph Avenue, Oakland

Bus boarding islands separate waiting riders from the separated bike lane, which is routed behind the island to reduce bike/pedestrian conflicts.



GENERAL NOTES:

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LANE ARROW AND BIKE LANE SYMBOL CALTRANS STD PLANS A24A AND A24C

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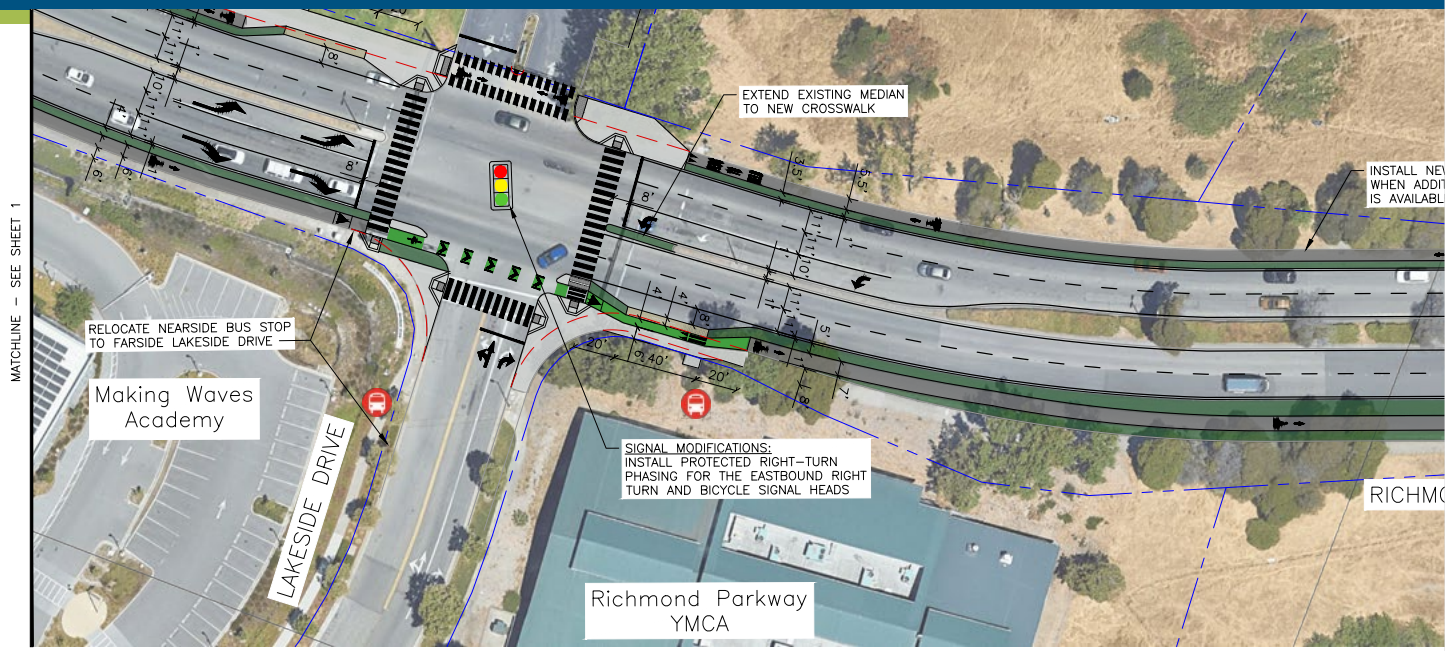
BUS STOP

