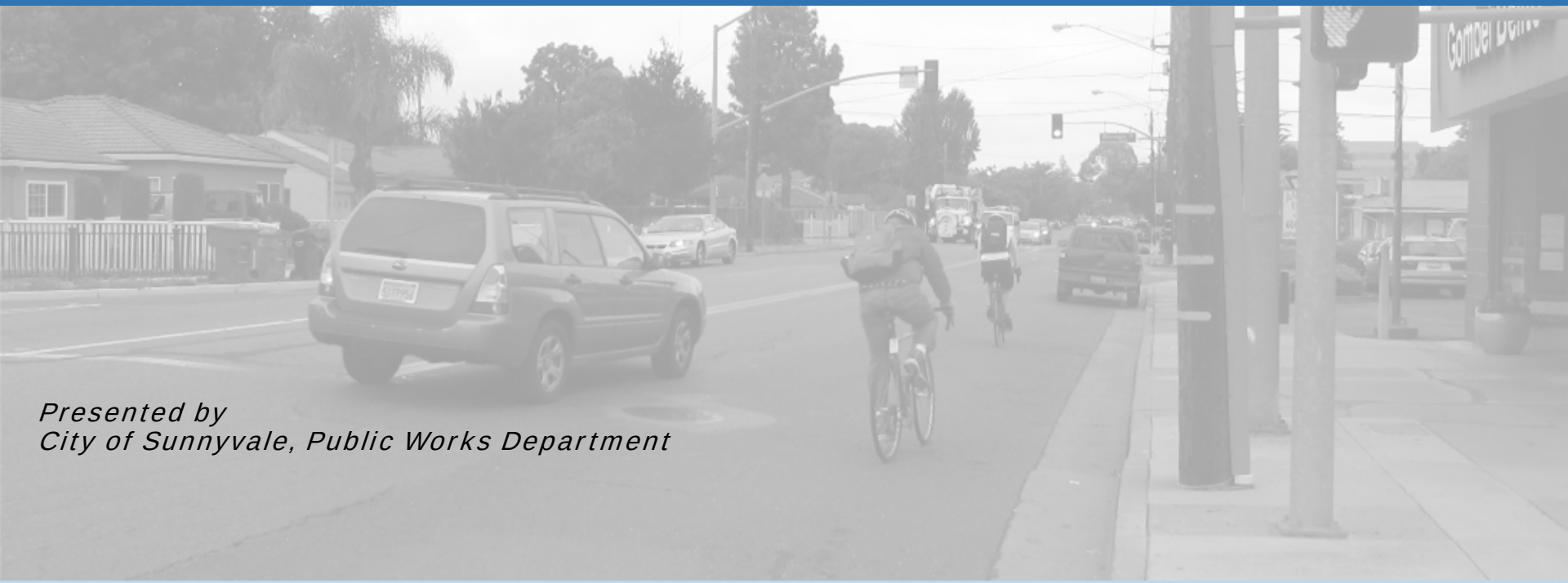
Maude Avenue
Bikeways and Streetscape Project



Presented by
City of Sunnyvale, Public Works Department

Air Quality Conformity Task Force
April 27, 2017

Kimley»Horn

Maude Avenue
Bikeways and Streetscape Project

Project Location

Background

- 2014: The City of Sunnyvale conducted a corridor study along Maude Avenue between Mathilda Avenue and North Fair Oaks Avenue to determine feasible alternatives to implement bicycle lanes on the project corridor.
- The City's transportation plan and the 2006 Sunnyvale Bicycle Plan identifies the addition of bicycle lanes on Maude Avenue.
- In addition to the bicycle lanes, the proposed project includes pedestrian improvements (ADA-compliant curb ramps, enhanced crosswalks, removal of free-right turns, etc.). New landscaping is also included at the Maude Avenue & Sunnyvale Avenue intersection where the existing free-right lanes and porkchop islands are to be removed.
- 2015: The City presented the alternatives developed during the Maude Avenue Roadway Allocation Study to the community at two meetings, a public meeting at Bishop Elementary School and at a Bicycle and Pedestrian Advisory Commission (BPAC) meeting.
- May 17, 2016: Based on the recommendations of the City of Sunnyvale staff, the project was approved by the Sunnyvale City Council to proceed to the design and environmental stage.

