



Staff Report

INFORMATIONAL REPORT ON THE REQUEST FOR STOP SIGNS AT THE INTERSECTION OF HILLER STREET AND WESSEX WAY

Summary

This report provides Council with the Parking and Traffic Committees recommendation against the installation of STOPs on Hiller Street at Wessex Way.

Council member Dickenson requested City staff to review the intersection of Hiller Street and Wessex Way for the installation of STOP signs. Public Works and Police staff has never received any requests from the public to install STOPs signs at this location. City staff reviewed the intersection in 2007 and reported to Council that the location did not meet the City Council's adopted criteria for all way STOPs.

Background

Prior to 2002, the City of Belmont used the Caltrans criteria to evaluate an intersection for installation of STOP signs. The Caltrans criteria was developed to evaluate intersections on State highways like El Camino Real and did not reflect local conditions that vehicle drivers experience in a city like Belmont.

Legal Issues

The installation of a STOP sign does not absolve the City from potential liability. The City is exposed to liability whether or not all-way STOPs are installed at a particular intersection. The City of Alhambra, California lost an \$810,000 lawsuit involving the installation of an all-way STOP that did not meet their adopted criteria. The City's liability exposure is significantly reduced as long as a consistent and objective criteria is used to determine whether or not all-way STOPs should be installed.

The primary purpose of STOP signs is to control right-of-way. The most effective use of STOP signs is at locations where the traffic volumes are near equal on all of the approaches. The greater the difference between the major street volumes and the minor street volumes, the greater the violation rate of the STOP signs along the major street.

Compliance of All-way STOPs on Collector Streets

The Public Works Department undertook a study in July 2003, to determine what the violation rates are at 11 intersections where the major street traffic volumes were significantly higher than

the minor street. Our study indicated less than 10 percent of the traffic came to a complete stop. The percentage of vehicles that did not stop (rolled through the intersection at speeds greater than 20 mph) ranged between 15% and 57%. The low vehicle driver compliance rate leaves pedestrians vulnerable to these violations. This presents a particular potentially dangerous situation to children whose size may make them less visible to vehicle drivers.

Multi-way Stops for Traffic Calming

Many elected officials and citizens feel that multi-way stops should be used as traffic calming devices. The concerns associated with multi-way stops that did not meet adopted criteria include liability issues, traffic noise, automobile pollution, traffic enforcement and driver behavior.

A literature search found 70 papers about multi-way stop signs being used as traffic calming devices and their relative effectiveness in controlling vehicle speeds in residential neighborhoods and their relative effectiveness as traffic calming devices. The following summarizes the findings and list the number of references found for each of the findings:

1. Multi-way stops do not control speeds (22 references)
2. Stop compliance is poor at locations that did not meet stop sign criteria. This is based on the drivers feeling that the signs have no traffic control purpose. There is little reason to yield the right-of-way because there are usually no vehicles on the minor street (19 references)
3. Before-After studies show multi-way stops do not reduce speeds on residential streets (19 references)
4. Multi-way stops not meeting criteria increased speed some distance from the intersection. The studies hypothesize that motorists are making up the time they lost at the “unnecessary” stop sign (15 references)
5. Multi-way stop signs have high operating costs based on vehicle operating costs, vehicular travel times, fuel consumption and increased vehicle emissions (15 references)
6. Safety of pedestrians is decreased at multi-way stops not meeting the criteria, especially small children. Pedestrians expect vehicles to stop at the stop signs but many vehicle drivers have gotten in the habit of running the “unnecessary” stop sign (13 references)
7. Special police enforcement of multi-way stop signs has limited effectiveness. This has been called the “halo” effect. Drivers will obey the “unreasonable” laws as long as a police officer is visible (11 references)
8. Multi-way stop signs do not discourage cut-through traffic through residential neighborhoods (13 references).
9. Increase the potential of rear-end collisions. (7 references)

Environmental Concerns

The effects of stopping and idling increase automobile exhaust. A study of 10 four-way STOP intersections found “the total additional emissions of carbon monoxide were 1,287, 500 pounds per year, hydrocarbons totaled 79,200 pounds per year and oxides of nitrogen totaled 83,000 pounds per year.”

Additional traffic noise also is associated with stopping and starting. Braking and acceleration increase tire noise and engine noise. Stop signs also increase the amount of time any one vehicle is at a particular point. Therefore, residents living near the stop controlled intersection will experience an increase in traffic noise.