Sheet 1 of 4

Richmond Parkway

San Pablo Avenue to Fitzgerald Drive



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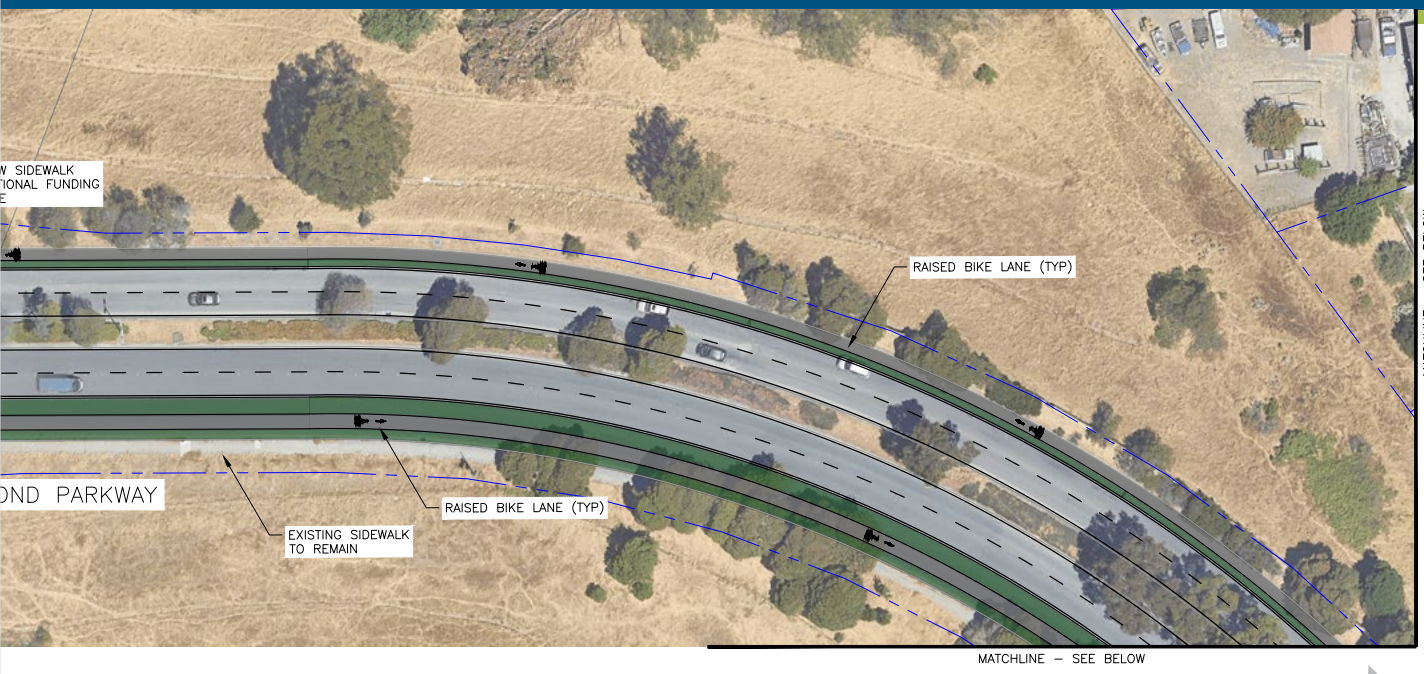

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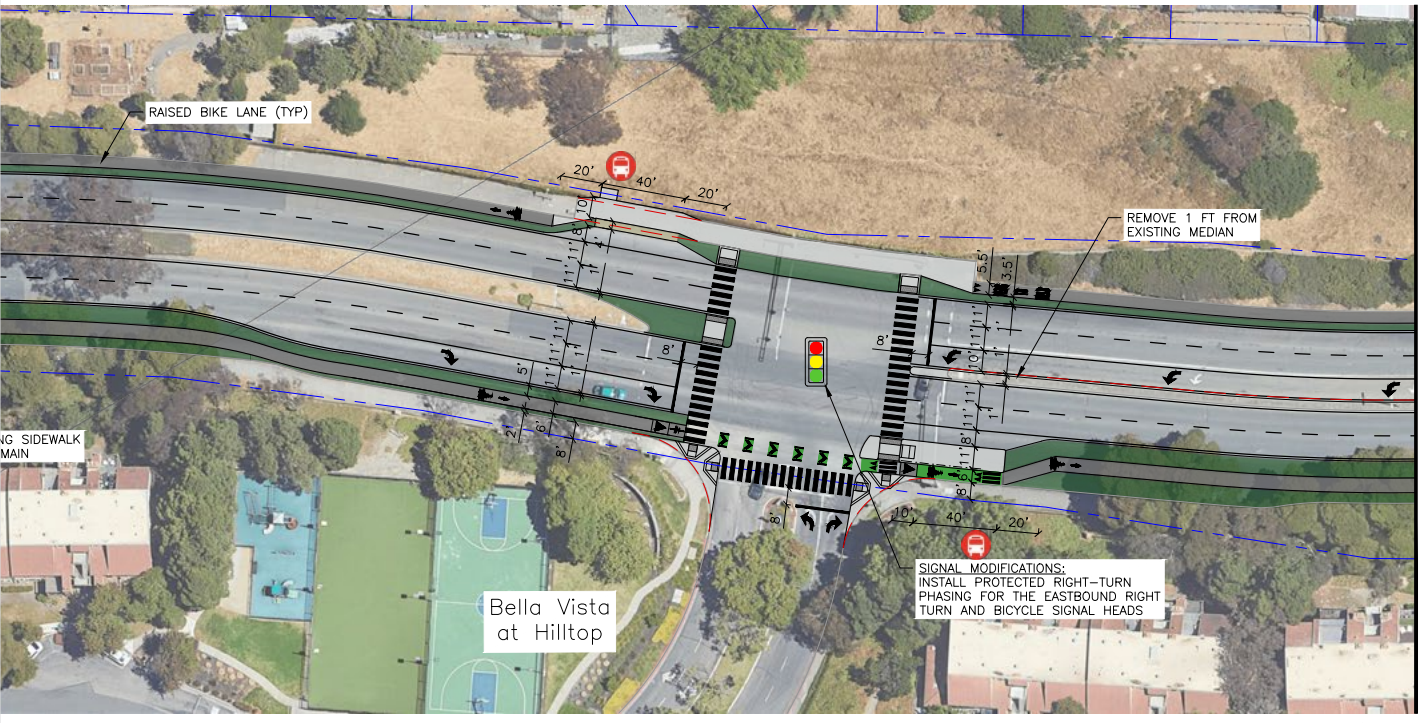

