



MEMORANDUM

Public Works Department

DATE: April 20, 2021

TO: Council Transportation Committee

FROM: Darwin Galang, Associate Civil Engineer
Lorenzo Lopez, City Traffic Engineer
Edward Arango, Assistant Public Works Director

VIA: Dawn S. Cameron, Public Works Director

SUBJECT: Grant Road and Sleeper Avenue Intersection Study

RECOMMENDATION

Recommend that the City Council approve Alternative No. 2 – Pedestrian hybrid beacon with a southern crosswalk and left-turn restriction from Sleeper Avenue – as the preferred alternative for the Grant Road and Sleeper Avenue Intersection Study.

BACKGROUND

The intersection of Grant Road at Sleeper Avenue is located along Grant Road approximately midway between North Drive and Cuesta Drive (see Figure 1). The intersection is adjacent to Cuesta Park to the west and is an essential connection to the entrance of the Stevens Creek Trail, which is approximately one-half mile to the east of the intersection. El Camino Hospital and YMCA are both to the west of the intersection along North Drive.

Sleeper Avenue forms a T-intersection with Grant Road where Sleeper Avenue traffic is stop-controlled, while traffic on Grant Road is uncontrolled. Grant Road is a four-lane arterial roadway with a 35-miles-per-hour (mph) posted speed limit, while Sleeper Avenue is a two-lane residential street with a 25 mph posted speed limit. There are no exclusive bike facilities along Sleeper Avenue, while Grant Road provides Class II bike lanes for bicyclists. Currently, there is only one marked crosswalk at the eastern leg of the intersection to cross Sleeper Avenue, while a median opening and accessible curb ramps are provided on the southern leg of the intersection to allow pedestrians and bicyclists to cross Grant Road.

