

Date: 4/29/2022
To: Trudi Ryan, Director of Community Development Department
Cc: Dennis Ng, Transportation and Traffic Manager
Shaunn Mendrin, Planning Officer
John Nagel, City Attorney
Rebecca Moon, Senior Assistant City Attorney
From: Lillian Tsang, Principal Transportation Engineer, Departments of Public Works
Subject: 102 E. Fremont Avenue - Staff Recommendation re Driveway Closure

Project Vicinity

The proposed project at 102 E. Fremont Avenue (Proposed Project) is located in the southeast quadrant of the Fremont Avenue and Sunnyvale-Saratoga Road intersection. Sunnyvale-Saratoga Road is a divided north-south six-lane Class I Arterial that connects the residential, employment and retail area via Sunnyvale Avenue and Mathilda Avenue to the north and I-280 and City of Cupertino to the south. Class I arterials provide regional access to all transportation modes, with a focus on regional transit and auto traffic. They also provide pedestrian and bicycle connections, linking land uses to transit. The speed limit on Sunnyvale-Saratoga Road is 40 miles per hour. Fremont Avenue is a divided four- to six-lane east-west Class II Arterial that connects SR-85 to El Camino Real. Class II arterials provide access to all transportation modes, with a focus on local access. Similar to Class I arterials, they also provide pedestrian and bicycle connections, linking land uses to transit. The speed limit on Fremont Avenue is 40 miles per hour.

Both Sunnyvale-Saratoga Road and Fremont Avenue currently have Class II bicycle lanes on both sides of the street. A Class II bicycle lane is a dedicated lane for bicycle to travel adjacent to traffic, separated by a painted white line. Per the *Sunnyvale Active Transportation Plan*¹ that was adopted by Sunnyvale City Council in August 2020, the proposed future improvement along these two corridors would be Class IV separated bikeway, which is an on-street bikeway separated from motor vehicle traffic by some form of physical barrier such as a curb or delineator.

Fremont High School, with an enrollment of 2,236 students, is located in the northwest quadrant of the Fremont Avenue and Sunnyvale-Saratoga Road intersection, approximately 300 feet from the proposed project. During the development of the Active Transportation Plan, a school walk audit was conducted during morning drop-off period to observe the arrival procedures to identify areas of concern for people walking and bicycling to school. Many students were observed walking and bicycling to school at the intersection of Sunnyvale-Saratoga Road and Fremont Avenue.

North of the proposed project is an existing gas station, which has one driveway on Sunnyvale-Saratoga Road and one on Fremont Avenue. The proposed project proposes to have two driveways on

¹ *Sunnyvale Active Transportation Plan*, City of Sunnyvale, 2020

Sunnyvale-Saratoga Road and one driveway on Fremont Avenue. Along Sunnyvale-Saratoga Road, the proposed project has a frontage of 220 feet. The northern driveway on Sunnyvale-Saratoga Road proposed by the project is approximately 24 feet south of the gas station driveway, and is located approximately 150 feet south of the Sunnyvale-Saratoga Road and Fremont Avenue intersection. Including the gas station and the proposed project, there are three driveways along a 370 foot span, which is equivalent to an average of 43 driveways/mile.

Along Fremont Avenue, the proposed project has a frontage of 105 feet. West of the proposed is the gas station, and the proposed driveway is approximately 36 feet east of the gas station driveway and 170 feet east of the Sunnyvale-Saratoga Road and Fremont Avenue intersection. In addition, the proposed project shares driveway access with neighboring parcels. Including the gas station, the proposed project, and the neighboring parcels, there is a total of five driveways along an 860 foot span, which is equivalent to an average of 31 driveways/mile.

Collision Analysis

As part of the development of the *Sunnyvale Roadway Safety Plan² (RSP)*, a collision analysis was performed for a five-year period spanning July 1, 2013 through June 30, 2018. Per Table 2 in the RSP, the intersection of Fremont Avenue and Sunnyvale-Saratoga Road ranked #5 in the “Top Collision Signalized Intersections” in the City of Sunnyvale with 54 collisions in the 5-year period that were analyzed. Per Table 3 in the RSP, Fremont Avenue between Sunnyvale-Saratoga Road and Bobwhite Avenue/Manet Drive ranked #3 in the “Top Collision Segments – Class II Arterial” with 11 collisions in the 5-year period.

When evaluating the collisions that occurred at or near the proposed project over the 5-year analysis period:

- Along eastbound Fremont Avenue west of Sunnyvale-Saratoga Road
 - Six collisions occurred at a driveway
- Along northbound Sunnyvale-Saratoga Road south of Fremont Avenue
 - Three collisions occurred at a driveway
 - Four collisions occurred near a driveway due to slowing vehicles or stopped vehicles
- Along southbound Sunnyvale-Saratoga Road south of Fremont Avenue
 - Two collisions occurred at a driveway, across the street from the proposed project

Most of these collisions occurred due to the conflicts between vehicles and bicyclists or pedestrians at a driveway, or due to vehicles slowing down/stopped near a driveway. The frequent driveways increase the potential for conflicts, which lead to a higher number of collisions than locations with less frequent driveways.

