# TOWN OF SAN ANSELMO
# TOWN COUNCIL STAFF REPORT
For the meeting of 8-12-08

**DATE:** 8-7-08

**TO:** Mayor and Council Members

**FROM:** Rabi Elias, Public Works Director

**SUBJECT:** Safety Analysis of Sir Francis Drake Boulevard between Sunny Hills Drive and Butterfield Road, and installation of two speed feedback display signs.

## RECOMMENDATION
Receive the report and approve installation of two speed feedback display signs.

## BACKGROUND AND DISCUSSION
The traffic engineering firm of W-trans was engaged by DPW to do a safety analysis of the section of Sir Francis Drake Blvd. between Sunny Hills Drive and Butterfield Road. Their report is attached. According to the report 29.9% of collisions are primarily caused by unsafe speed. One way to reduce the speed is to install speed feedback display signs. Marin County did a pilot program to study the effect of the installation of these display signs and they found that they reduced the speed by an average of 5 MPH. San Rafael had good results by installing such signs. These signs utilize radar or laser technology to determine the speed of an approaching vehicle and electronically display it next to the posted speed limit. This provides the driver an immediate feedback of his speed and if he is in violation of the speed limit he will instinctively reduce his speed. The most effective locations will be in the vicinity of 1420 Westbound and 1427 Eastbound Sir Francis Drake Blvd.

I agree with the consultant that due to the roadway configuration and traffic volumes, no other traffic calming measures are considered appropriate at the present time.
Increasing the width of the boulevard requires right-of-way acquisitions which is a prolonged, tedious and very expensive proposition which falls outside Town capability besides if it can be achieved it will put existing house closer to street.

**FISCAL IMPACT**

| | |
|---|---|
| Estimated cost of installation of display signs | $30,000 |
| Funding from Traffic Congestion Relief Fund | $30,000 |

August 5, 2008

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Mr. Rabi Elias
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**Safety Analysis of Sir Francis Drake Boulevard**

Dear Mr. Elias;

In response to your request, Whitlock & Weinberger Transportation, Inc. (W-Trans) has prepared a safety and collision analysis for Sir Francis Drake Boulevard between Sunny Hills Road and Butterfield Road. This segment of roadway is striped as a four-lane arterial. It generally has a total width of 40 feet through the study segment, resulting in lane widths of 10 feet, and a posted speed limit of 30 mph. Although the lanes are narrower than the typical 12-foot lane width, the 10-foot width fits within the range that is typically considered acceptable. Parking is not allowed and there are no bike lanes along this segment of road. The primary land use along this segment of roadway is single-family residences with driveways on Sir Francis Drake Boulevard, along with a high school located near Aspen Road.

**Collision History**

The collision history for the study area was reviewed to determine any trends or patterns that could indicate a safety issue. Collision rates were calculated based on records for January 1, 2004 through September 30, 2007, obtained through the California Highway Patrol and published in their State Wide Integrated Traffic Records System (SWITRS) reports. Collision rates were calculated for smaller segments as well as for the entire length of the study area and compared to average collision rates statewide as published by Caltrans in *2002 Accident Data on California State Highways*. The average statewide collision rate for a suburban, undivided four-lane facility in an urban area is 2.55 collisions per million vehicle miles (c/mvm), while the average rate for a three-lane roadway, like the segment from Sierra Avenue-Broadmoor Avenue to Butterfield road is 1.30 c/mvm.

For the nearly four-year period reviewed, a total of 97 collisions were reported along the segment of Sir Francis Drake Boulevard between Sunny Hills Road and Butterfield Road. Based on an average volume of 30,000, this translates to a calculated collision rate of 3.33 c/mvm for the 0.71-mile study segment, which is higher than the statewide average for this type of facility. To determine the significance of the rate being above average, consideration was given to the severity of collisions reported. It was noted that of the 97 collisions, 36, or 31.7 percent, were listed as having at least one involved party report an injury. This is below the statewide averages of 37.1 percent for a four-lane road and 42.2 percent for the three-lane road. It is important to note that these averages do not consider the severity of injury or medical care sought, but in general it would appear that there are fewer injuries associated with the collisions than might be expected based on the average rates, and there were no reported fatalities during the study period.

For further analysis, the study segment was divided into four shorter segments, and the collision and injury rates were calculated for each segment, as shown in Table 1.

**Table 1**
**Summary of Collision Rate Data**

| Segment | Collision Rates (c/mvm) | | Injury Rates (%) | |
|---|---|---|---|---|
| | Actual | Average | Actual | Average |
| Sunny Hills to San Francisco-Tamal | 3.56 | 2.55 | 31.6 | 37.1 |
| San Francisco-Tamal to Aspen-High School | 3.52 | 2.55 | 41.0 | 37.1 |
| Aspen-High School to Sierra-Broadmoor | 4.68 | 2.55 | 28.0 | 37.1 |
| Sierra-Broadmoor to Butterfield | 1.76 | 1.30 | 53.8 | 42.4 |
| **Overall** | **3.33** | **2.55*** | **31.7** | **37.1*** |

Note: Rates higher than the Statewide average are highlighted
* For the purpose of evaluating the entire segment, statewide averages for a four-lane facility were used as this is the configuration for the majority of the segment.