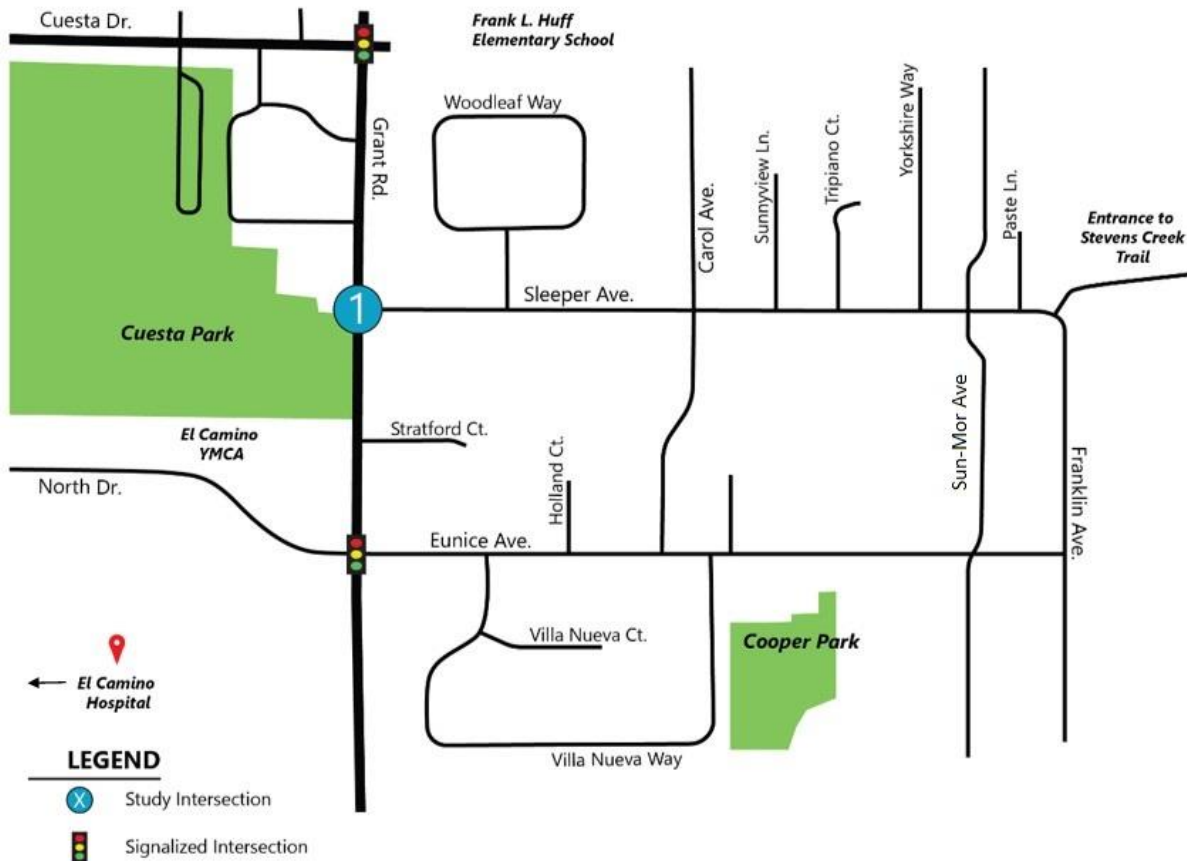


Figure 1 – Study Intersection of Grant Road at Sleeper Avenue

For the past several years, residents of Mountain View have requested an improved pedestrian connection across Grant Road at Sleeper Avenue. The purpose of this Study is to develop and evaluate conceptual alternatives/improvements to facilitate safe movement of pedestrians and bicyclists crossing Grant Road at Sleeper Avenue.

ANALYSIS

To improve pedestrian and bicycle safety at this intersection, several alternatives were considered to enhance operations for all modes of transportation. These alternatives are illustrated in Attachment 1 and summarized below:

1. Pedestrian hybrid beacon (PHB) with a northern crosswalk;
2. PHB with a southern crosswalk and left-turn restriction from Sleeper Avenue;
3. Traffic signal with a northern crosswalk; and
4. Keep existing condition as is.

Based on the Study's analysis and community input, staff recommends that Alternative No. 2, a PHB with a southern crosswalk and left-turn restriction from Sleeper Avenue, be selected as the preferred concept for design and construction (see Figure 2). Additional information about this alternative and community input is provided below.

