

An aerial photograph of a street intersection. The image shows a crosswalk with red and white stripes, a blue-painted bike lane, and various traffic signs including 'STOP', 'STOP ONLY', and 'ONLY'. There are several cars and bicycles on the road. The text 'Bay Avenue and Hill Street Traffic Safety Update' is overlaid in white on the center of the image.

Bay Avenue and Hill Street Traffic Safety Update

City Council

November 21, 2024

Bay Ave/Hill St Traffic Safety Update

Project Overview and Background



Objective: Enhance safety at a problematic intersection with a temporary configuration to test potential improvements.

Historical Concern: Issues date back to 2004. In 2022 Kimley Horn conducted an analysis, reviewed by City Council in 2023-2024.

Community Engagement: Meetings held with stakeholders, including a public session in early 2024.

Bay Ave/Hill St Traffic Safety Update

Implementation and Intent



Quick Build Features (July/August 2024)

- Lane Reductions
- Enhanced Crosswalks
- Temporary Bulbouts

Purpose & Intent

- **Test Phase:** Trial to gather feedback for future adjustments.
- **Safety Focus:** Prioritized safety over vehicle flow

Ongoing Evaluation

- **Iterative Process:** Evolving based on assessment and community input
- **Balanced Solution:** Adjustments to improve safety and traffic flow

Bay Ave/Hill St Traffic Safety Update

Community Feedback and Adjustments



Feedback Highlights

- **Congestion:** Notable during peak hours
- **Safety Perceptions:** Mixed views on the effectiveness

Adjustments Made

- Enhanced bike lane markings and clearer striping
- Additional striping updates scheduled for December

Bay Ave/Hill St Traffic Safety Update

Compounding Traffic Issues



Capitola Avenue Bridge Closure

- Closed since **March 2024**
- Reopening expected **Fall/Winter 2025**

Park Avenue SB Highway 1 On-Ramp Closure

- Closed since **September 2024**
- Reopening expected **Late 2024**

Bay Ave/Hill St Traffic Safety Update

Data Analysis and Next Steps



Data Collection

- Data collection for the corridor study paused during the highway on-ramp closure
- Data has been gathered to assess traffic flow and safety at the intersection amid ongoing construction

Next Steps

- Adjust based on data and feedback
- Continue to prioritize safety, considering layout constraints



Bay Avenue & Hill Street Intersection City Council

November 2024



Kimley»»Horn

Before and After Study Data

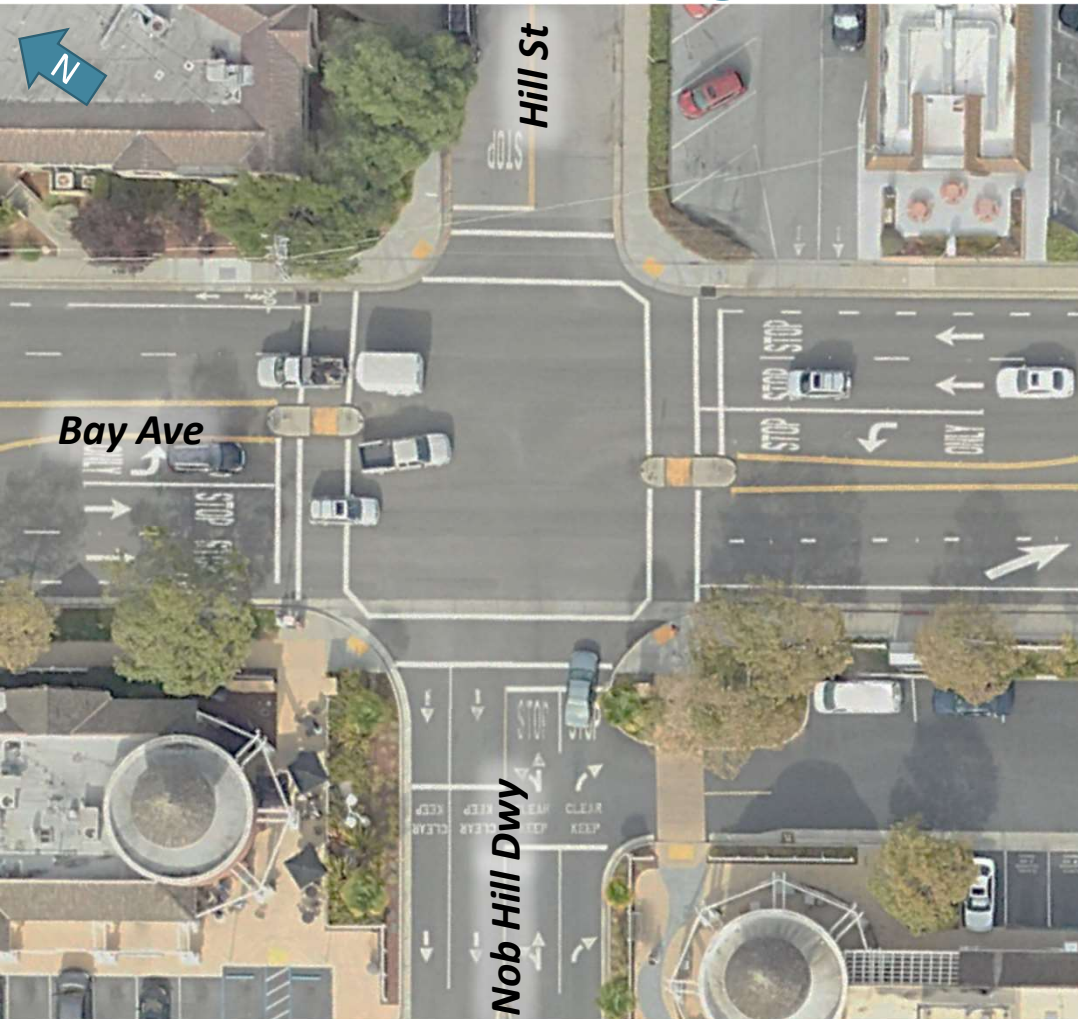
1. Traffic Volumes
2. Intersection Operations
3. Reported & Near-Miss Collision Analysis
4. Next Steps

Project Objectives

Determine feasible “Quick Build” improvements at Bay/Hill intersection to improve multimodal safety and operations

1. Gather community input
2. Utilize existing travel lanes to provide crossing improvements for bikes and pedestrians
3. Enhance bike and pedestrian access, safety, and visibility
4. Maintain acceptable traffic operations