Since the primary concern that initiated this analysis is safety issues relative to accessing private driveways along Sir Francis Drake Boulevard, the collisions were examined to determine those that can likely be attributed to the movements into or out of a driveway. Of the total 97 collisions reported during the study period, 13 were attributed to driveway use, which is approximately 13.4 percent of all collisions. No statewide average data exists for this type of collision. Of the collisions not attributed to driveway use, 74, or 78.7 percent, occurred within the influence of an intersection. Table 2 provides a breakdown of collision locations.

**Table 2**
**Collision Details by General Location**

| Location | 2004 | 2005 | 2006 | 2007* | Total |
|---|---|---|---|---|---|
| At driveways | 0 | 2 | 6 | 5 | 13 |
| At intersections | 19 | 16 | 22 | 17 | 74 |
| Mid-block, not at driveways | 4 | 2 | 2 | 2 | 10 |
| Total | 23 | 20 | 30 | 24 | 97 |

Note: * Data for 2007 is available only through October, so reflects a partial year

**Safety Analysis**

Based on the segment collision rates, this section of Sir Francis Drake Boulevard does experience a collision rate that is slightly greater than the statewide average for similar facilities; however, the collision rates are not significantly higher. The vast majority of all collisions occurred within the influence of an intersection, many of which were rear-end collisions which are generally attributed to driving at an unsafe speed and/or following too closely. Other common collisions include a vehicle being struck while making an improper

or illegal turn and other right-of-way violations. Of the collisions attributed to driveway use, the most common collision type was a vehicle being struck while making a turning movement.

Overall, the study section experienced an injury rate lower than the statewide average; however, the individual segments of San Francisco Boulevard-Tamal Avenue to Aspen Court-Drake High School and Sierra Avenue-Broadmoor Avenue to Butterfield Road did experience injury rates higher than the statewide average.

**Segment Speed**

In accordance with the provisions of the *California Vehicle Code* Engineering and Traffic Surveys have been conducted to establish legal and enforceable speed limits along Sir Francis Drake Boulevard. The most recent surveys were conducted in 2002, and a review of the information included in the surveys indicates that drivers are generally traveling at or only slightly above the posted speed limit. Since the surveys are nearly the end of their normal life, the Town may wish to initiate new surveys to determine if the posted 30-mph speed limit is still appropriate.

**Recommendations**

To improve safety on Sir Francis Drake Boulevard between Sunny Hills Road and Butterfield Road, the Town may wish to consider use of speed feedback signs. These signs utilize radar or laser technology to determine the speed of an approaching vehicle and electronically display it next to the posted speed limit. This provides the approaching driver with immediate feedback if they are in violation of the posted speed limit, with the intent of prompting the driver to correct the violation by slowing. Since 29.9 percent of all collisions had unsafe speed listed as the primary collision factor, the installation of these signs may help reduce the frequency of violation and associated collisions.

The approximate cost of these signs is $10,000-$15,000 each, depending on the equipment chosen and installation requirements. If it is decided to install speed feedback signs, at least two signs are recommended and would be placed in opposite directions midway between two signalized intersection to limit the influence of slower speeds resulting from congestion and approaching a red indication. The signs will have the greatest potential reward if posted where the probability of drivers violating the posted speed limit is the highest.

Considering the current roadway configuration and traffic volumes, no other traffic calming measures are considered appropriate.

**Conclusions**

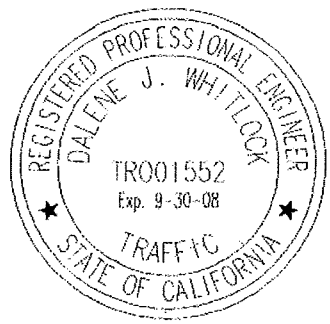
The section Sir Francis Drake Boulevard between Sunny Hills Road and Butterfield Road has a collision rate that is higher than the statewide average for its facility type, but the injury rate is lower than the statewide average. Due to space and infrastructure limitations, nothing can be done to increase the width of the street while maintaining the current lane configuration. Additionally, the speed limit of the street is posted at the lowest permissible speed under the *California Vehicle Code*. One possible measure to reduce the speed of traffic is to install speed feedback signs in at least two strategic locations. Installing two of these signs is

estimated to cost approximately $20,000-$30,000. By reducing the speed of traffic, there is a possibility that collision rates will decrease.

Thank you for giving W-Trans the opportunity to provide these services. If you have any further questions, please call.

Sincerely,

Tony Henderson, E.I.T.
Assistant Engineer




Dalene J. Whitlock, P.E., PTOE
Principal

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