Stopping, accelerating and idling also increase the amount of fuel consumed by a vehicle. A California study found that deceleration and acceleration for each stop an average passenger car makes, 0.0173 gallons of fuel is consumed. This would mean that for every unwarranted stop sign installed on a street with 10,000 cars per day, 173 additional gallons of gasoline would be consumed in a day, or 63,145 additional gallons would be consumed in a year.

Discussion

Public Works staff collected new traffic volume data at the intersection of Hiller Street and Wessex Way. The northbound and southbound approach volumes on Hiller are 2,605 vehicles and 2,760 vehicles per day, respectively. The total traffic volume on Hiller Street in the area of Wessex Avenue is 5,365 vehicles per day.

The eastbound and westbound approach volumes on Wessex Way at Hiller Street are 577 vehicles and 188 vehicles per day, respectively. The review of the traffic and pedestrian volume data indicates that it does not meet the minimum requirements established by City Council for all-way STOPS.

There has been one reported collision in the last five years at the intersection. This is an extremely low collision rate based upon the average daily traffic volumes that travel through this intersection. The collision rate does not meet the minimum requirements established by City Council for all-way STOPS.

Public Works staff notified all residents within a 500 foot radius of the intersection of the Parking and Traffic Safety Committee regarding the request for all-way STOPS. One couple attended the Committee meeting and indicated their concern was more about sight distance when they make an eastbound right turn off of Wessex to travel southbound on Hiller Street. This issue can be addressed through the installation of red curb to improve the sight distance. There is also another sight distance issue on the southeast corner where a fence is higher than the allowed 3.5 feet in a corner sight triangle that must be maintained.

Hiller Street is a route used by school children to travel from the Homeview neighborhood to Nesbit School. There is currently a crossing guard to facilitate the safe crossing of students on the west side of the intersection of Ralston Avenue and Hiller Street. There are no crosswalks across Ralston on the east side of the street. All school children from the Homeview neighborhood can safely access the school along Hiller Street without crossing the street. Any students walking along the east side of Hiller Street may safely cross the street at the all-way stop on Hiller Street at Biddulph Way.

The installation of the all-way STOPS does not meet the criteria established by City Council in regards to being located within 600 feet of an existing STOP sign or traffic signal. The traffic signal on Hiller and Ralston is within 370 feet of Wessex Way. The stop sign on Hiller Street at Oxford Way is within 400 feet of Wessex Way. The northbound approach to Wessex Way can only accommodate a maximum queue of 10 cars without blocking Masonic Way and four more vehicles between Masonic and Ralston. Based upon the traffic volumes during the morning and evening, the traffic queues will back-up onto Ralston Avenue. This is a particular concern for eastbound traffic turning off of Ralston Avenue onto Hiller Street being stuck in the westbound lanes of Ralston Avenue. The vehicle queues will also adversely impact the response time of emergency services into the Sterling Downs neighborhood.

The projected environmental impacts of the requested STOPS based upon existing traffic volumes will be as follows:

Carbon Monoxide	128,750 pounds per year
Hydrocarbons	7,900 pounds per year
Oxides of Nitrogen	41,500 pounds per year
Gasoline Consumption	31,573 gallons per year

Conclusion

The installation of STOPS at the intersection of Hiller Street and Wessex Way does not meet the criteria adopted by the City Council for all-way STOPS.

The installation of STOPS at the intersection of Hiller Street and Wessex Way will NOT:

- Improve the pedestrian safety at the intersection.
- Improve the safety of vehicle drivers traveling through the intersection.
- Discourage vehicle drivers from traveling through the intersection.

The installation of STOPS at the intersection of Hiller Street and Wessex Way will:

- Back up traffic onto Ralston Avenue during the peak travel times and exposing vehicles to potential collisions while waiting to clear the intersection.
- Reduce emergency response time to the Sterling Downs neighborhood.
- Increase the potential of rear-end and pedestrian collisions at the STOPS.
- Adversely impact the environment.

Public Contact

The Parking and Traffic Safety Committee noticed residents within a 500 foot radius of the Parking and Traffic Safety Committee meeting that an all-way STOP was going to be discussed. One couple came to the meeting and shared their concerns regarding sight distance. No telephone calls or emails were received by any other resident in the area.

Recommendation

The Parking and Traffic Safety Committee unanimously recommended against the installation of the STOP signs. The Committee indicated the local residents’ concerns regarding sight distance can be addressed through the installation of red curb.

Alternatives

1. Take no action.
2. Refer back to staff for further information.

Respectfully submitted,

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