Before Study Conditions

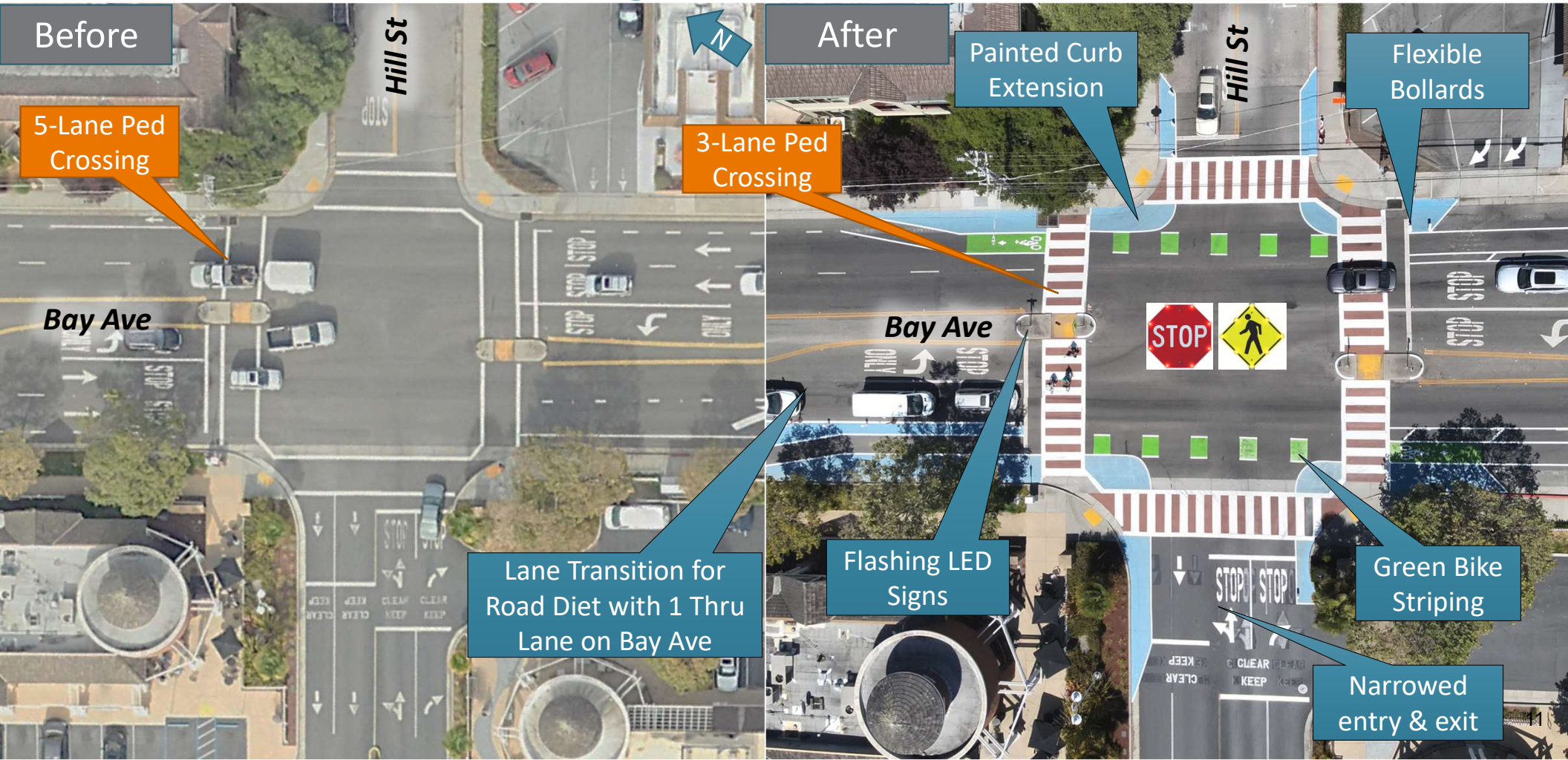


Multiple turn conflicts, long ped crossing distances



Limited crossing visibility and lighting

Quick Build Layout



Before

5-Lane Ped Crossing

Bay Ave

Hill St



After

3-Lane Ped Crossing

Bay Ave

Hill St

Painted Curb Extension

Flexible Bollards

Lane Transition for Road Diet with 1 Thru Lane on Bay Ave

Flashing LED Signs