Existing Corridor

- Approximately 1,320 vehicles/hour near Mathilda Avenue during PM peak
- Approximately 750 vehicles/hour near North Fair Oaks Avenue during PM peak
- Designated as bike route
- Provides access to Bishop Elementary School, Columbia Middle School (via Morse Avenue), King's Academy (east of Wolfe Road)
- VTA Bus Route 55 between Sunnyvale Avenue and North Fair Oaks Avenue

Project Purpose

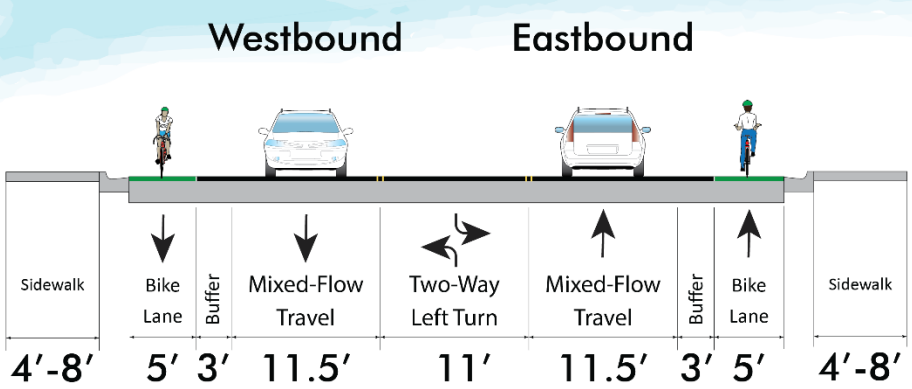
- Improve bicycle and pedestrian safety
- Install ADA compliant ramps
- Improve bicycle and pedestrian circulation

Project Description

- No roadway widening or new signalization
- Corridor-wide restriping to maintain center-turn lane and provide buffered bicycle lanes by utilizing pavement that currently serves on-street parking
- Upgrade existing curb ramps to meet current ADA guidelines at 23 locations
- Eliminate channelized right-turn movements at Sunnyvale Avenue to improve pedestrian safety
- Modify the existing signal at the Sunnyvale Avenue intersection
- Remove and replace landscaping at the Sunnyvale Avenue intersection
- Relocate VTA bus stop from Maude Avenue to Sunnyvale Avenue to reduce mid-block crossings
- Upgrade In-Roadway Warning Light system at Bayview Avenue
- Corridor-wide slurry seal pavement rehabilitation

Proposed Maude Ave Cross Section

- Convert on-street parking to buffered bike lanes
  - Consistent with adopted Sunnyvale Bicycle Plan



Example of a Buffered Bike Lane (Mathilda)

Opening Year and No Build Conditions

- No LOS change between with and without project
- Build and no Build conditions the same

#	Intersection	Intersection Control	AM Peak		PM Peak	
			LOS	Delay	LOS	Delay
1	N. Mathilda Ave / Maude Ave	Signal	E	77.9	F	105.5
2	San Angelo Ave / Maude Ave	SSSC	C	22.8	C	24.8
3	Stowell Ave / Maude Ave	SSSC	C	17.4	C	23.8
4	N. Murphy Ave / Maude Ave	SSSC	C	21.9	C	24.5
5	Borregas Ave / Maude Ave	Signal	B	17.0	B	13.7
6	N. Sunnyvale Ave / Maude Ave	Signal	B	16.4	B	13.5
7	N. Bayview Ave / Maude Ave	SSSC	D	30.9	D	28.7
8	Morse Ave (South) / Maude Ave	SSSC	C	15.1	C	17.6
9	Morse Ave (North) / Maude Ave	SSSC	D	29.7	C	17.0
10	Roosevelt Ave / Maude Ave	SSSC	C	16.3	C	16.5
11	Worley Ave / Maude Ave	SSSC	B	13.5	B	14.5
12	N. Fair Oaks Ave / Maude Ave	Signal	C	34.0	D	39.2