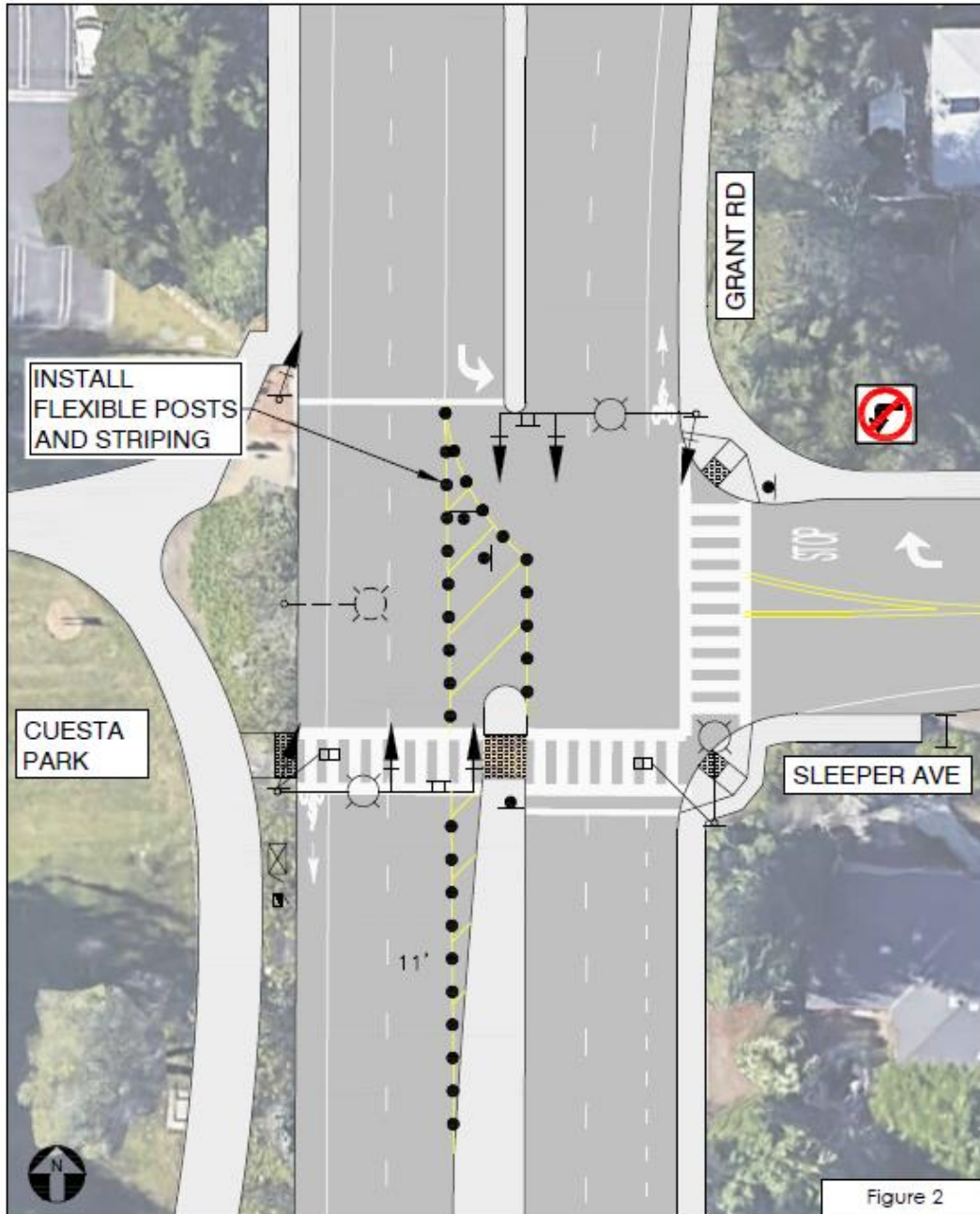


Figure 2 – PHB with a Southern Crosswalk and Left Turn Restriction from Sleeper Avenue

Pedestrian Hybrid Beacon

A PHB is a traffic control device used to increase motorists' awareness of pedestrian crossings at uncontrolled marked crosswalk locations. A PHB is distinct from traffic signals and constant flash warning beacons because it is only activated by pedestrians when needed. PHBs are becoming more prevalent in the Bay Area, and Caltrans has installed several on El Camino Real, including one at the Mountain View/Los Altos border, as shown in Figure 3.



Figure 3—PHB at Distel Circle and El Camino Real, Mountain View/Los Altos Border

For pedestrians, PHBs work like regular pedestrian crossings. Pedestrian signals display the *DO NOT WALK* symbol until the pedestrian push button is activated. After the vehicle beacon turns red, the *WALK* symbol is displayed for the pedestrian walk interval. This is followed by a flashing *DO NOT WALK* or *COUNTDOWN* phase, when pedestrians may continue crossing but should not start crossing.

Cities with experience implementing PHBs (such as Tucson, Arizona) have observed that bicyclists utilize the facility in a similar manner to pedestrians—crossing with the pedestrian signal before continuing within the bicycle facility.

For motorists, there are five phases as displayed in Figure 4. Like a railway crossing, the vehicle beacons are dark when no crossing activity is happening. Once the pedestrian push button is pressed, the vehicle beacon flashes yellow, changes to steady yellow, and

then remains solid red, and the pedestrian signal display shows the *WALK* symbol. During the solid red phase, motorists must come to a complete stop like at a red traffic light. After the solid red phase, the flashing red (“wig wag”) phase coincides with the pedestrian *COUNTDOWN* phase. This phase is akin to a stop sign. Motorists must stop and yield to pedestrians in the crosswalk and proceed only when pedestrians are clear of the crosswalk. PHBs are built with cabinets and controllers similar to traffic signals, which enables signal coordination and timing with nearby traffic signals.