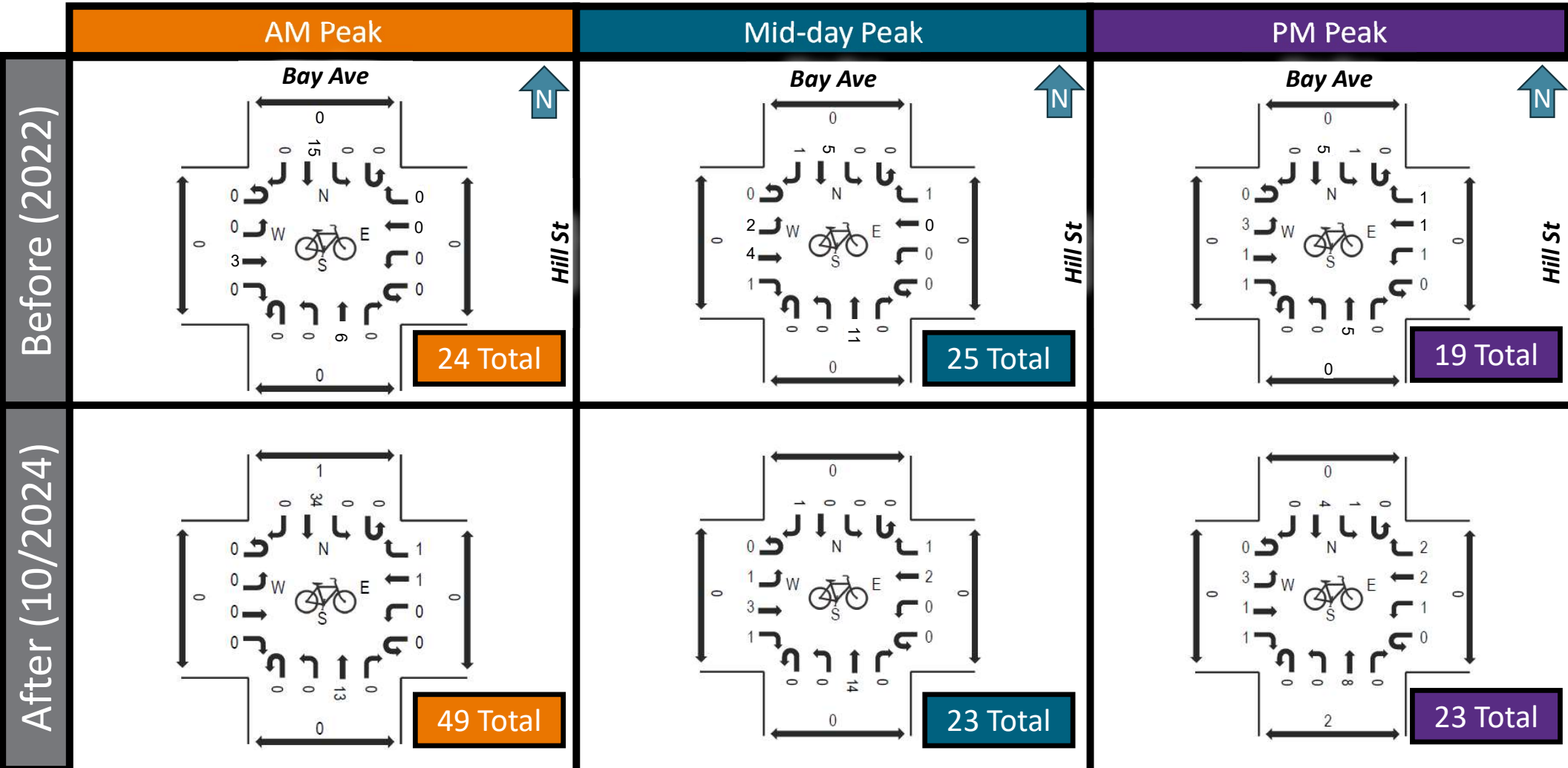
Green Bike Striping

Narrowed entry & exit

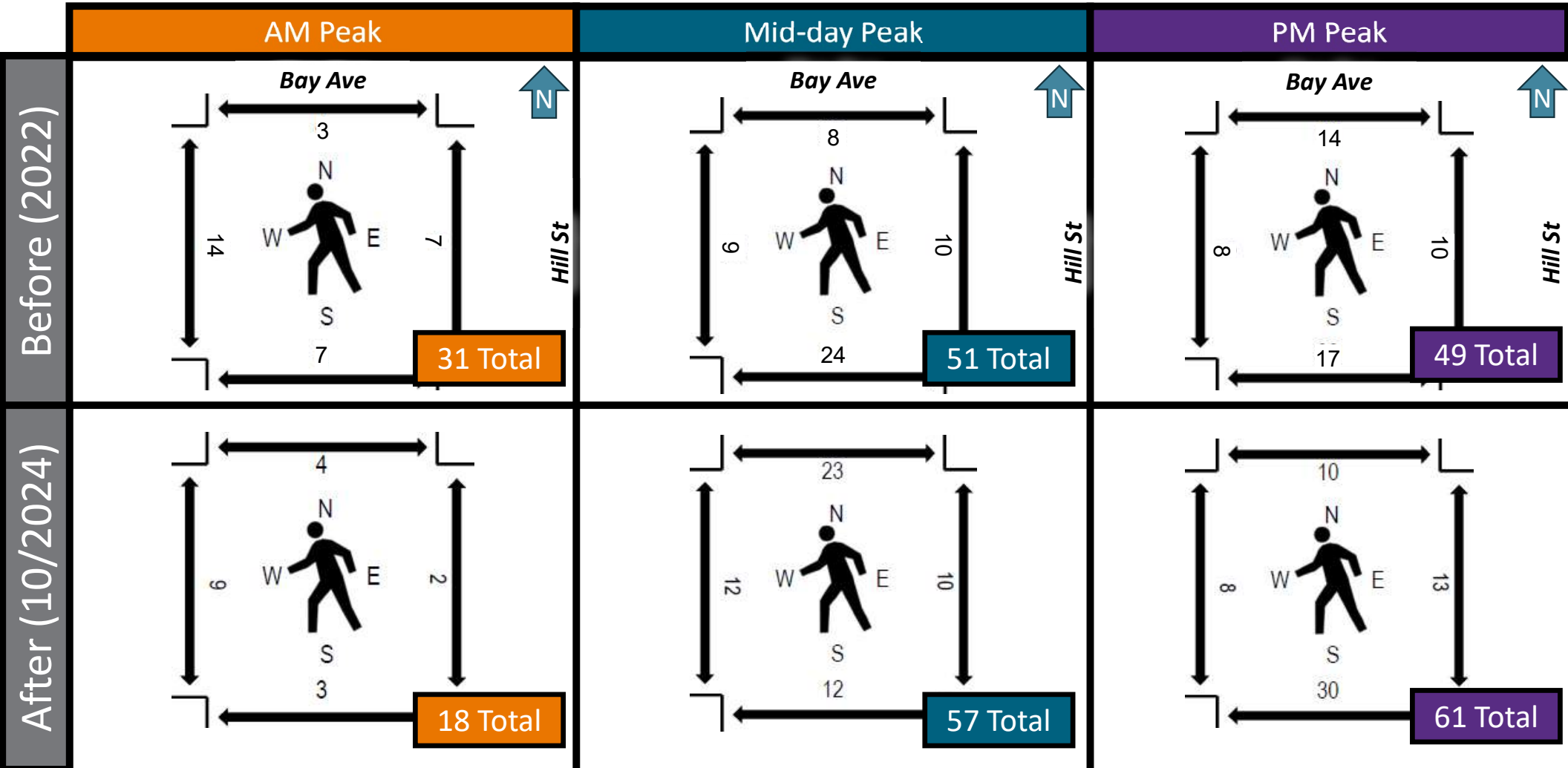
After Study Conditions



Bicycle Volumes



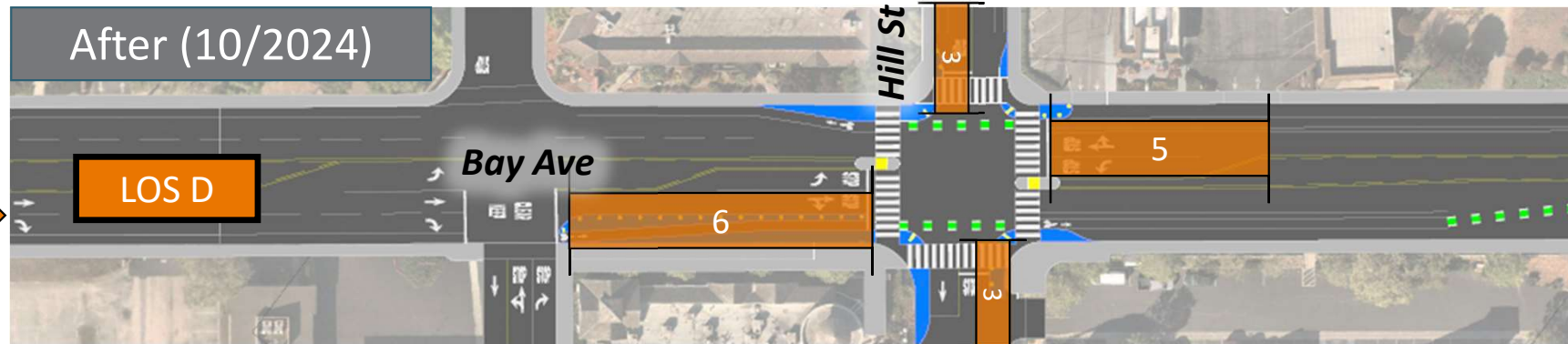
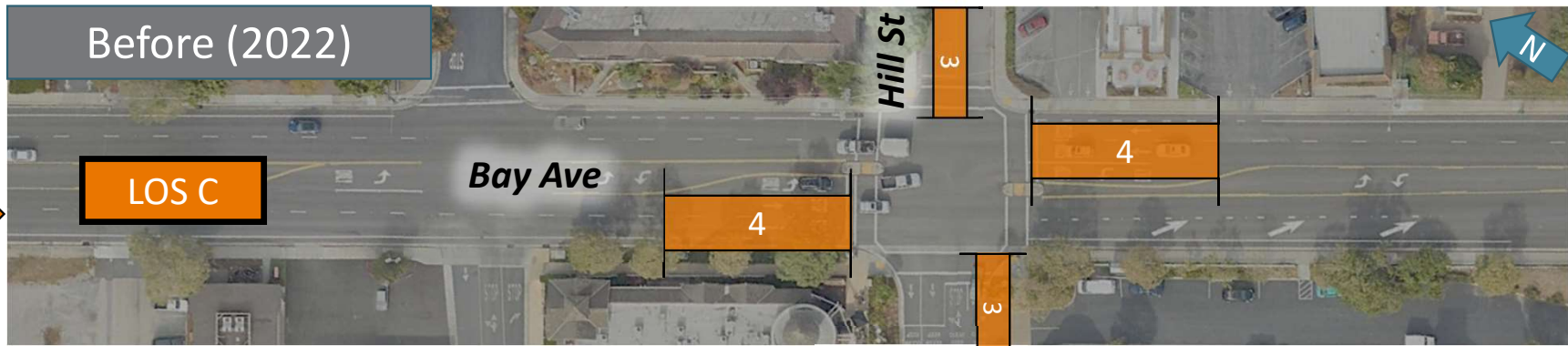
Pedestrian Volumes



AM Peak Traffic Operations

95% Queue (# cars)

Volume

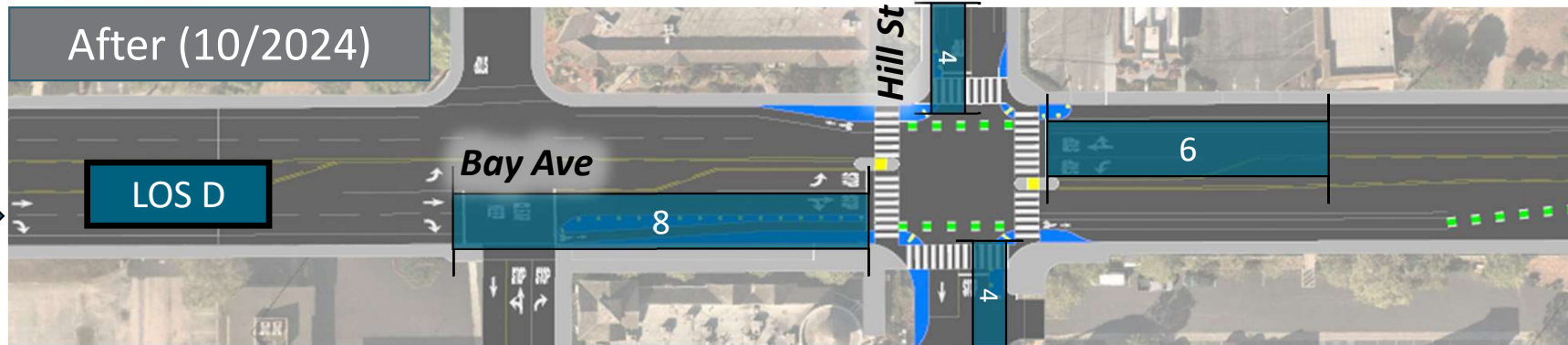
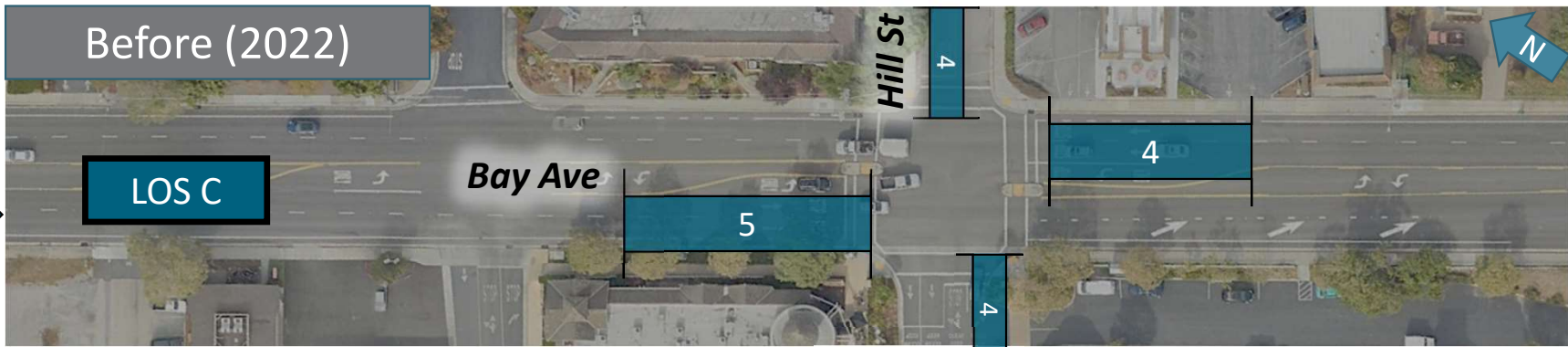


