CITY OF MOUNTAIN VIEW

MEMORANDUM

Public Works Department

DATE: February 24, 2021

TO: Bicycle/Pedestrian Advisory Committee

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

SUBJECT: Grant Road and Sleeper Avenue Intersection Study

RECOMMENDATION

Provide input on a 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 Attachment 1). The intersection is adjacent to Cuesta Park to the west and is an essential connection to the entrance of the Stevens Creek Trail that is approximately one-half mile to the east of the intersection. The El Camino Hospital and the 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 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.

For the past several years, residents of Mountain View have requested an improved pedestrian connection across Grant Road at Sleeper Avenue. This Study aims 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 2 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.

4. Keep existing condition as is.

Pedestrian Hybrid Beacon

A PHB is a traffic control device used to increase motorists' awareness of pedestrian crossings at uncontrolled marked crosswalk locations. As shown in Figure 1, a PHB is distinct from traffic signals and constant flash warning beacons because it is only activated by pedestrians when needed.

Figure 1: Pedestrian Hybrid Beacon at Distel Circle and El Camino Real, Mountain View

For pedestrians, PHBs work like regular pedestrian crossings. Pedestrian signals display the DON'T 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 DON'T 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 2. 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.

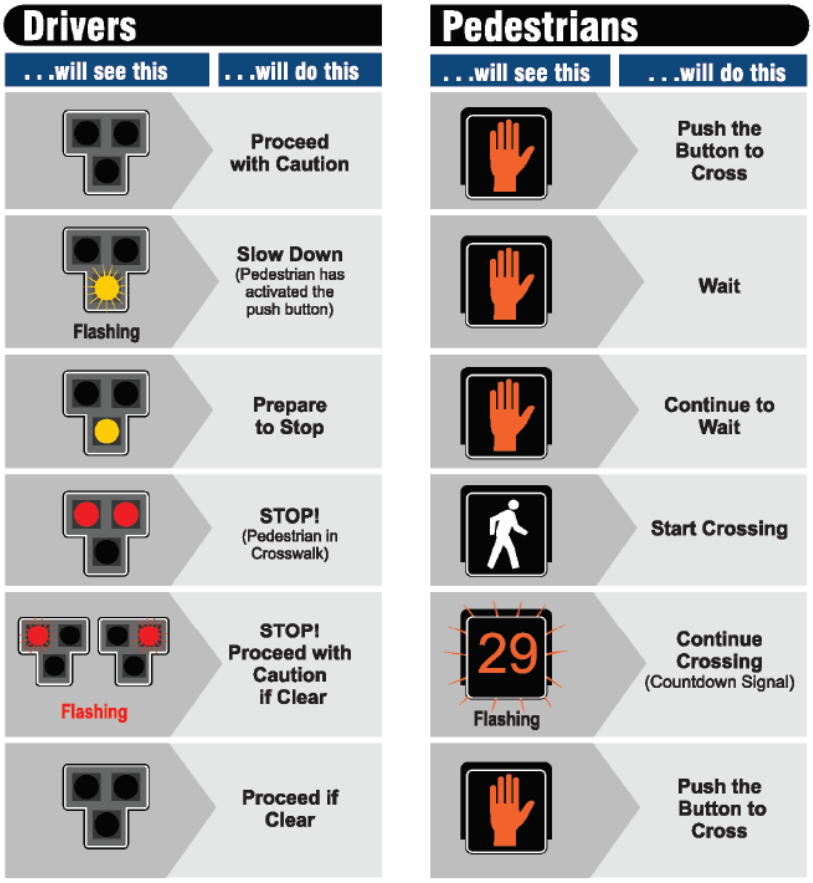

Figure 2: Corresponding Display Sequence for PHB and Pedestrian Signal

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. The PHB provides a clear message that motorists must stop and allow pedestrians to cross the street. Motorist compliance with the requirement to yield has been shown to exceed 90 percent at PHBs.

Traffic Signal

Traffic signals, as shown in Figure 3, are traffic-control devices that assign right-of-way to motorists, pedestrians, and bicyclists and control traffic flow at an intersection. Vehicular signal heads and pedestrian indications are used to give drivers and pedestrians a visual indication on whether they should stop, slow, or proceed.

Figure 3: Traffic Signal at Grant Road and Phyllis Avenue-Martens Avenue, Mountain View

With traffic signals, motorists and bicyclists are required to come to a complete stop when the signal indication is red and may proceed when the indication turns green. Pedestrians at traffic signals push the pedestrian buttons and are given a certain amount of time to cross the street.

Because vehicles cannot proceed until the pedestrian phase is over, traffic signals create more vehicular delays from pedestrian use than the PHBs. Additionally, new traffic signals will tend to attract new traffic volume to the treated side street.

Left-Turn Restriction from Sleeper Avenue

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. Due to the low peak-hour volume, prohibiting the left turn from Sleeper Avenue was considered. The left turns would be prohibited by extending the existing median with flexible posts and striping. If positive feedback is received from the community or City Council after a one-year evaluation period, a concrete median extension could then be constructed to permanently restrict left turns.

Prohibiting the left-turn movement would eliminate the vehicle conflict with pedestrians crossing at the intersection while not having a major impact on current traffic needs as the existing traffic volume demand making the left turn is low.

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 a.m.	2
4:30 p.m. to 5:30 p.m.	0

It is important to note that the above 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.

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, the YMCA, the 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 3. 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.

NEXT STEPS

Staff will present the proposed improvement alternatives to the Council Transportation Committee, tentatively scheduled in April 2021. The Study is slated for completion in spring/summer 2021. Once an improvement is determined, staff would propose a new project in a future Capital Improvement Program for City Council consideration.

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.

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Attachments:
1. Study Intersection
2. Proposed Alternatives
3. Polling Questions Report

cc: PWD, APWD—Arango, CTE, ACE—Galang