AADT and Truck #/% (Opening Year)

	AADT	Truck %	Truck # (Daily)
Build	12,280	2.5%	307
No Build	12,280	2.5%	307

AADT and Truck #/% (Horizon Year)

	AADT	Truck %	Truck # (Daily)
Build	17,818	2.5%	445
No Build	17,818	2.5%	445

Not a Project of Air Quality Concern

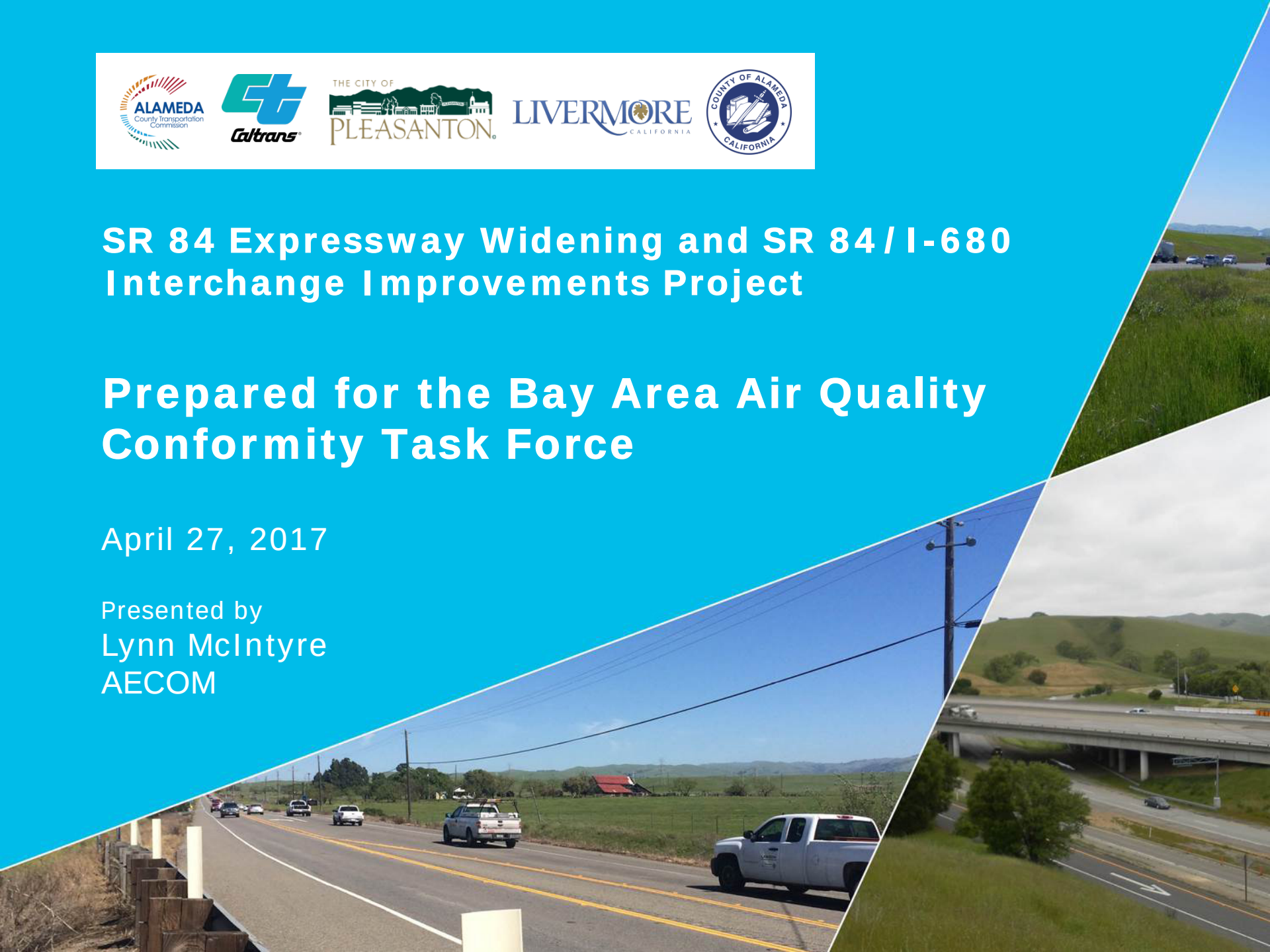
- Project will encourage bicycle ridership
- Project will improve safety of bicycles and pedestrians
- Project will not increase traffic volumes or truck traffic
- Project will not increase roadway capacity
- **There is no change to the current or future LOS along the corridor**