10/2024 After Traffic Volumes with construction closures on:
SR1 SB On-Ramp at Bay Ave, Capitola Ave Overcrossing SR1

Midday Peak Traffic Operations

95% Queue (# cars)

Volume

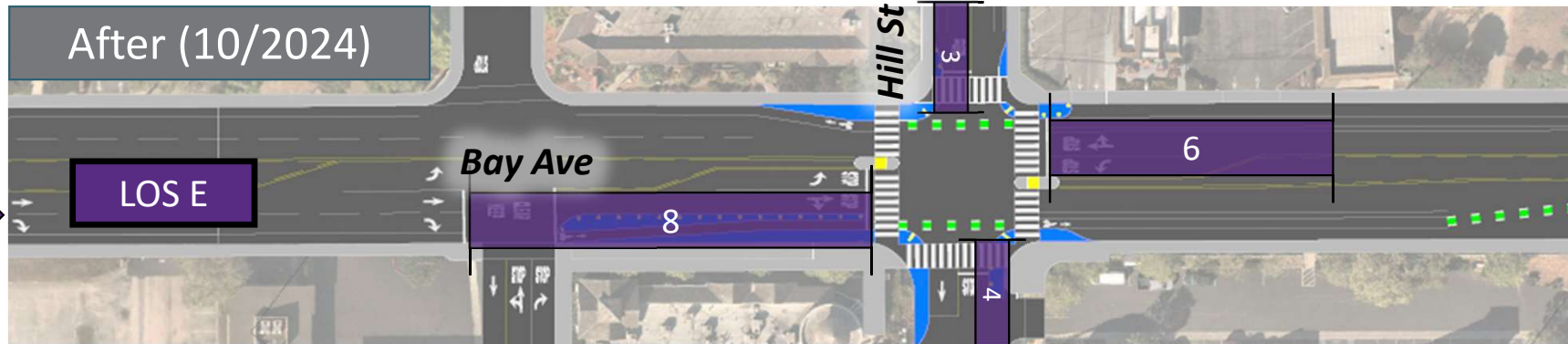
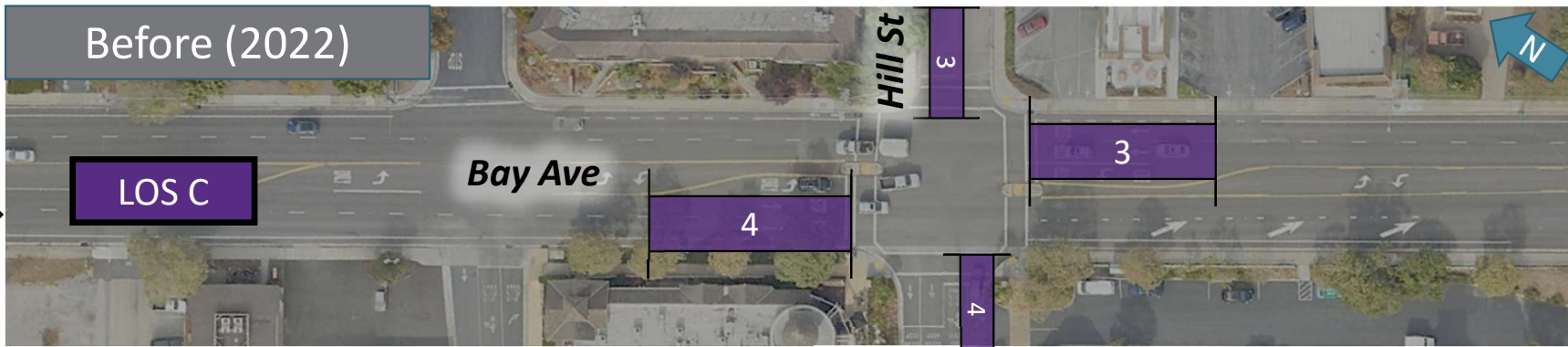


10/2024 After Traffic Volumes with construction closures on:
SR1 SB On-Ramp at Bay Ave, Capitola Ave Overcrossing SR1