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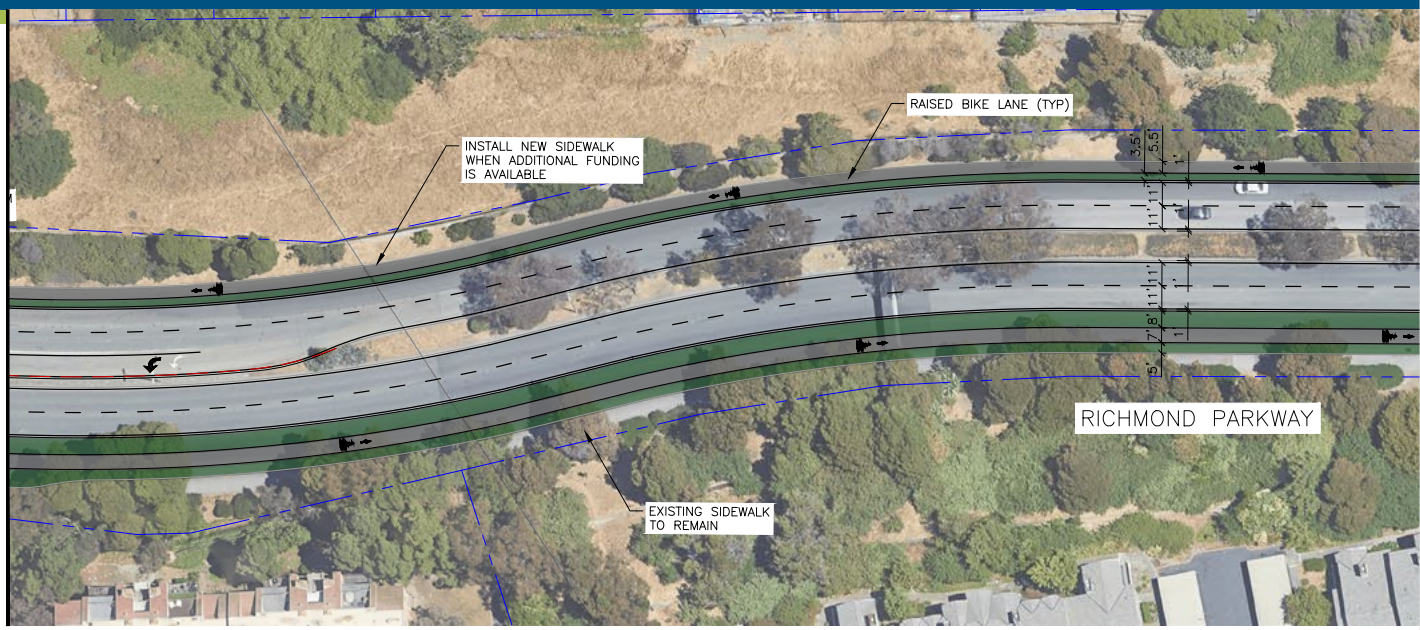