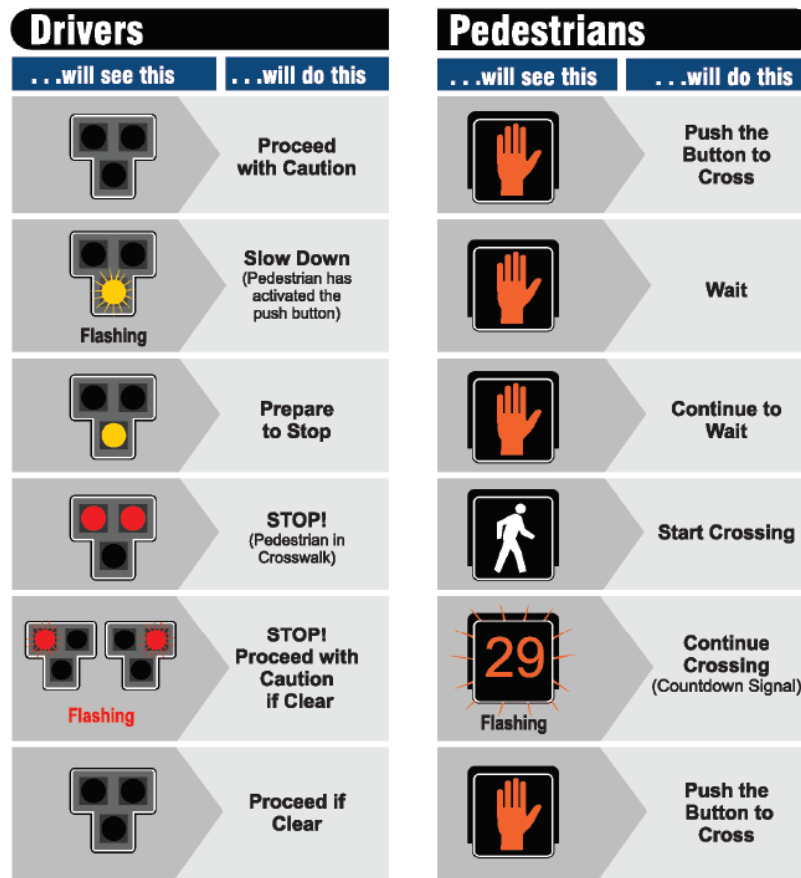


Figure 4 – Corresponding Display Sequence for PHB and Pedestrian Signal

PHBs have been proven to significantly reduce pedestrian crashes. A Federal Highway Administration (FHWA) study published in 2010 found that PHBs can reduce pedestrian crashes by 69 percent and total crashes by 29 percent. Because PHBs remain dark until activated, they can help increase driver attention to pedestrians crossing the roadway and can reduce rear-end collisions. The PHB’s red signal indication removes any judgment from the motorists and requires a complete stop to allow pedestrians to cross the street. Motorist compliance with the requirement to yield has been shown to exceed 90 percent at PHBs.

A PHB has certain advantages over a traffic signal for a location like the Grant Road/Sleeper Avenue T-intersection. A PHB remains off when there are no pedestrians and are only activated by pedestrians when needed, resulting in less disruption to traffic flow. In addition, these devices are less costly, readily programmable, and can be coordinated with nearby traffic signals to allow minimal delay and vehicular congestion. PHBs can be effectively used to address public requests for crossings, resolve safety issues, or generally increase pedestrian access where needed.

Left-Turn Restriction from Sleeper Avenue

The recommended alternative includes prohibiting the left-turn movement from Sleeper Avenue onto southbound Grant Road to eliminate the vehicle conflict with pedestrians crossing at the intersection. Table 1 shows the peak-hour vehicle count summaries for the westbound left-turn movement from Sleeper Avenue that were collected on April 11, 2019 (pre-COVID). These counts were collected during typical peak morning, noon, and afternoon hours. Peak-hour data was collected because it typically reflects the part of the day during which traffic congestion on roads is at its highest or basically when most motorists are traveling on the road.

