

PURPOSE

The purpose of this policy is to set forth the process and criteria by which the installation of road undulations may be recommended to the City Council and to identify the conditions which they may be installed on public streets. For purposes of this policy the term "public street" shall not include alleys, whether public or private.

BACKGROUND

The use of road undulations is not intended as solution for all traffic and speed control problems. It will be the City's policy to carefully review each request for the installation of a road undulation to ensure that the proposed location and attending circumstances meet all the criteria outlined in this policy.

POLICY

1. The initiation of requests for Speed Hump installations shall be in accordance with the following:
 - a. All requests shall originate from the residents of the street.
 - b. The City Engineer shall determine the approximate location of the proposed speed undulation(s) and the affected area required for petition circulation.
 - c. All requests shall be in the form of a formal petition (forms will be supplied by the Public Works Department).
 - d. All petitions shall be circulated by the residents themselves. The sponsor of the petition shall circulate the petition to all residences.
 - e. A separate petition shall be used for each street.
 - f. Each petition supporting the installation of undulations shall contain the signatures of residents representing at least 75% of the residences as previously determined by the City Engineer.
 - g. Completed petitions shall be returned to: City Engineer, City of Bakersfield, 1501 Truxtun Avenue, Bakersfield, Ca. 93301
 - h. A petition supporting the installation of

undulations must be submitted containing signatures of residents desiring the installation of road undulations on the subject street.

2. Road Undulations shall only be installed in conformance with design guidelines that have been established by the City Engineer.
3. Since road undulations are still experimental roadway features, additions, alterations, or removals of any or all road undulations by the City may occur at any time.
4. Prior to the installation of road undulations, the City Engineer will notify the Fire Department, the Police Department and ambulance services of each installation.
5. If, after undulations are installed, residents wish to have the undulations removed, each petition requesting removal of the undulations shall contain the signature of residents representing at least 51% of the residences that face directly on the street segment where undulations have been placed and located within 75 feet of the curb on the street and will include all residences that access the street segment. A separate petition shall be provided for each segment. The petition for removal will be presented to the City Engineer for his consideration.

WARRANTS

The installation of road undulations on public streets will not be considered unless all of the following conditions are met over the entire proposed street segment as determined by the City Engineer:

1. The average daily traffic volume shall be more than 500 but less than 2500 through vehicles per day.
2. The street shall have a posted speed limit of 25 mph or be unposted with a prima facie limit of 25 mph.
3. More than two-thirds (66.7%) of the surveyed motorists must exceed the posted or prima facie speed limit or the 85th percentile must exceed the posted or prima facie speed limit by 10 mph.
4. The street shall not be over 44 feet wide.
5. The street shall have no more than 2 through traffic

lanes. The curb adjacent to the road undulation locations must be of the raised six or eight inch standard barrier curb type and not roll-over curb.

6. The street shall have good vertical sight distance, pavement surface quality horizontal sight distance, drainage and street lighting. It must be free of unusual features which might affect the operation of road undulations.
7. The street shall be residential or local street meeting the following definitions as stated in the California Vehicle Code:

"A residential street is defined as a road having 13 or more buildings on one side of the road or 16 or more buildings on both sides of the road, within a distance of 1/4 mile. Buildings must be located with 75 feet of the roadway curb face and they must face and access the street. The street must be at least 300 feet in length and not exceed a total of one mile."
8. To avoid approach speeds of greater than 40 mph, the location of the first proposed road undulation shall be such that the approach speed in advance of the first undulation can be effectively controlled via a physical design feature such as a curve or controlled intersection.
9. Installation of a road undulation will not be permitted where substantial diversion of traffic to other local street will occur as determined by the City Engineer.
10. Road Undulations shall not be considered for streets that serve as bus routes or are commonly used by emergency vehicles as an access corridor.
11. Road Undulations shall not be installed on a street where they would cause an aggregate 30 seconds delay in Fire Department response time or if they cause the response to exceed six minutes.
12. Street Lighting must exist on the street blocks where undulations are proposed to be installed.

PROCEDURES

1. After a petition is received, the City Engineer will

- a. Verify that each petition contains the requisite number of signatures by calculating the total number of residents that are entitled to sign the petition and ensure that the 75% criterion has been met.
 - b. Obtain necessary traffic data.
 - c. Verify compliance with all warrants.
2. All requests for road undulations that meet all policies and warrants will be given to the City Engineer. The City Engineer will review all relevant issues and then make recommendations as to which streets should receive road undulations.
 3. The City Engineer will make recommendations to the City Council for approval of installing road undulations on a particular street.
 4. Staff will field locate the approved road undulations for the installation.