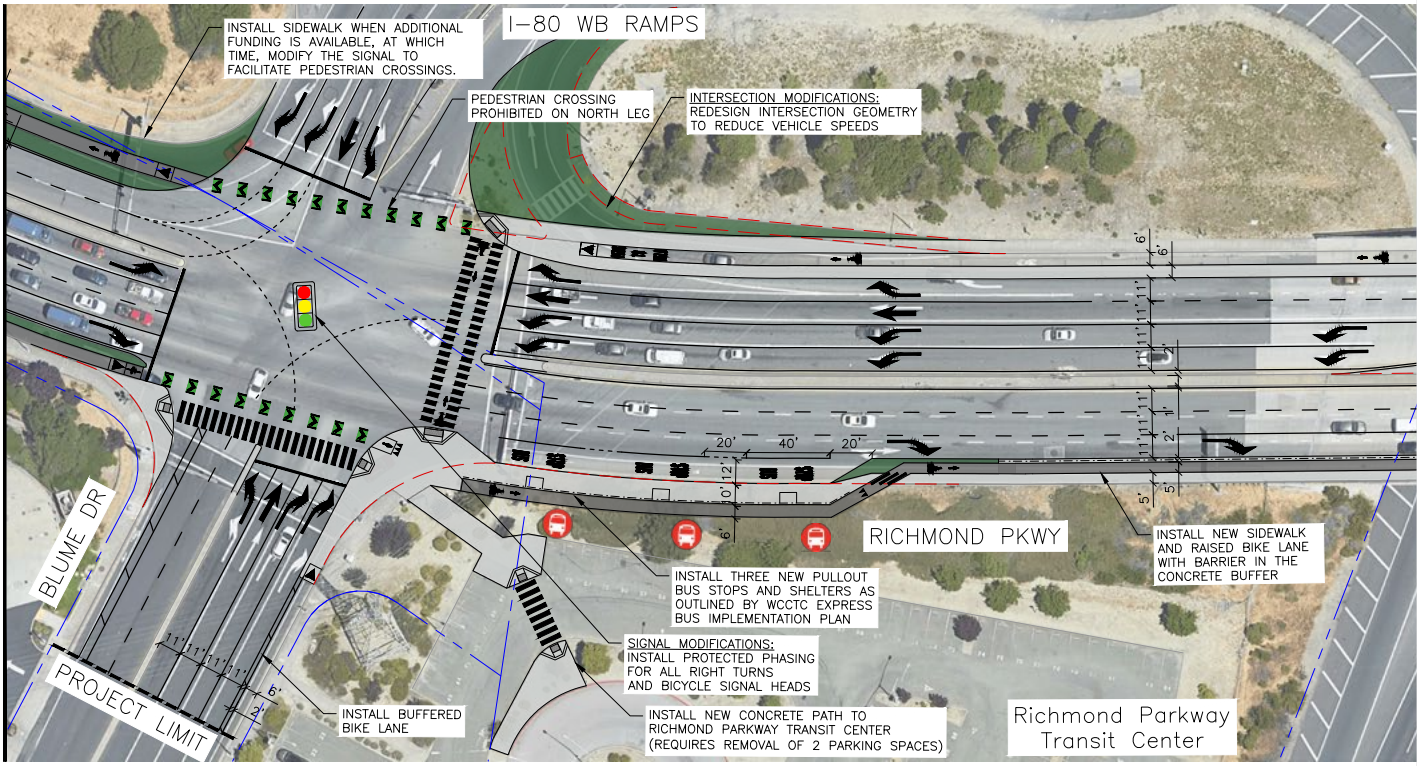

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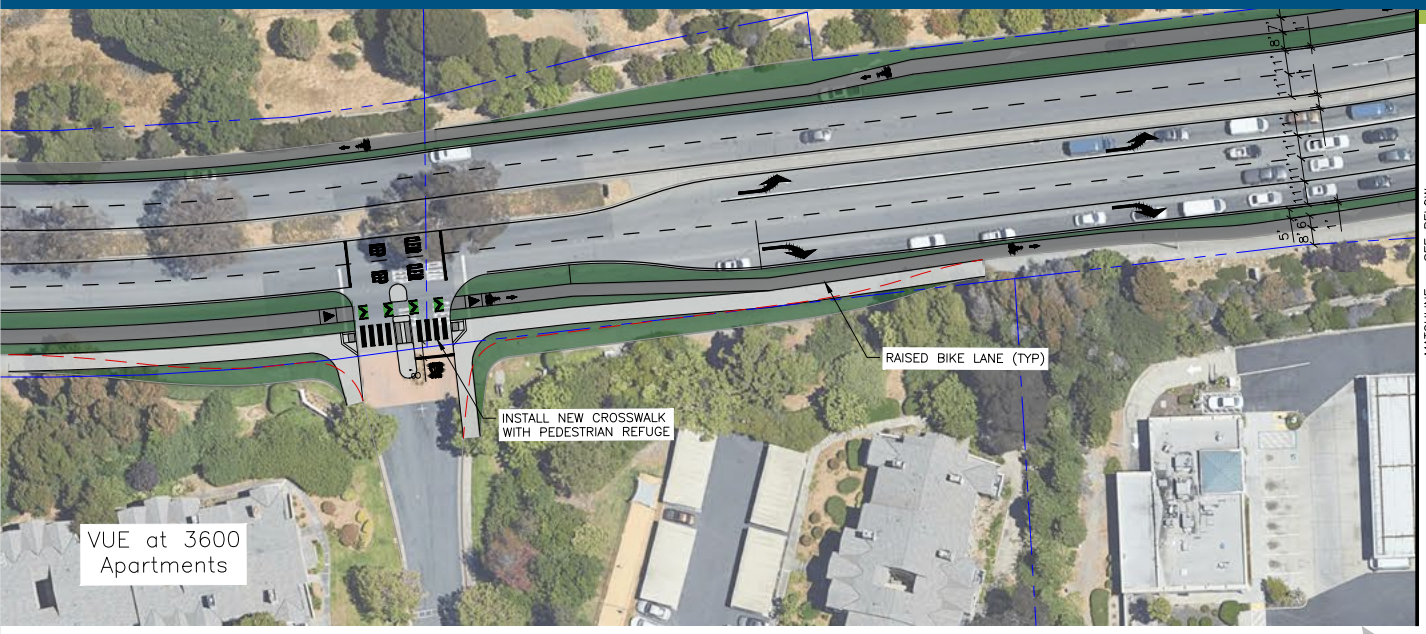