PM Peak Traffic Operations

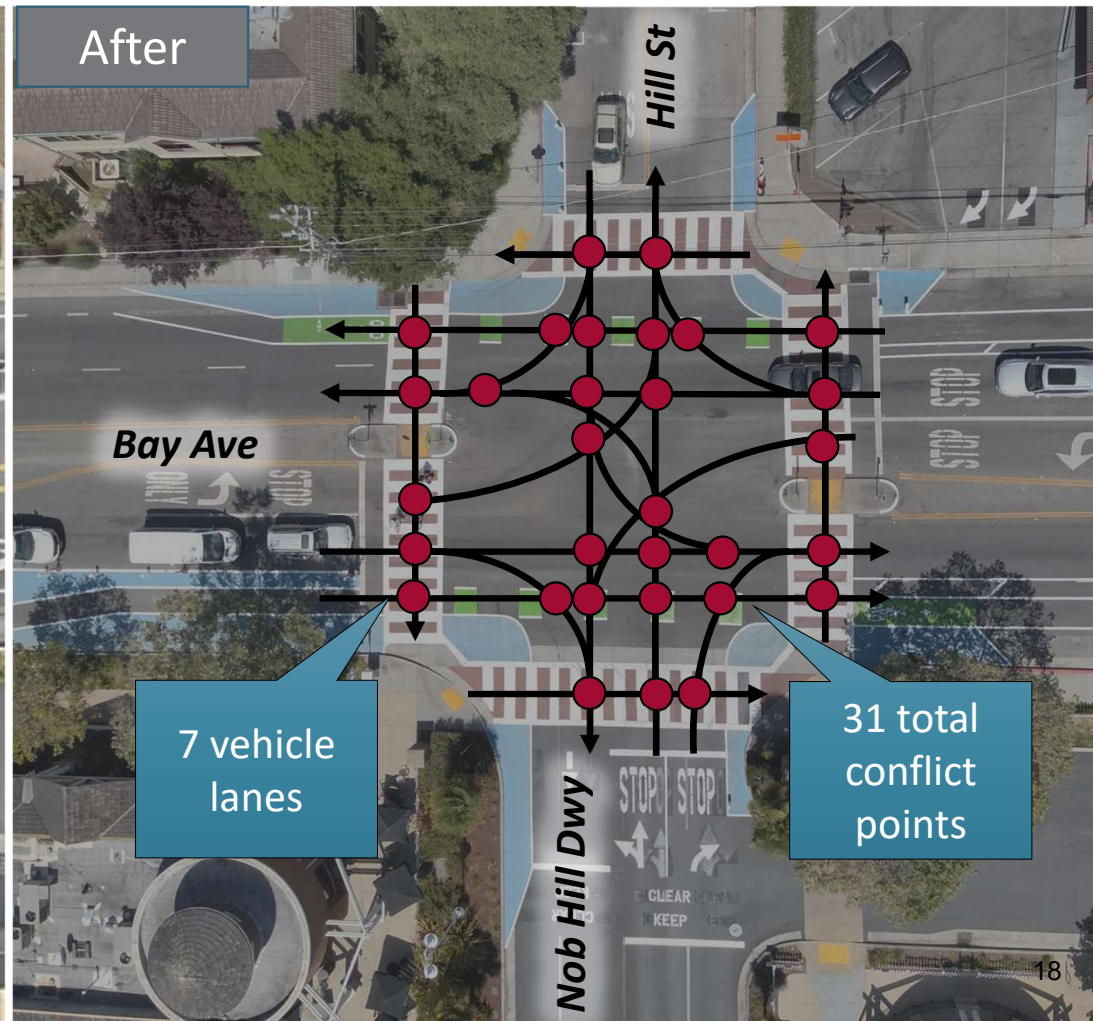
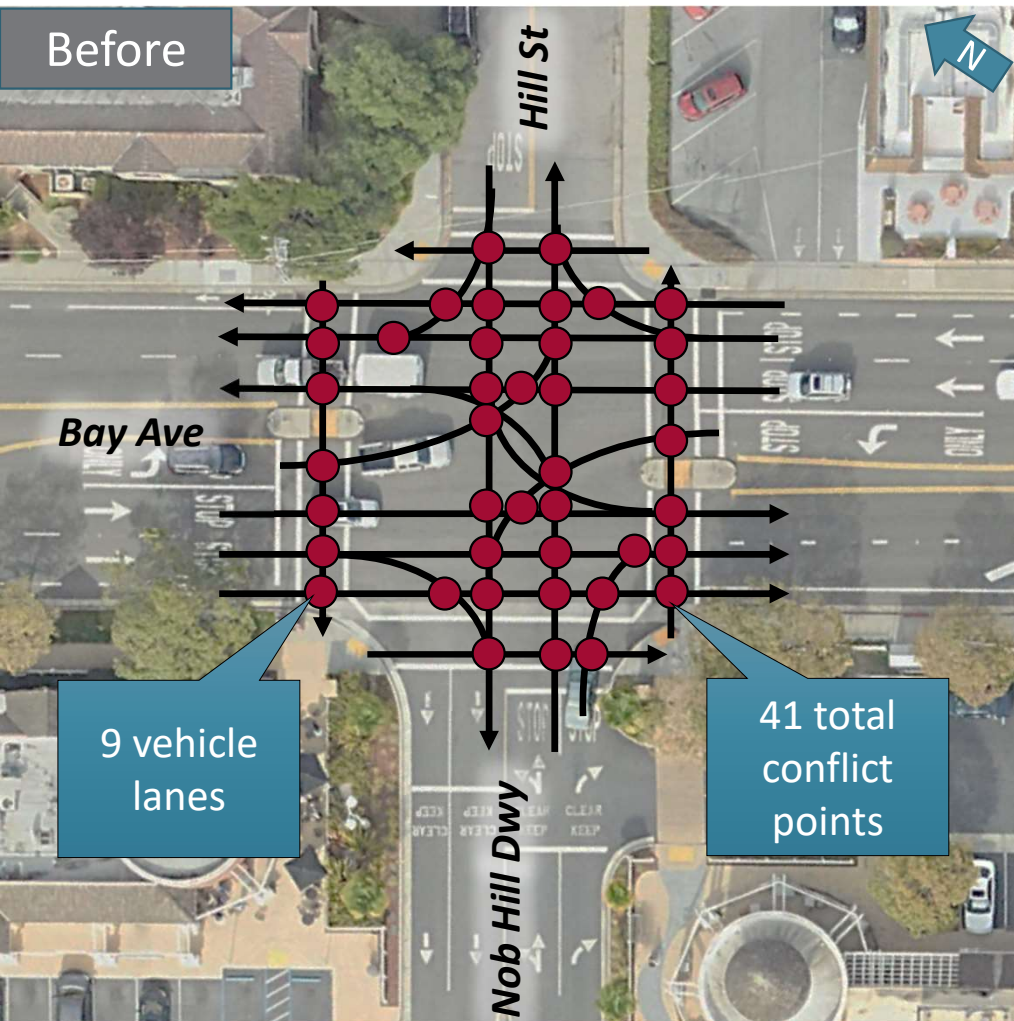
95% Queue (# cars)

Volume



10/2024 After Traffic Volumes with construction closures on:
SR1 SB On-Ramp at Bay Ave, Capitola Ave Overcrossing SR1

Conflict Points



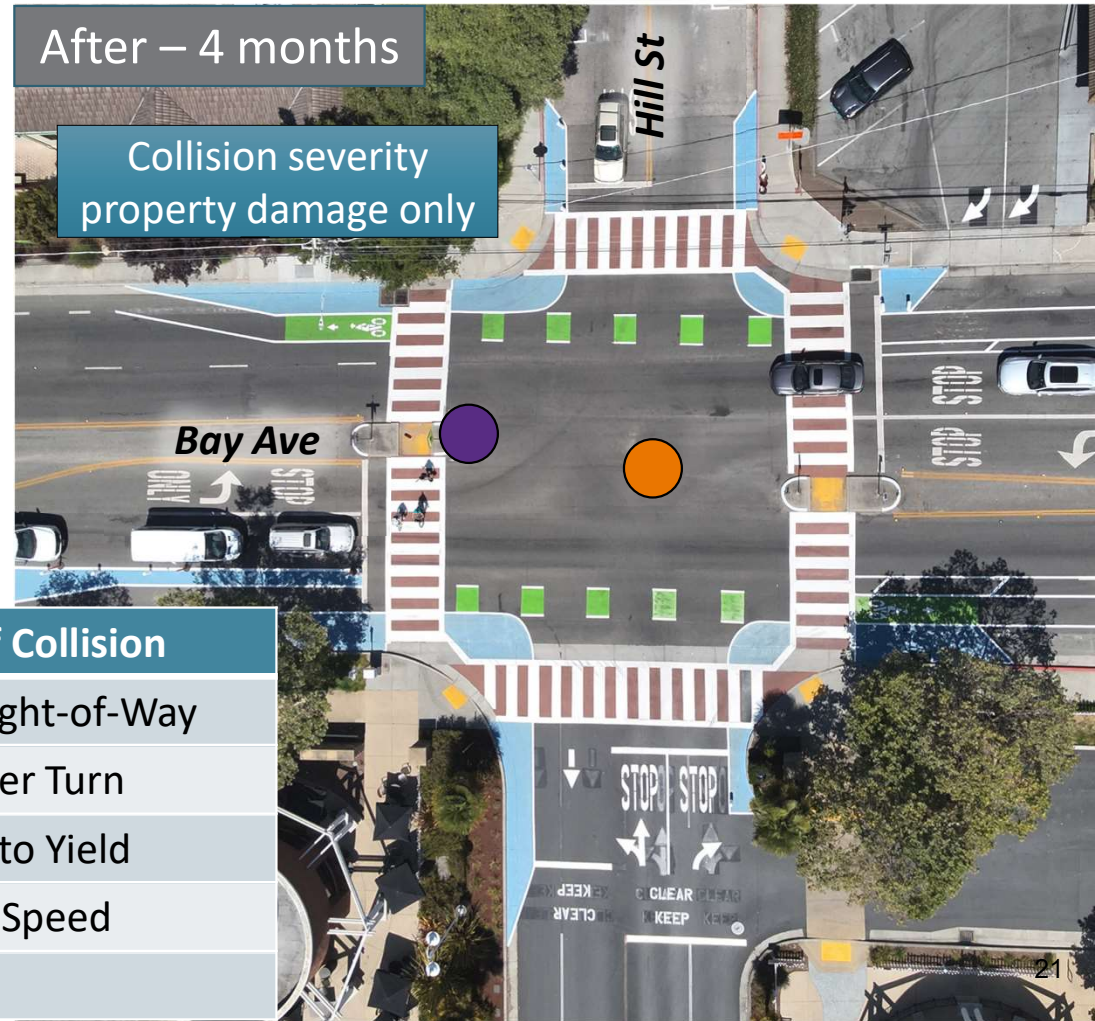
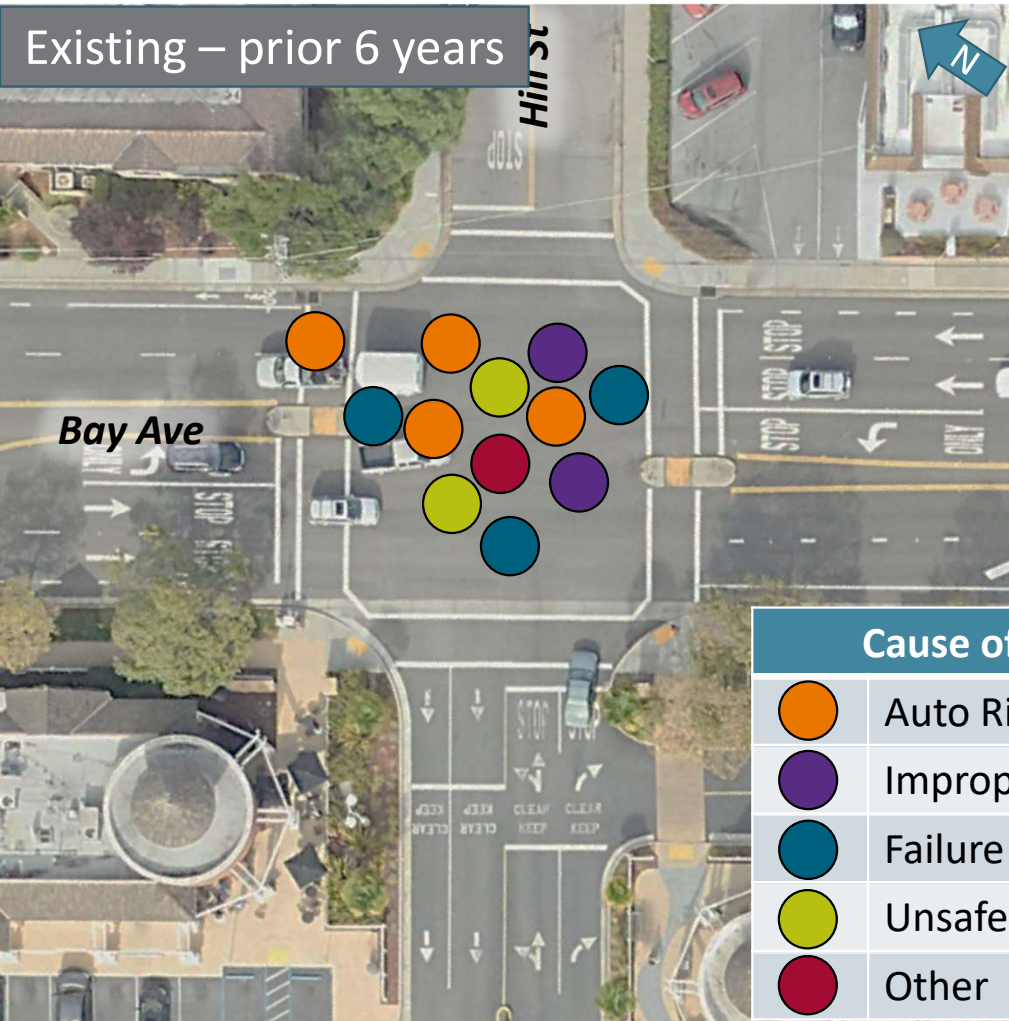
Before Study Collisions (11/2017–12/2023)

