

Agenda Report

DATE: December 17, 2001

TO: City Council

THROUGH: Public Safety Committee

SUBJECT: Resolution to Adopt All-Way Stop Sign Policy for Residential Street Intersections

RECOMMENDATION:

It is recommended that the City Council adopt a resolution establishing All-way Stop Sign Warrants for Residential Street Intersections.

COMMISSION REVIEW:

The proposed All-Way Stop Sign Warrants for Residential Street Intersections was presented to and supported by the Transportation Advisory Commission at their meeting of December 6, 2001.

BACKGROUND:

California Vehicle Code (CVC) Section 21100(d) states that local authorities may adopt rules and regulations by ordinance or resolution regulating traffic by means of official traffic control devices. Pasadena Municipal Code Chapter 10.28 gives authority to the Director of Public Works and Transportation to determine whether vehicles shall stop at one or more entrances to an intersection and to erect a stop sign at every such place where a stop is required.

Currently, the Public Works and Transportation Department uses stop sign warrant guidelines established by the State of California Department of Transportation (Caltrans) to determine whether the installation of all-way stop sign controls are appropriate at an intersection. These warrants (or criteria) define conditions, such as minimum traffic volumes, that an intersection must meet in order to qualify for all-way stop controls.

The City frequently receives requests for the installation of all-way stop controls at intersections in residential areas. The traffic volume at intersections of residential

collector/local streets is typically not sufficient to meet Caltrans warrants for all-way stop controls. A few years ago, the department adopted a peak-hour residential warrant for all-way stop controls. However, based on the past few years of addressing neighborhood traffic management issues, it has become apparent that further consideration was needed to address conditions at the intersections of residential streets.

State warrants for traffic control devices were generally designed with the intent of efficiently and safely moving high volumes of traffic with minimum delay and inconvenience to motorists. It is staff's opinion that the Caltrans warrants for all-way stop controls may be suited for the types of roadways encountered by the state (state highways), but may not be particularly relevant to typical intersections found in most residential areas. Neighborhood streets usually serve low traffic volumes with emphasis on residence access, low noise levels and a pedestrian and bicyclist friendly environment. The need to minimize congestion and delay is secondary to the resident's desire to maintain the residential character of the neighborhood.

The protection of the residential street environment is a primary goal identified in the City's General Plan Mobility Element. The Public Works and Transportation Department proposes that the Caltrans all-way stop warrants be modified to address conditions at the intersections of residential collector and local streets, where all-way stop controls may be appropriate for intersection control as well as preserving the residential street environment.

The Caltrans guideline states that all-way or multi-way stop controls may be warranted at an intersection if any of the following conditions exist:

1. Where traffic signals are warranted and urgently needed, the multi-way stop may be an interim measure that can be installed quickly to control traffic while arrangements are made for the signal installation.
 2. An accident problem as indicated by five or more reported accidents within a 12-month period of the type susceptible to correction by multi-way stop installation.
 3. Minimum traffic volumes:
 - The total vehicular volume entering the intersection from all approaches must average at least 500 vehicles per hour for any 8 hours of an average day, and
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- The combined vehicular and pedestrian volume from the minor street must average at least 200 units per hour for the same 8 hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the maximum hour, but
- When the 85th percentile approach speed exceeds 40 miles per hour on the major street, the minimum vehicular volume warrant is 70 percent of the above requirements.

Based on typical conditions at residential street intersections, most would not qualify for all-way stop controls based on the above warrants. Due to an emphasis on neighborhood livability and preserving the residential street environment, many cities have adopted all-way stop sign warrants specifically applicable to residential streets. Staff has conducted a survey of various cities that have adopted modified all-way stop sign warrants applicable to conditions at residential street intersections.

Attachment 1 compares Pasadena's all-way stop warrants, which conform to Caltrans guidelines with the addition of a residential peak hour warrant and school zone warrant, against other California cities that take special consideration of residential street intersections. After reviewing these warrants, a modified warrant has been developed for residential street intersections.

The Public Works and Transportation Department propose that modified Caltrans warrants for all-way stop controls be considered for the intersections of residential streets. The modifications include reduced minimum traffic volume requirements and a reduction in the required number of accidents during a 12-month period, provided that certain conditions are met.

The proposed All-Way Stop Sign Warrants for Residential Street Intersections may be applied only if the following conditions are met:

- Both streets must have residential frontages and classified as a residential collector or local street.
 - The total intersection volume does not exceed 6000 vehicles per day.
 - Neither street exceeds 40 feet in curb to curb width
 - There are no existing stop sign or traffic signals on the more heavily traveled street within 600 feet.
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Proposed All-Way Stop Sign Warrants:Minimum Vehicular Volume

The minimum traffic volume requirements will be reduced to 60 percent of Caltrans requirements over a four hour period rather than an eight hour period required by Caltrans. The time period was reduced to four hours to reflect a two hour peak in the morning and a two hour peak in the afternoon. The traffic volume requirements may be further reduced if the approach speed is at least 10 miles per hour greater than the posted speed.

Peak Hour Residential Minimum Vehicular Volume

Stop controls will be considered at a residential street intersection if minimum traffic volumes are within a specified range during one peak hour of the day.

Accident Experience

The number of accidents in a 12-month period will be reduced from five to three for residential street intersections. The accidents must be of the type susceptible to correction by all-way stop controls.

School Area Volume

If a residential street intersection is contiguous to a school and/or there is a designated school crosswalk on the uncontrolled street, all-way stop controls may be warranted if the following condition is met, during any two hours of the day when children are going to and from school.

- The total intersection vehicle and pedestrian volume is at least 300 units per hour with a minimum vehicle and pedestrian volume of 120 units per hour on the minor street.

School zone traffic controls are thoroughly covered in the Caltrans Traffic Manual with respect to school zone traffic signals, signs and markings and adult crossing guards. The above warrant for stop signs is included to address the relatively low traffic volumes encountered at residential intersections.

The proposed modified warrants better reflect conditions at intersections of residential streets and are in conformance with the General Plan's goals of preserving the residential neighborhood environment. The Caltrans all-way stop sign warrants will be used to analyze all other intersections that do not meet the residential street intersection conditions. All other Caltrans policies and guidelines not modified by these modified warrants will remain in full force and effect. Attachment 2 is the proposed all-way stop warrant sheet for residential street intersections.

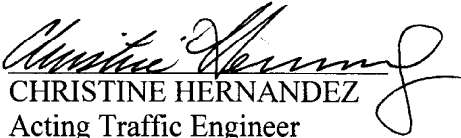
FISCAL IMPACT:

With the adoption of modified warrants for All-Way Stop controls at residential street intersections, it is anticipated that there might be an increase in the number of intersections that qualify for stop sign installations each year. Although the potential number of intersections is not known at this time, it is expected that costs associated with such installations can be absorbed within the Transportation Division / Street Maintenance and Integrated Waste Management operating budget.

Respectfully Submitted:


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