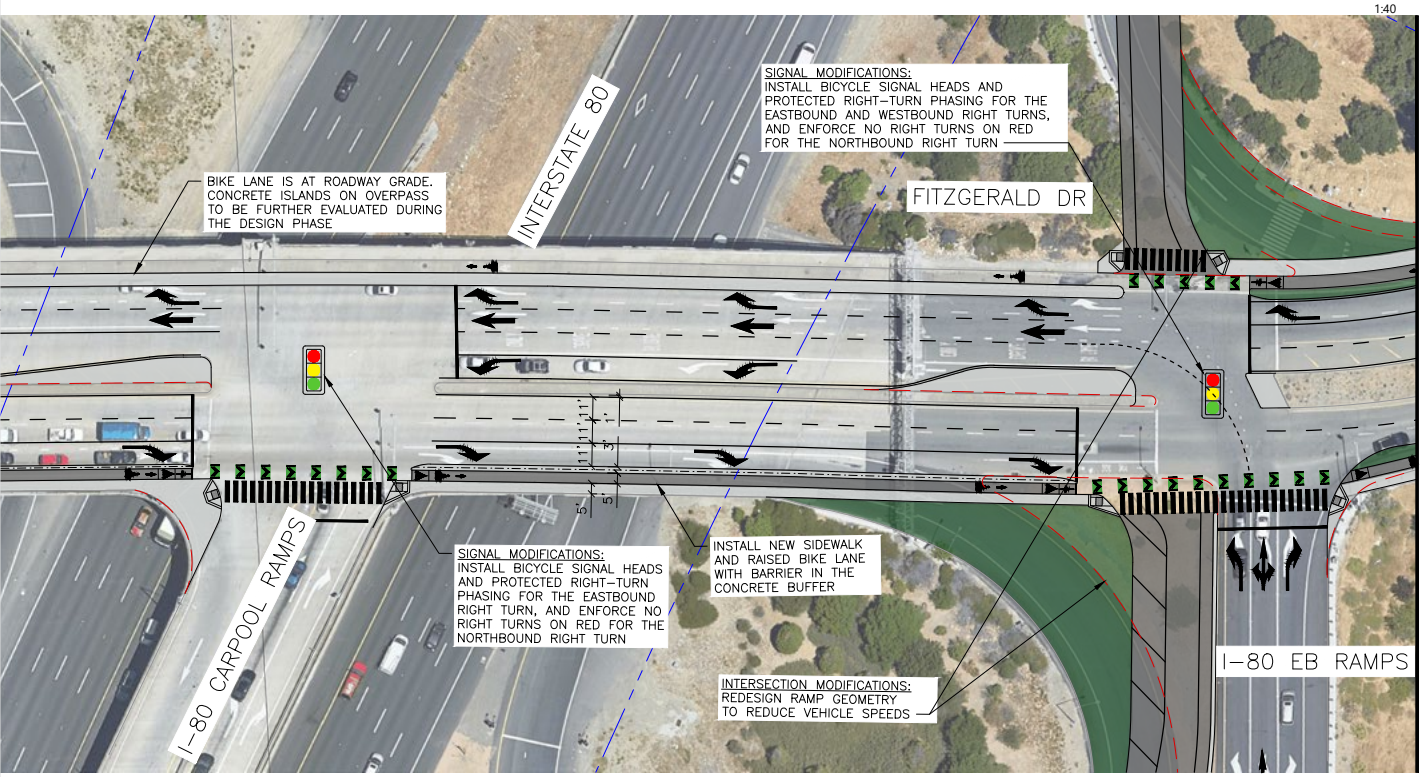