Vehicle Collision Type	Count	Primary Collision Factor	Collision Severity
Head On	1	Other	Property Damage
Sideswipe	3	Improper Turn, Auto R/W	Property Damage
Broadside	4	Improper Turn, Auto R/W, Unsafe Speed	Injury, Property Damage
Hit Object	1	Improper Turn	Property Damage
Auto/Pedestrian	3	Failure to Yield	Injury
12 Reported Vehicle Collisions			

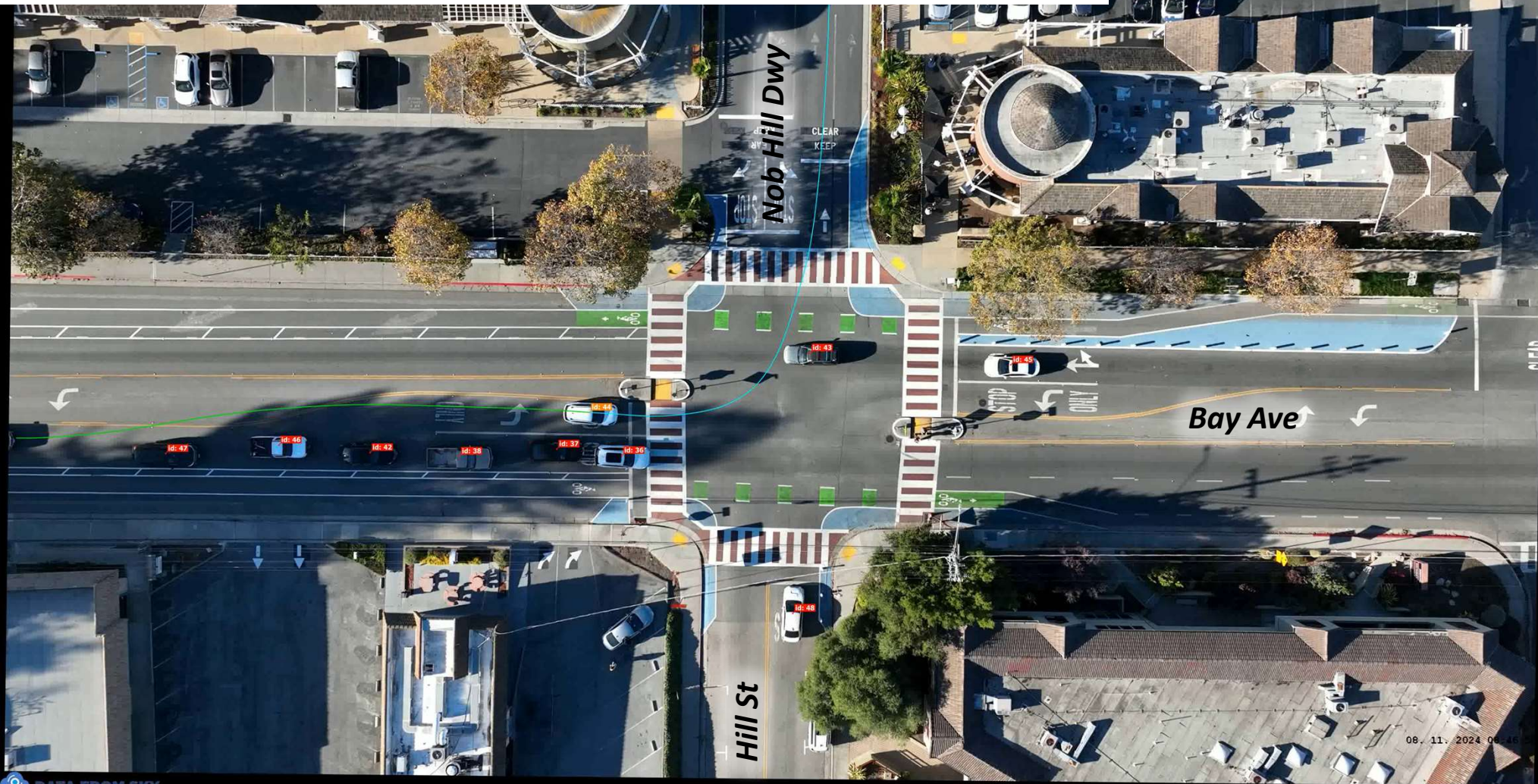
After Study Collisions (8/2024 – 11/2024)

Vehicle Collision Type	Count	Primary Collision Factor	Collision Severity
Sideswipe	1	Auto R/W	Property Damage
Hit Object	1	Improper Turn	Property Damage
2 Reported Vehicle Collisions			

