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Technical Memorandum

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FROM:	Jen Shriber, Transportation Planner
SUBJECT:	Santa Fe Avenue Traffic Calming Toolkit
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PROJECT NUMBER:	474-8976-001
PROJECT NAME:	Santa Fe Avenue Traffic Calming Project

This memo summarizes the traffic countermeasures proposed for the Santa Fe Avenue corridor in the City of Albany, which extends from Key Route Boulevard to north of Thousand Oaks Boulevard. The objectives and goals for this study are to:

- Enhance multimodal traffic circulation and safety
- Preserve Santa Fe Avenue as a collector facility and connection to Kensington
- Maintain effective emergency access

Existing Speed & Safety Conditions

Traffic calming for the Santa Fe Avenue corridor is the impetus for this study. The roadway has a curb-to-curb width of forty feet and a daily volume of approximately 4,600 vehicles. A largely residential major collector road, San Fe Avenue faces issues with speeding vehicles: the average vehicle speed is 26 MPH, while the 85th percentile speed is 30 MPH and the maximum recorded is 41 MPH.

Santa Fe Avenue is on the City's high injury network based on the City's 2023 Local Road Safety Plan. Seventeen collisions occurred on Santa Fe Avenue from 2012-2023. The segment between Marin Avenue to Solano Avenue was a collision hot spot: 11 collisions (65%) occurred on this one-block stretch, including the sole recorded severe injury collision, which involved a bicyclist. Of the total collisions, four (24%) involved a solo automobile or a vehicle colliding with a parked automobile. Four collisions (24%) involved a pedestrian; most of these occurred adjacent to Solano Avenue to the north or south. Two collisions (12%) involved bicyclists, both located between Marin Avenue and Solano Avenue.

Traffic Calming Toolkit

Several countermeasures are proposed to calm traffic along Santa Fe Avenue, all of which are depicted in the accompanying plan set. This section presents a summary of each countermeasure including any potential tradeoffs.

Edge Lines

Edge line striping provides definition to a roadway and visually narrows travel lanes, encouraging motorists to reduce their speeds. Adding edge lines can help prevent encroachment into parking lanes, opposing travel lanes, and bicycle lanes, and can reduce informal turn lanes at intersections that may confuse drivers and pedestrians.

This countermeasure is less expensive and can be implemented more quickly than traditional vertical or horizontal roadway design features. It has been proven to reduce vehicle speeds while having no impact on emergency vehicles. This countermeasure requires periodic maintenance and does not physically restrict vehicles; it may have limited effectiveness where setbacks create the perception of space.

As shown in the accompanying plan set, edge line striping is recommended across the entire study corridor.

Edge Line Striping (Image Source: Google, 2024)

Speed Humps & Speed Tables

Speed humps and speed tables are devices that provide vertical pavement change to raise vehicles' wheelbases, encouraging drivers to slow their speeds. Speed tables are long, flat-topped speed humps whose top areas are typically sized to accommodate a passenger vehicle. Speed tables may be combined with pedestrian crossings.

Speed humps and speed tables are effective at slowing vehicle speeds; raised measures tend to have the most predictable speed reduction impacts. However, these devices can be noisy and uncomfortable for people to drive over, they should not be placed too close to existing driveways, and coordination is needed if they are installed on roadways that serve as bus or emergency vehicle routes. Speed humps and speed tables may also cause drainage issues on some streets.

As shown in the accompanying plan set, the study corridor currently contains two speed humps, and seven new speed humps/speed tables are recommended.

Speed Humps in Redwood City (Image Source: Google, 2024)

Speed Table in Albany (Image Source: Google, 2024)

Speed Feedback Signs

Dynamic speed feedback signs can reduce vehicle speeds by alerting motorists that they are operating above the speed limit. The signs include a speed measuring device and a message sign that displays feedback to drivers who exceed a predetermined speed threshold. The feedback can include displaying the driver's actual speed, showing a message such as SLOW DOWN, or activating some warning device, such as beacons. Speed feedback signs are particularly well-suited for school zones.

The signs have a low-to-medium implementation cost and typically see a high benefit. They provide immediate feedback to drivers and are easily recognized by motorists. However, they may become less effective over time and, in some cases, may result in higher speeds from aggressive drivers trying to get a higher speed readout. The signs may not be considered visually appealing, and the need for a power source is a consideration for permanent installation.

Two speed feedback signs are recommended for Santa Fe Avenue. Specific locations will be determined to ensure the most effective use of the signs.

Speed Feedback Sign (Image Source: Google, 2024)

Mini Traffic Circle

Mini traffic circles are installed at small intersections to reduce speeding and improve pedestrian safety. They provide the traffic calming benefits of a roundabout with a smaller footprint, ideal for areas that have a constrained right-of-way. They are effective where large vehicles are not a concern, but speeds, volumes, and safety are issues. Mini traffic circles can be made of temporary or permanent materials. Fully landscaped traffic circles can add to neighborhood beautification and livability.

Mini traffic circles reduce vehicle speeds at intersections, reduce the number of points where vehicles cross paths, and can reduce the prevalence of right-angle and head-on collisions. Additionally, the yield-control design can result in fewer delays and shorter queues. Mini traffic circles have higher design and construction costs than other traffic calming countermeasures, and landscaped traffic circles require ongoing maintenance. Implementation of a mini traffic circle may impact on-street parking and emergency vehicle access. Mini traffic circles are not recommended on streets with heavy truck traffic.

As shown in the accompanying plan set, three new mini traffic circles are recommended, at Washington Avenue, Portland Avenue, and Thousand Oaks Boulevard.

Mini Traffic Circle in Redwood City (Image Source: Google, 2024)

Mountable Islands

Mountable islands visually narrow travel lanes, encouraging drivers to slow down. They also may serve as pedestrian refuge islands, where pedestrians may safely pause or wait while crossing, allowing them to focus on one direction of traffic at a time. This is particularly helpful on wide, multi-lane roads and for seniors or others who may need extra time to cross the street. Mountable islands can be made of quick-build materials such as posts and paint or more permanent materials.

Mountable islands can provide traffic calming, improve the pedestrian experience, and add aesthetic benefit if implemented alongside landscaping. However, the addition of the islands alone may also cause an increase in vehicle speeds by reducing friction between opposing directions of traffic. Implementation of mountable islands may require some parking removal or restrict access to adjacent driveways.

As shown in the accompanying plan set, mountable islands are recommended at Pomona Avenue and Ramona Avenue.

Mountable Island in Oakland (Image Source: Google, 2024)

Mountable Island (Image Source: rubberform.com, 2024)

Planning-Level Cost Estimate

The table below presents a planning-level cost estimate for the proposed quick-build improvements for the study corridor utilizing the traffic calming countermeasures discussed above.

Countermeasure	Unit	Unit Cost	Quantity	Subtotal
Key Route intersection quick-build project	LS	$20,000	1	$20,000
Edge lines (paint or thermoplastic)	LF	$5	10,000 LF (2 miles)	$50,000
Speed humps or speed tables (asphalt)	EA	$5,000	7	$35,000
Speed feedback signs (pole and sign)	EA	$15,000	2	$30,000
Mini traffic circle (temp. materials such as planters)	EA	$10,000	3	$30,000
Mountable islands (rubber curb)	EA	$5,000	3	$15,000
Construction Subtotal				**$180,000**
Contingency (30%)				**$54,000**
Total				**$234,000**