SR 84 Expressway Widening and SR 84/I-680 Interchange Improvements Project

Prepared for the Bay Area Air Quality Conformity Task Force

April 27, 2017

Presented by
Lynn McIntyre
AECOM



PROJECT DESCRIPTION

The project would:

- Conform SR 84 to expressway standards
  - Widen from two to four lanes
  - Consolidate existing access openings
  - Provide a new bikeway
- Extend the existing HOV/express lane on SB I-680 northward by a total of approx. 2 miles
- Modify the SR 84/I-680 interchange
  - Add an auxiliary lane on southbound I-680 and extend the existing northbound I-680 auxiliary lane
  - Improve interchange ramps
  - Add a new bike connection through the interchange

PROJECT LOCATION

PROJECT LOCATION

The <u>purpose</u> of the project is to:

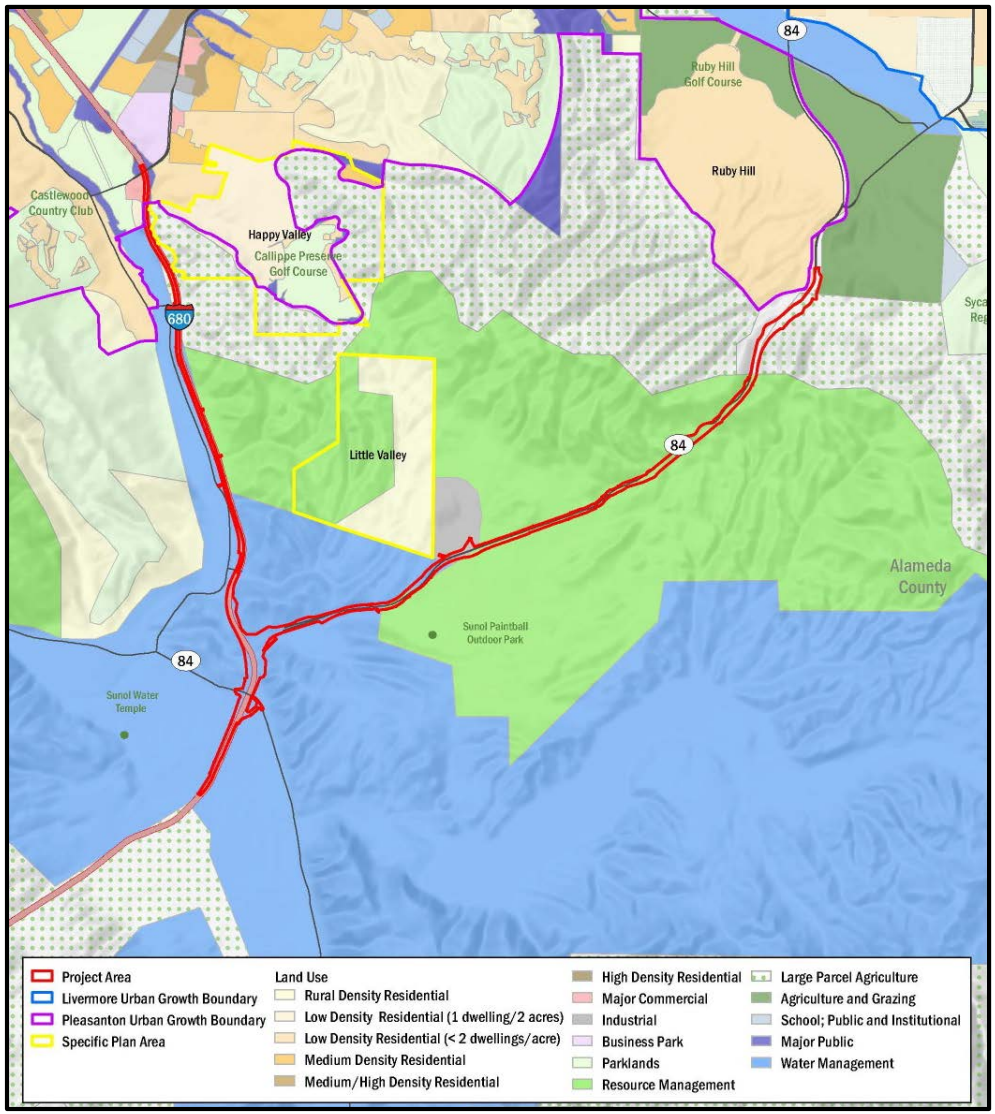
- Improve SR 84 as a regional connection between I-680 and I-580
- Improve traffic circulation between SR 84 and I-680 and around interchange
- Improve safety for motorists and cyclists on SR 84
- Complete the statutory designation of SR 84 as an expressway facility