INSTALLATION

Construction

1. The City shall procure an annual contract for speed undulation installation.
2. All undulations shall be constructed in accordance with City adopted standards.
3. The undulations shall be installed across the entire roadway to the lip of the gutter with the last one foot tapered flush with the pavement to minimize gutter running and to preserve gutter flows.
4. Prior to construction, the sponsoring group shall deposit to the City the dollar amount required per the annual contract or, obtain a private Contractor to install all required speed undulations.
5. A private contractor shall obtain an "Open Street" permit prior to beginning construction.

Warning Devices

1. A standard Caltrans W37 30" warning sign stating "Bumps" with 5 inch series E letters should be installed at least 100 feet from the undulation.
2. Speed advisory signs stating 10 mph should be installed below the "Bumps" warning signs.

3. Signs and markings shall be installed with undulation construction.
4. 8-foot high "Bump" legends should be painted in white at approximately 50 to 100 feet in advance of road each undulation. These legends should remain for up to one year after installation of the undulation after which time the legend may be removed.
5. One foot wide longitudinal ladder markings should be painted on each undulation at 6 feet on center.
6. Double yellow centerline may be provided in the vicinity of the undulation where determined by the City Engineer.

Placement of Undulations

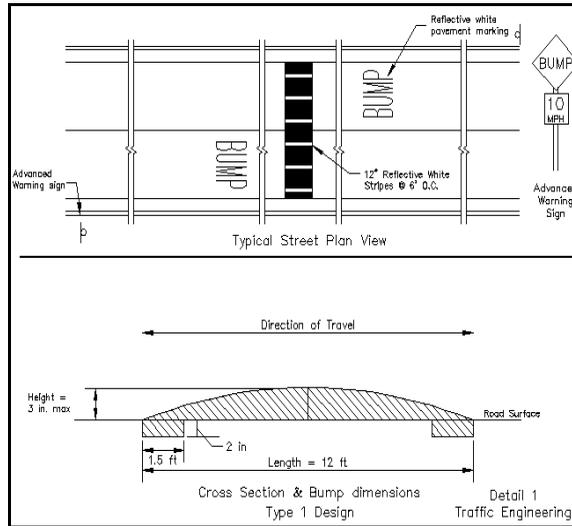
Road Undulations should be placed according to the following guidelines:

1. Undulations should be placed from 200 to 300 feet away from intersections, stop signs or sharp curves so that drivers are unlikely to approach them at high speed. This ensures that sufficient driver reaction time is provided.
2. Undulations should be spaced from 200 to 400 feet apart.
3. The final positioning of the undulations should take into consideration the following which should be field verified prior to installation:
 - a. All undulations shall not be located over manholes or within 30 feet of hydrants.
 - b. Undulations should be located downstream of storm drains.
 - c. Undulations should be located on property lines when possible.
 - d. Undulations should be 10 feet away from driveways.
 - e. Vertical curves and grades should be evaluated with respect to advance visibility of undulations. Typically, all undulations should be placed at least 200 feet away from sharp horizontal curves and be readily visible from at least 200

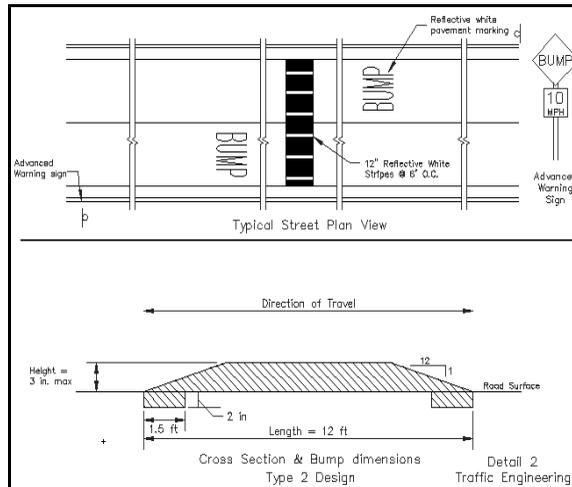
feet if placed near vehicle curves.

- f. Undulations should not be placed on horizontal curves of less than 300 feet radius.
4. Undulations should not be placed on streets with grades greater than 10% or in a location that is not clearly visible for at least 200 feet.

Speed Undulation Details



Type 1 Detail



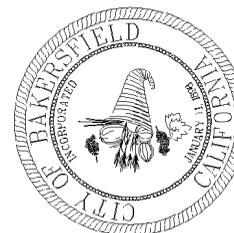
Type 2 Detail

Adopted 5/21/97, Council Resolution 80-97

*“Official”
POLICY OF THE
CITY OF
BAKERSFIELD
RELATIVE TO THE
USE OF ROAD
UNDULATIONS FOR
TRAFFIC SPEED
CONTROL ON
PUBLIC STREETS*



City of Bakersfield
Public Works Department
Traffic Engineering Division
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Bakersfield, CA 93301



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