



Transportation Commission

CONSENT CALENDAR
November 12, 2019

To: Honorable Mayor and Members of the City Council
From: Transportation Commission
Submitted by: Donald Lathbury, Chairperson, Transportation Commission
Subject: Stop Sign Warrant Policy

RECOMMENDATION

Adopt the attached Berkeley Stop Sign Warrant (Attachment 1) to supplement state law for determining when stop signs may be warranted to protect pedestrians, wheelchair users and/or bicyclists in the City of Berkeley.

FISCAL IMPACTS OF RECOMMENDATION

Unknown. (The cost to install a stop sign is approximately \$1,000. However, given that a HAWK signal can cost up to \$200,000, the option to install a stop sign instead could save significant funds.)

CURRENT SITUATION AND ITS EFFECTS

On October 31, 2017, the Berkeley City Council unanimously passed a resolution referring to the Transportation Commission consideration of additional or supplemental stop sign criteria and traffic calming criteria to increase prioritization of the existing and projected needs of bicyclists and pedestrians, in particular the elderly, children, the disabled and other vulnerable non-vehicular populations, as well as the presence of bicycle boulevards, and the difficulty of for bicyclists and pedestrians in crossing particular intersections.

Berkeley needs additional criteria to supplement California state criteria for stop signs for the following reasons:

- A study comparing 44 cities of a similar size in California, found that Berkeley was number one in both pedestrian and bicycle injuries and deaths.¹
- Berkeley has a higher proportion of pedestrian and bicycle trips than other

¹ Data from the Transportation Element of Berkeley's General Plan.
https://www.cityofberkeley.info/Planning_and_Development/Home/General_Plan_-_Transportation_Element.aspx

California cities. About 15% of Berkeley's work trips are by walking² and almost 6% by bicycling,³ more than any other California city.

- The state of California's criteria for stop signs are automobile-centric. Their main goal is to facilitate the flow of motorized traffic. They are not adequate for a city like Berkeley, which has a higher rate of pedestrian and bicycle trips than other California cities.
- In 2006, Berkeley voters overwhelmingly passed Measure G, which calls on Berkeley to reduce our greenhouse gas emissions 80% below 2000 levels by 2050. Transportation accounts for more than 50% of Berkeley's greenhouse gas emissions,⁴ and one of the most cost-effective ways to meet our climate goals is to promote nonmotorized forms of transportation by using low-cost traffic controls such as stop signs.
- It costs less than \$1,000 to install stop signs to protect an intersection. It costs \$200,000 to install a HAWK Beacon, the other effective method of protecting bicyclists crossing major streets. Though HAWK Beacons are needed at intersections of bikeways with major streets with very high traffic volume, stop signs are a far more cost-effective solution at intersections of major streets with more moderate traffic volumes.
- The state of California has officially eliminated "level of service" analysis for CEQA related traffic studies and replaced it with vehicle miles traveled.⁵ California has recognized that speeding traffic has nothing to do with improving the environment. It similarly has nothing to do with improving safety of people walking and bicycling.

BACKGROUND

During 2017, two middle-school students were seriously injured after being hit by cars while bicycling across Dwight Way on the California Street bicycle boulevard. This intersection is a crossing for a bicycle boulevard and a major route for children bicycling to nearby elementary and middle schools. The City of Berkeley could not install a four-

² Data from "Street Safety in Berkeley"
<https://www.cityofberkeley.info/StreetSafety.aspx>

³ American Community Survey

⁴ 4 Council Report, December 7, 2017:
<https://www.dropbox.com/s/rfgmjqtww4t9m6b/2017-12-07%20Worksession%20Agenda%20Packet.pdf?dl=0>

⁵ Proposed Updates to CEQA Guidelines, November 2017:
http://opr.ca.gov/docs/20171127_Comprehensive_CEQA_Guidelines_Package_Nov_2017.pdf

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way stop sign to immediately address known safety issues at this intersection, because the intersection does not meet state criteria for installing stop signs.

ENVIRONMENTAL SUSTAINABILITY

Increasing the safety of pedestrians, wheelchair users and bicyclists makes it more viable for citizens to choose these modes of transportation over driving, helping implement our Climate Action Plan recommended emissions reduction action to: “Accelerate implementation of the City’s Bicycle and Pedestrian Plans and continue efforts to make walking and cycling safe, healthy, and enjoyable alternatives to driving.”

RATIONALE FOR RECOMMENDATION

Transportation Commission at their meeting of Thursday, September 19, 2019 unanimously voted in favor of adopting the attached Berkeley Stop Sign Warrants. M/S/C (Bruzzone/Ghosh) Ayes – Bruzzone, Garcia, Ghosh, Greene, Humbert, Lathbury, Parolek; Noes – None; Absent – Zander.

ALTERNATIVE ACTIONS CONSIDERED

None considered

CITY MANAGER

The City Manager concurs with the content and recommendations of the Commission’s Report.

CONTACT PERSON

Farid Javandel, Transportation Manager, 981-7061

Attachments:

1: New Policy Guidelines for Multi-way Stop Applications

Attachment 1



Department of Public Works
Transportation Division

Policy Guidelines for Multiway Stop Applications

INTRODUCTION:

Multiway stop control (a.k.a. all-way stops) can be useful as a safety measure if certain traffic conditions exist. Safety concerns associated with multiway stops include pedestrians, bicyclists, and all road users expecting other road users to stop. Multiway stop control is used where the volume of traffic on the intersecting roads is approximately equal.

The City of Berkeley's policy guideline on multiway stop applications is based on the exact language from California Vehicle Code (CVC) ¹ and the California Manual on Uniform Traffic Control Devices (MUTCD) ².