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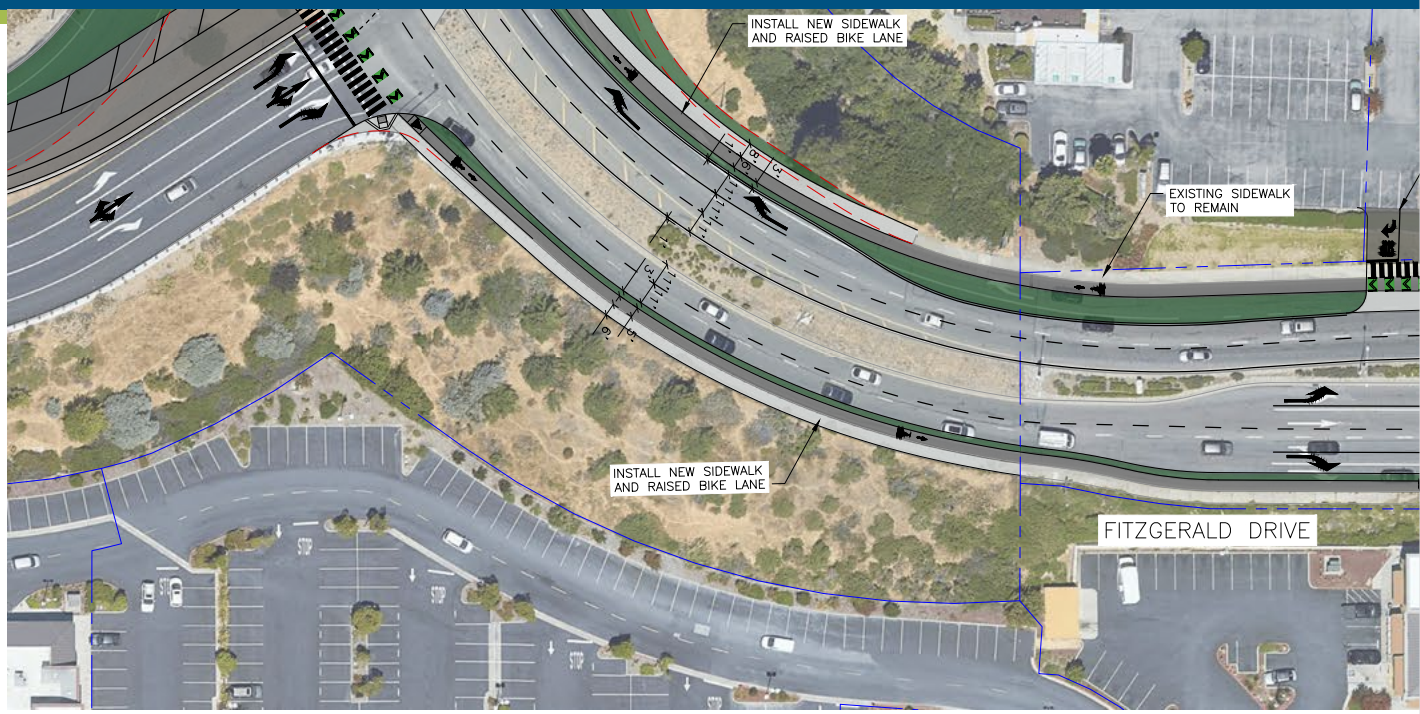