PROJECT LOCATION

The project is <u>needed</u> to address traffic congestion in the project area:

- SR 84 has congestion and reduced vehicle speeds for approximately 9 hours each weekday
- Bottleneck during PM peak period on northbound I-680 between the Calaveras Road/SR 84 on-ramp and northbound SR 84 off-ramp
- Local roadway congestion from motorists diverting from SR 84 and I-680

PROJECT LAND USE



Primary land uses:

- Agriculture (e.g., grazing and retail nursery)
- Resource and Water Management
- Manufacturing (GE-Hitachi Vallecitos Nuclear Center)
- Rural single-family residences (max 1 unit per 5 acres)

TRAFFIC DATA

Opening Year (2025) LOS Summary

Scenario	No. Intersections at LOS D, E, or F
No Build	5
Build	1

Note: LOS based on peak AM/PM period.

Horizon Year (2045) LOS Summary

Scenario	No. Intersections at LOS D, E, or F
No Build	8
Build	3

Note: LOS based on peak AM/PM period.

TRAFFIC DATA

Opening Year (2025) AADT Summary

Segment	AADT				
	No Build		Build		Truck Volume Change
	Total	Trucks (4%)	Total	Trucks (4%)	
SR 84 mainline from east of I-680 to Vineyard Ave	43,959	1,758	52,206	2,089	331
Northbound I-680 to northbound SR 84 ramp	20,806	832	24,564	983	151
Southbound SR 84 to southbound I-680 ramp	19,898	796	23,575	943	147
I-680 mainline from after Andrade Rd to Calaveras Rd	191,349	7,654	191,349	7,654	0
I-680 mainline from Koopman Rd undercrossing to Sunol Blvd Interchange	158,459	6,339	151,835	6,073	-266

TRAFFIC DATA

Horizon Year (2045) AADT Summary

Segment	AADT				
	No Build		Build		Truck Volume Change
	Total	Trucks (4%)	Total	Trucks (4%)	
SR 84 mainline from east of I-680 to Vineyard Ave	55,906	2,237	81,026	3,241	1,004
Northbound I-680 to northbound SR 84 ramp	26,266	1,051	37,911	1,516	465
Southbound SR 84 to southbound I-680 ramp	24,689	988	35,697	1,428	440
I-680 mainline from after Andrade Rd to Calaveras Rd	250,052	10,002	250,052	10,002	0
I-680 mainline from Koopman Rd undercrossing to Sunol Blvd Interchange	208,231	8,330	187,724	7,509	-821

PM2.5 ASSESSMENT

Not a Project of Air Quality Concern:

- Truck AADT would increase on SR 84, reflecting a route shift from I-680 and local streets, but truck percentage would be the same with and without the project (4%).
- No change in diesel truck capacity on I-680.
- The project would improve travel speeds and reduce $PM_{2.5}$ emission rates compared to No Build.
- Intersections at LOS D, E, or F and delay times improve with the Build scenario in 2025 and 2045.

PM2.5 ASSESSMENT

Questions and Discussion

PM2.5 ASSESSMENT

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