I. General Policy on Traffic Signs

The California Vehicle Code (CVC) provides that "(a) Except as provided in Section 21374 [relating to directional signs for tourists] only those official traffic control devices that conform to the uniform standards and specifications promulgated by the Department of Transportation shall be placed upon a street or highway..." Hence, the City of Berkeley Public Works Department follows standard professional engineering practices as prescribed in the California Department of Transportation (Caltrans) Manual on Uniform Traffic Control Devices. The Manual has the following provisions, among others, that guide the City's policy and procedures for sign installation:

- A. Excessive use of signs should be avoided.
- B. Signs should be used where warranted by facts and field studies.
- C. No traffic sign or its support shall bear any message that is not essential to traffic control.
- D. Effective traffic control depends not only on appropriate application of devices, but on reasonable enforcement of regulations as well.

¹ State of California Vehicle Code

² 2014 Manual on Uniform Traffic Control Devices, Rev. 4

- E. Data obtained from traffic engineering studies of physical and traffic related factors should be used in determining where signs are necessary.
- F. Care should be taken not to install too many signs. A conservative use of regulatory and warning signs is recommended as these signs, if used to excess, tend to lose their effectiveness.

II. Legal Authority for Stop Sign Installation

The California Vehicle Code (CVC) includes the following excerpts regarding local authority on stop signs.

- A. *Local Authority, CVC §21351*: Local authorities in their respective jurisdictions shall place and maintain or cause to be placed and maintained such traffic signs, signals and other traffic control devices upon streets and highways as required hereunder, and may place and maintain or cause to be placed and maintained such appropriate signs, signals and other traffic control devices as may be authorized hereunder or as may be necessary properly to indicate and to carry out the provisions of this code or local traffic ordinances or to warn or guide traffic.
- B. *Stop Signs on Local Highways, CVC §21354*: ...a local authority may designate any highway under its jurisdiction as a through highway and may erect stop signs at entrances thereto or may designate any intersection under its exclusive jurisdiction as a stop intersection and erect stop signs at one or more entrances thereto.
- C. *Stop Signs, CVC §21355*: ...The Department of Transportation and local authorities in their respective jurisdictions may erect stop signs at any location so as to control traffic within an intersection.
- D. *Stop Requirements, CVC §22450(b)*. Notwithstanding any other provision of law, a local authority may adopt rules and regulations by ordinance or resolution providing for the placement of a stop sign at any location on a highway under its jurisdiction where the stop sign would enhance traffic safety.

III. Specific Policy on Stop Signs

The California MUTCD provides the following general policies with respect to the installation of Stop signs, which the Public Works Department will uphold:

- A. Stop signs should not be used for speed control.
- B. Stop signs shall not be erected at any entrance to an intersection when such entrance is controlled by an official traffic control signal, nor at any railroad grade crossing which is controlled by automatic signals, gates, or other train-actuated

control devices except as provided in *CVC §21355, Stop Signs*. The conflicting commands of two types of control devices are confusing.

- C. Portable or part-time Stop signs shall not be used except for emergency purposes.

IV. Multiway Stop Installation Warrants

The California MUTCD recommends that the decision to install multiway stop control should be based on an engineering study. The Public Works Department will conduct or sponsor an engineering study to determine the appropriateness of multiway stop control based on the warrants described below.

The California MUTCD specifies that any of the following locations (or conditions) may warrant multiway stop sign installation:

- A. Where traffic control signals are warranted and urgently needed, the multiway stop may be an interim measure that can be installed quickly to control traffic while arrangements are being made for the signalization installations.
- B. An accident problem, as indicated by 5 or more reported accidents within a 12-month period of a type susceptible of correction by a multiway stop installation. Such accidents include right- and left-turn collisions as well as right-angle collisions.
- C. Minimum volumes:
 - 1. 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
 - 2. The combined vehicular and pedestrian volume from the minor street or highway 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
 - 3. When the 85th-percentile approach speed exceeds 64 km/hr (40 mph), the minimum vehicular volume warrant is 70 percent of the above requirements.

V. Special Conditions

Based on the optional criteria prescribed by the MUTCD, the Transportation Division may require an engineering study for special situations on a case-by-case basis. In special situations where the multiway stop warrants from Section IV are not satisfied, the Transportation Division may recommend the installation of multiway stop control to protect pedestrians, wheelchair users, and bicyclists for the following specific special conditions,

based on professional engineering judgment and as determined by the Transportation Manager:

- A. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes, such as intersections adjacent to schools, commercial center or park.
- B. The need to control vehicle/bicyclist conflicts where a street that is designated as a bikeway in Berkeley's bicycle plan crosses a major street. Bikeways include all routes shown as part of the bikeway network in Figure 3.1: Existing Bikeway Network or in Figure 5.1: Low Stress Bikeway Network Vision in the Berkeley Bicycle Plan adopted on May 2, 2017.
- C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to safely negotiate the intersection unless conflicting cross traffic is also required to stop.

Four-way stop signs may be installed but will not necessarily be installed at intersections that meet these supplemental criteria. The Transportation Division should compare the effects of stop signs and alternate controls on all forms of transportation, including public transit buses which employ professional drivers, before deciding whether to install it. For example, to protect bicyclists, HAWK Beacons may be more appropriate than stop signs at intersections where bikeways cross major streets with transit or very high traffic volume, to minimize the disruption of traffic flow on those major streets. Likewise, to protect pedestrians, Rectangular Rapid Flashing Beacons (RRFBs) may be more appropriate than stop signs on major streets with transit or very high traffic volumes to minimize the disruption of traffic flow.

If stop signs are allowed under these new criteria, it is not necessary to meet state criteria. Analyses for stop signs in all locations in Berkeley should consider the benefits of proposed stop signs, including safety benefits, and this analysis should be made available to the public before the decision is made.