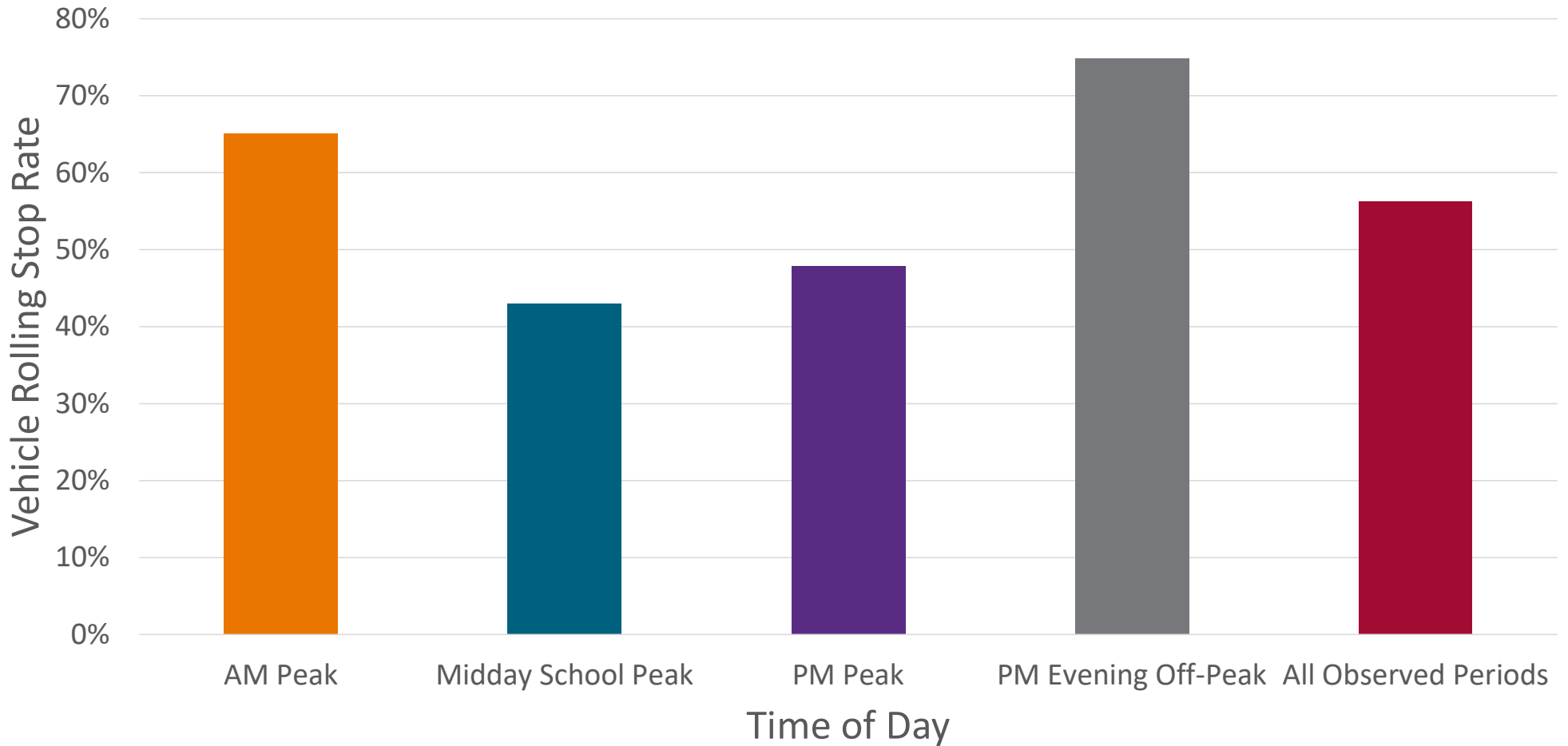
Intersection Collisions



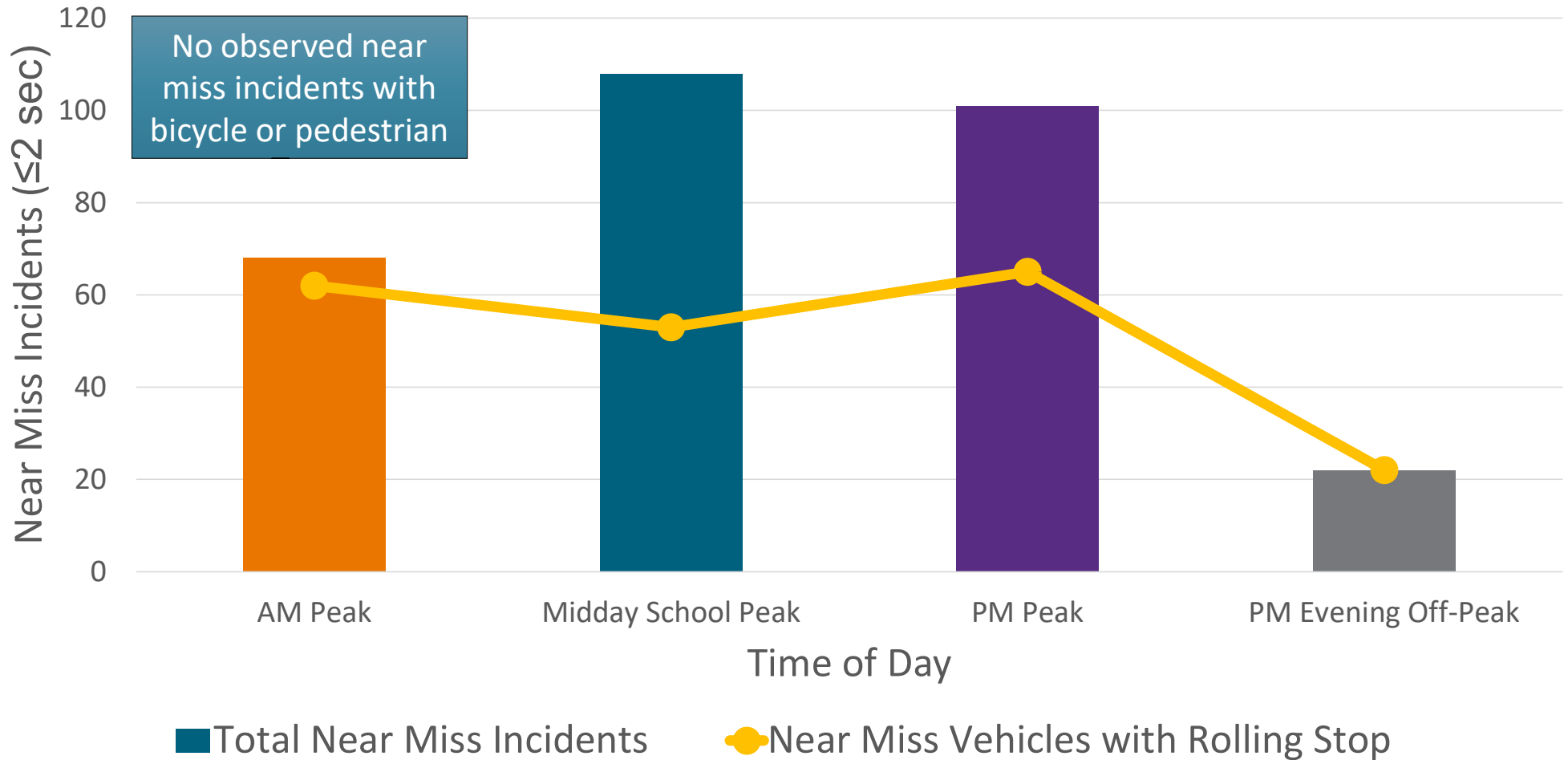
After Study Near Miss Analysis



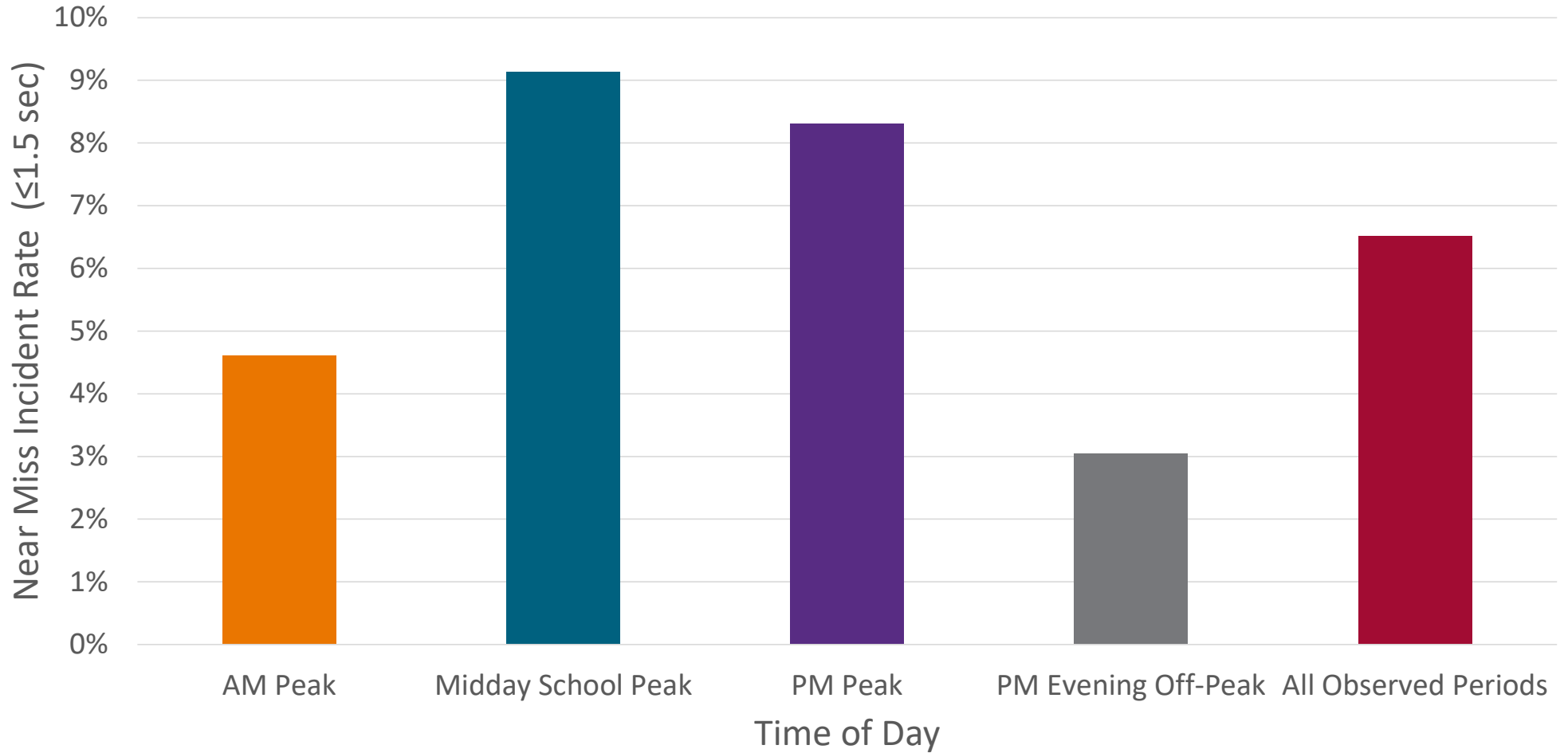
After Study Rolling Stop Rate



After Study Near Miss Incidents

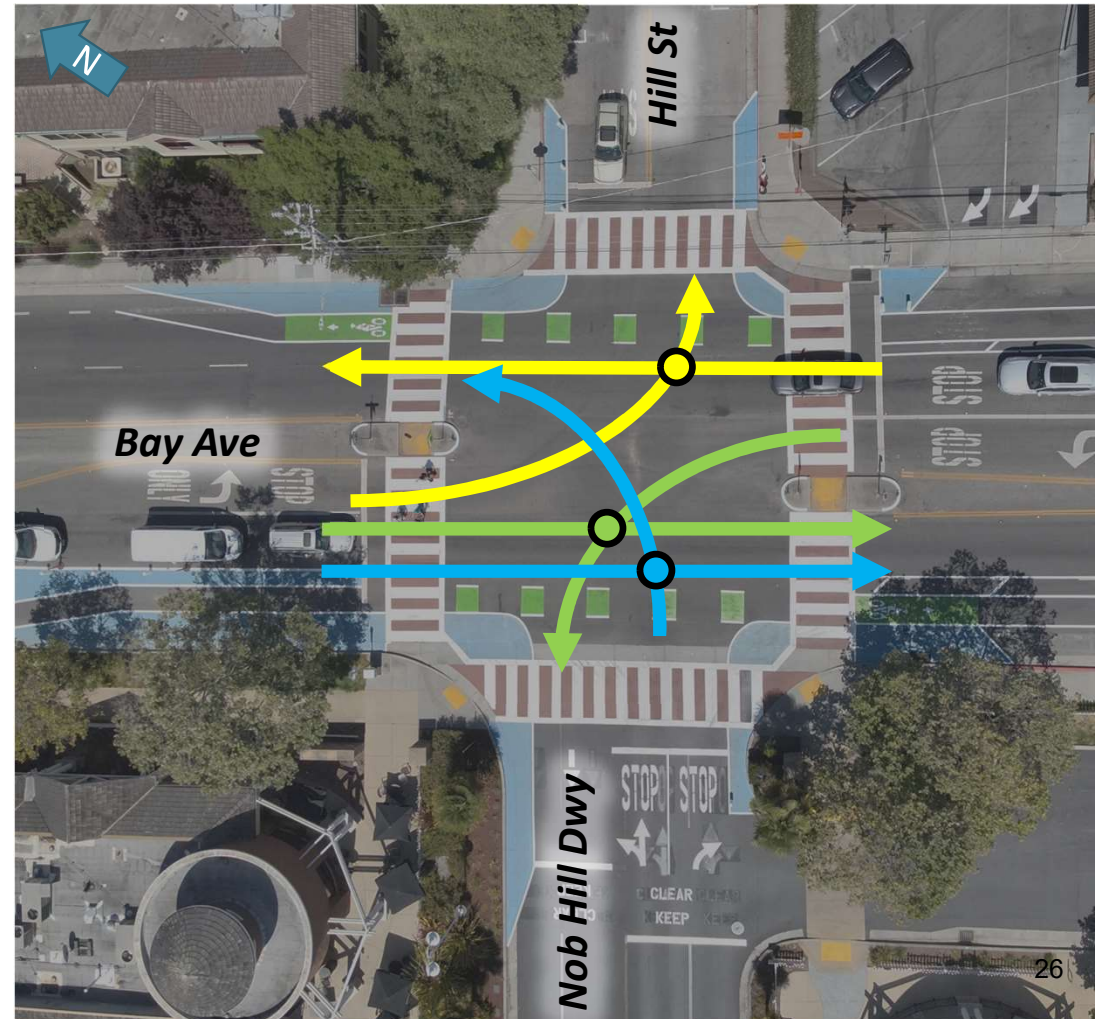


After Study Near Miss Rate (≤ 1.5 sec)



After Study Near Miss Movements

Conflict Directions	Near Miss ≤ 1.5 sec	
	# Incidents	%
NBL/SBL	1	0.7%
NBL/SBT	40	26.3%
NBL/WBL	3	2.0%
NBT/EBL	1	0.7%
NBT/EBT	5	3.3%
NBT/SBL	36	23.7%
NBT/WBL	6	3.9%
NBT/WBR	4	2.6%
NBT/WBT	2	1.3%
SBL/EBL	1	0.7%
SBT/EBL	39	25.7%
SBT/EBT	5	3.3%
SBT/WBL	0	0.0%
SBT/WBT	8	5.3%
EBL/WBR	1	0.7%



Traffic Analysis Summary

Criteria	Before Study Conditions 2022	After Study Conditions 2024 (Quick Build)
Bike & Pedestrian Safety & Visibility	<u>Low</u> 41 conflict points	<u>High</u> 31 conflict points Curb extensions, Bike lane buffer
Pedestrian Crossing Exposure	<u>High</u> 5-lane crossing	<u>Low</u> 3-lane crossing
Intersection Level of Service	<u>Good</u> AM Peak: <u>C</u> Midday: <u>C</u> PM Peak: <u>C</u>	<u>Ok</u> AM Peak: <u>D</u> Midday: <u>D</u> PM Peak: <u>E</u>
Impact to Vehicle Queues	Low	Medium

Next Steps

- 2025: Continue Outreach and Community Input
- 2025: Bay Avenue Corridor Safety Study
- On-going: Pursue funding opportunities
- Long-Term: Construct Bay Avenue corridor improvements pending available funds