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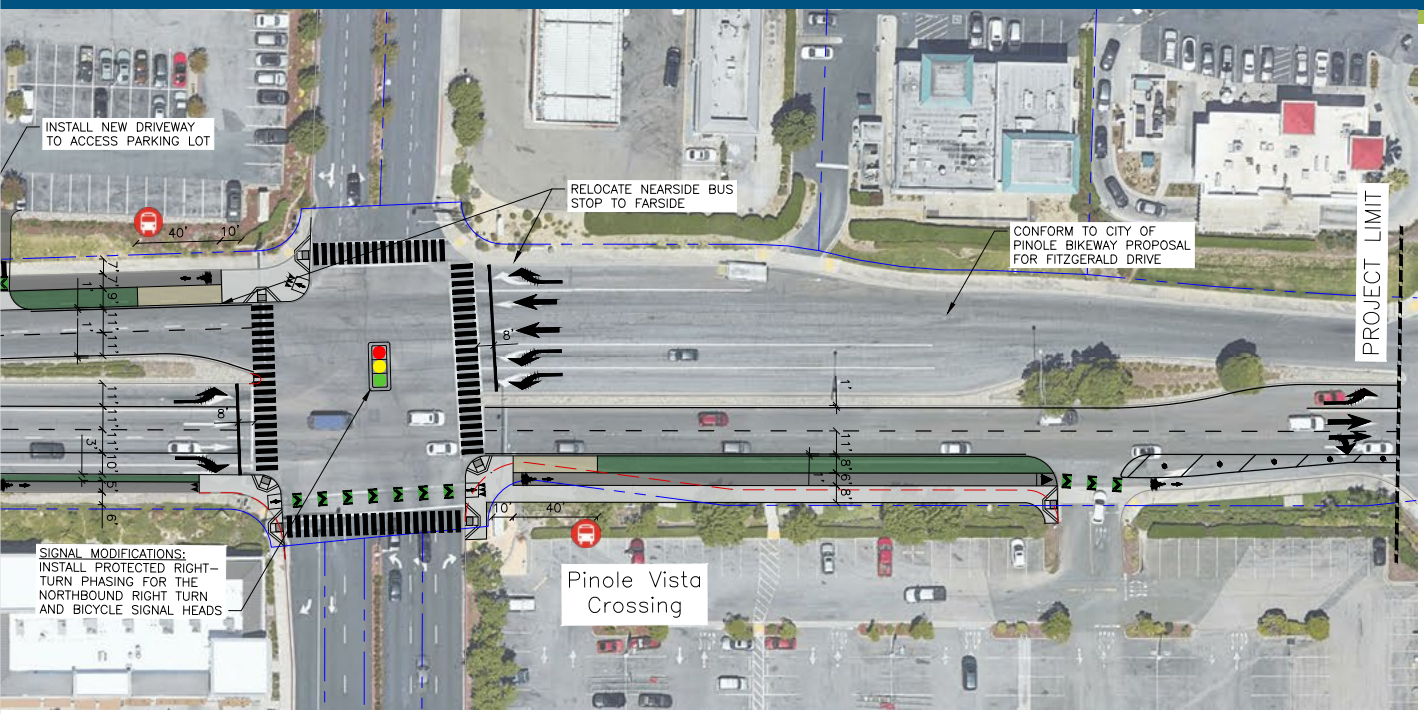

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City of Richmond
Engineer's Estimate of Probable Construction Cost
35% Design Concept for Northern Segment of Richmond Parkway
February 18, 2025