Existing Policies

City of Sunnyvale has developed various policies to help guide land use developments and transportation infrastructure investments within the City:

General Plan Chapter 3 Land Use and Transportation

² *Sunnyvale Roadway Safety Plan*, City of Sunnyvale, 2020



Sunnyvale

- **Goal LT-3:** An Effective Multimodal Transportation System - Offer the community a variety of transportation modes for local travel that are also integrated with the regional transportation system and land use pattern. Favor accommodation of alternative modes to the automobile as a means to enhance efficient transit use, bicycling, and walking and corresponding benefits to the environment, person-throughput, and qualitative improvements to the transportation system environment.
- **Policy LT-3.22c** Minimize driveway curb cuts, and require coordinated access.

Resolution No. 793-16 Complete Streets Policy (and Resolution No. 896-18 amending Resolution No. 793-16): The City wishes to improve its commitment to Complete Streets and desires that its streets form a comprehensive and integrated transportation network promoting safe, equitable, and convenient travel for all users while preserving flexibility, recognizing community context, and using the latest and best design guidelines and standards.

Vision Zero Plan

- Reduce fatalities and serious injuries by 50 percent by 2029 and to continue improving traffic safety towards zero fatal and serious injury collisions in the ten years that follow.
- Call to action to make Sunnyvale's streets safer, especially for people biking and walking.

Proven Safety Countermeasures

The U.S. Department of Transportation Federal Highway Administration (FHWA) has identified a list of Proven Safety Countermeasures that are effective in reducing roadway fatalities and serious injuries on roadways. One of the countermeasures is Corridor Access Management³, which refers to the design, application and control of entry and exit points along a roadway, including intersections with other roads and driveways that serve adjacent properties. Thoughtful access management along a corridor can simultaneously enhance safety for all modes, facilitate walking and biking, and reduce trip delay and congestions. The type of access management strategies that can be implemented include:

- Reduce density through driveway closure, consolidation, or relocation.
- Manage spacing of intersection and access points.
- Limit allowable movements at driveways.

Per FHWA, reducing driveway density can reduce fatal and injury crashes along urban/suburban arterials by 25-31%.

According to FHWA's *Intersection Proven Safety Countermeasure Technical Summary: Corridor Access Management*⁴, on urban and suburban arterials, the frequency of driveway-related collisions on a roadway segment depends on the number and the type of driveways. In general, higher driveway densities result in higher crash frequencies. Crash rates and crash severity increase as unsignalized access density increases, including driveways. Access points not only add conflict points, the potential of crashes and incidents involving pedestrians and bicyclists increase. The fewer access points per mile, the fewer potential conflicts for all roadway users. Study shows that each additional access point

³ U.S. DOT FHWA, https://safety.fhwa.dot.gov/provencountermeasures/corridor_access_mgmt.cfm

⁴ U.S. DOT FHWA, <https://safety.fhwa.dot.gov/intersection/cam/fhwasa15005.pdf>

per mile increases the crash rate along a corridor by 3 to 5 percent⁵. In addition, studies also show that a motorist failing to yield mid-block at a driveway or alley to a bicyclist accounted for between 8.6 percent and 11.7 percent of all crashes involving a bicyclist and a motor vehicle.

Each right-in-right-out driveway represents two potential conflict points for pedestrians and bicyclists when vehicles are permitted in and out of the driveway. Techniques to reduce the number of conflict points for pedestrians walking on the sidewalk or bicyclists traveling in the roadway include:

- Reducing the number of driveways, particularly commercial driveways
- Providing greater distance between driveways.

Recommendation

Land use developments shall be designed to achieve a balance between safety, operations and access along the corridors. Driveways should be located at points best suited to fit traffic and land-use needs, and are designed to enable vehicles to enter and leave the property with minimum interferences with traffic, pedestrians and bicyclists, while providing reasonable access to the property. Per *A Policy on Geometric Design of Highways and Streets*⁶ published by American Association of State highway and Transportation Officials (AASHTO), driveways and entrances should be located away from other intersections to minimize crashes, reduce traffic interference, and provide for adequate storage lengths for vehicles turning into entrances.

The proposed project is located at a location where there are more collisions as compared to similar intersections/roadways within the city in a five-year analysis period. There are also numerous collisions that occurred at a driveway or near a driveway near the project frontage on both Sunnyvale Saratoga Road and Fremont Avenue. In addition, the proposed project is near the Fremont High School, which has an enrollment of over 2,200 students, and a large number of the student population walk and bike to school.

For the proposed project, Staff's recommendation is to minimize the number of driveways to a total of two driveways (instead of three) for various reasons:

- To minimize the distance from nearby driveways and intersections as much as possible, while providing adequate ingress and egress for circulation and operation for the project site.
- Fewer driveways will minimize conflicts between vehicles, pedestrians, and bicyclists, especially at this location where it is ranked as one of the top locations for collisions in the City of Sunnyvale based on the facility type and collision history. In addition, it is in close proximity to Fremont High School where a large student population walk and bike to school.
- Staff's recommendation is consistent with City's adopted policies, including LUTE, Complete Streets Policy, and Vision Zero Plan, as well as guidelines set forth by FHWA and AASHTO.

⁵ U.S. DOT FHWA, <https://safety.fhwa.dot.gov/intersection/cam/fhwasa15006.pdf>

⁶ *A Policy on Geometric Design of Highways and Streets*, American Association of State highway and Transportation Officials (AASHTO), 7th Edition, 2018