Table 1: Sleeper Avenue Westbound Left-Turn Peak-Hour Counts

Peak Hour	Number of Vehicles
7:30 a.m. to 8:30 a.m.	3
11:30 a.m. to 12:30 p.m.	2
4:30 p.m. to 5:30 p.m.	0

Prohibiting the left turn from Sleeper Avenue is not expected to have a major impact on traffic due to the low demand for the left turns. The two to three vehicles per hour planning to proceed southbound on Grant Road could use Eunice Avenue, which has a traffic signal at Grant Road, to turn left.

To provide an opportunity to determine whether there are any unexpected impacts of the left-turn prohibition, staff would initially implement it by extending the existing median with flexible posts and striping. If positive feedback is received from the community and City Council after a one-year evaluation period, a concrete median extension could then be constructed to permanently restrict the left turns.

Other Alternatives Considered

Staff also considered other alternatives, including a crosswalk and LED-enhanced crosswalk for this location. These alternatives were dismissed as unsuitable for this

location due to the high traffic volumes, high pedestrian demand, relatively high speeds, and multi-lane configuration.

Community Outreach

A virtual community meeting for this Study was held on Thursday, October 22, 2020. The purpose of the meeting was to present the proposed alternatives to the community, gather public input, and address questions raised by community members. Approximately 277 notices were mailed out to residents and property owners, including properties within a 700' radius of the intersection, YMCA, El Camino Hospital, and properties with frontages along Sleeper Avenue, Eunice Avenue, and any affected side streets east of the intersection. Approximately 28 members of the public attended the virtual meeting, and staff received 34 questions and comments. Attendees also provided input on polling questions listed in Attachment 2. Key feedback included the following:

- Pedestrian safety, vehicle safety, bicyclist safety, and speeds on Grant Road were the main concerns of attendees.
- The majority of attendees supported the concept of a left-turn restriction from Sleeper Avenue to Grant Road (Alternative 2).
- The concept of a PHB (Alternative 1 or 2) was supported by attendees.
- Most attendees did not support the traffic signal alternative (Alternative 3) or keeping existing conditions at the intersection (Alternative 4).
- Community members noted that drivers are reluctant to use Sleeper Avenue to access southbound Grant Road during peak hours due to the high traffic volume and limited gaps during peak hours along Grant Road. As a result, peak-hour counts for the westbound left turn from Sleeper Avenue may be somewhat depressed.

Bicycle/Pedestrian Advisory Committee (B/PAC) Meeting

A virtual B/PAC meeting for this Study was held on Wednesday, February 24, 2021. Approximately 16 members of the public and all members of the B/PAC attended the virtual meeting. The purpose of the meeting was to present the proposed alternatives to

the B/PAC for the B/PAC to provide input on a preferred alternative for the intersection. Key feedback included the following:

- The B/PAC supported and recommended Alternative 2—PHB with a southern crosswalk and left-turn restriction from Sleeper Avenue with four B/PAC members voting in favor of Alternative 2 and one B/PAC member abstaining.
- The B/PAC highlighted that the intersection should be treated as a four-way intersection for bicyclists. Grant Road and Sleeper Avenue is considered a T-intersection for motorists.
- Several B/PAC members expressed their desire to have crosswalks with pedestrian refuge islands installed on both approaches along Grant Road, if possible. However, due to the lack of a right-of-way, the installation of a crosswalk with a refuge island on the north side of the intersection is not feasible without the removal of a through-lane on Grant Road or the left turn from southbound Grant Road to Sleeper Avenue.

NEXT STEPS

Staff will take the recommended alternative to Council as a Consent Calendar item in May 2021. With Council's approval of the alternative, staff will complete the Study report and proceed with project design as soon as a project manager is available. The design and construction of the proposed improvements have been funded in the Capital Improvement Program (CIP) under CIP 21-39, Grant Road and Sleeper Avenue Intersection Improvements.

PUBLIC NOTICING

In addition to agenda posting, notices were mailed to the residents and property owners within the Study area. A project webpage also provides information at: <https://www.mountainview.gov/GSIS>.

DG-LL-EA/TS/1/PWK
916-04-20-21M

Attachments: 1. Proposed Alternatives
2. Polling Questions Report

cc: PWD, APWD—Arango, CTE, ACE—Galang