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ITEM TOTAL	NOTES
1	Mobilization (10%)	LS	1	$3,089,000	$ 3,089,000	10% of construction items. Includes mobilization and demobilization.
2	Environmental Protection (5%)	LS	1	$1,544,000	$ 1,544,000	5% of construction items. Includes Storm Water Pollution Prevention Plan (SWPPP) and implementation.
3	Traffic Control (5%)	LS	1	$1,544,000	$ 1,544,000	5% of construction items.
4	Storm Drain Inlet Relocation	EA	8	$10,000	$ 80,000	Includes work to relocate storm drain curb inlets needed when curb and gutter is relocated.
5	Storm Drain Pipe (15" RCP)	LF	120	$530	$ 63,600	Includes storm drain pipe to connect to relocated storm drain curb inlets needed when curb and gutter is relocated.
6	Misc. Utility Protection	LS	1	$100,000	$ 100,000	Includes adjusting utility covers to grade. Does not include utility relocation or utility improvements.
7	Remove Surfacing and Base	CY	55,000	$60	$ 3,300,000	Includes removal and offhaul of material equal in volume to the AB and HMA placed for roadways (31") and of the existing roadway section for areas beneath proposed bike paths, concrete, and landscape areas. Includes removal of subgrade if needed.
8	Hot Mix Asphalt	TON	27,200	$160	$ 4,352,000	Includes HMA for roadways and bike paths. Assumes a typical roadway paving section of 8" HMA (over 23" AB). Assumes a typical bike lane paving section of 3" HMA (over 12" AB).
9	Class 2 Aggregate Base	TON	74,300	$95	$ 7,058,500	Includes AB for roadways and bike paths. Does not include AB for minor concrete. Assumes a typical roadway paving section of 8" HMA over 23" AB. Assumes a typical bike lane paving section of 3" HMA over 12" AB.
10	Minor Concrete (Sidewalk, Driveway, Median, Curb & Gutter)	SF	90,200	$20	$ 1,804,000	Includes all work and materials for constructing sidewalk, driveway, medians, curb & gutter, curb ramp areas. Area roughly equal to grey solid hatch "install new concrete sidewalk."
11	Curb Ramps & Median Refuge Islands	EA	46	$8,000	$ 368,000	Includes the additional work to construct curb ramps and passageway islands beyond that required for standard sidewalk. Curb ramp and median refuge concrete area is already included as minor concrete.
12	Bus Stops (Signage, Railing, Shelter)	EA	10	$40,000	$ 400,000	Does not include concrete bus pads. Does not include more robust pavement or curb and gutter structure.
13	Full Replacement of Existing Traffic Signal	EA	5	$500,000	$ 2,500,000	Full replacement at San Pablo, Lakeside, Bella Vista, I-80 EB ramp, I-80 WB ramp intersections with Richmond Parkway
14	Modification to Existing Traffic Signal	EA	2	$250,000	$ 500,000	Modifications at I-80 HOV off-ramp and Pinole Vista Crossing intersections with Richmond Parkway/Fitzgerald
15	I-80 On/Off-Ramp Grading	CY	1,200	$200	$ 240,000	Intended to capture grading required for I-80 ramp intersection realignment. Assumes 12" average depth of soil moved and no net cut or fill. Traffic control, landscaping, Caltrans coordination, etc. are not included here.
16	Landscaping	SF	79,850	$25	$ 1,996,250	Includes trees (25 per 100 LF of roadway or every 8 feet if planted on both sides). Includes hand watering during establishment period (1 year).
17	Bioretention	SF	25,080	$180	$ 4,514,400	Assumes 4% of impervious area will be treated with bioretention for C.3 compliance. Assumes 4' wide linear reinforced concrete bioretention similar to El Portal Drive in San Pablo. Includes concrete structures, bioretention soils, plantings.
18	Retaining Walls at Transit Center	LF	180	$600	$ 108,000	Assumes low height (under 4 ft) walls with negligible live loads.
19	Bike Barricade at I-80 Bridge	LF	865	$300	$ 259,500	Assumes K-Rail barricades doweled into bridge deck as needed. Continuous or decorative barricades will be a higher unit price. Does not include structural engineering or analysis or Caltrans coordination.
20	Pedestrian Handrail	LF	200	$100	$ 20,000	Includes pedestrian railing between back of walk and the bike path at the eastbound bus stop on the west side of the I-80 bridge.
21	Thermoplastic Traffic Striping	LF	46,630	$2	$ 93,260	Approximate quantity for all striping. Includes striping and markers for all details.
22	Thermoplastic High Visibility Crosswalks	LF	1,712	$40	$ 68,480	Approximate quantity for all crosswalks.
23	Thermoplastic Traffic Markings	EA	210	$250	$ 52,500	Approximate quantity for various traffic markings or clusters of markings on the roadway and bike paths.
24	Green Bike Lane Markings	SF	1,820	$12	$ 21,840	Assumes thermoplastic or Methyl Methacrylate (MMA).
25	Roadway Lighting	MI	1.4	$2,133,000	$ 2,986,200	Lighting on both sides of street.
				Construction Total	**$ 37,064,000**	
				Contingency (20%)	**$ 7,412,800**	
				Construction with Contingency	**$ 44,476,800**	
				Construction with Contingency (Inflation-adjusted; Projected 2030 Construction)	**$ 54,113,000**	

	Engineering and Construction Management					
	Engineering Design (15%)	LS	1	$8,116,950	$ 8,117,000	15% of construction costs in 2030 dollars.
	Construction Management (10%)	LS	1	$5,411,300	$ 5,412,000	10% of construction costs in 2030 dollars.
	Additional Structural Engineering Consulting for Bridge Construction	LS	1	$100,000	$ 100,000	Includes structural review for bikeway on bridge deck, including coordination review with Caltrans and development of a barricade doweling detail. Assumes no bridge structural improvements.
	Additional Engineering and Design for Caltrans Encroachment Permit and Coordination	LS	1	$200,000	$ 200,000	The concept requires extensive work in Caltrans R/W which will require additional work to coordinate with Caltrans.
				Engineering and Construction Management Subtotal	**$ 13,829,000**	
				Grand Total (Construction, Engineering, and Construction Management; 2030 Construction)	**$ 67,940,000**	