

November 25, 2002

Honorable Mayor and Members of  
the Hermosa Beach City Council

Regular Meeting of  
December 10, 2002

## **PROPOSED SPEED HUMP POLICIES AND PROCEDURES APPROVAL**

### **Recommendation:**

It is recommended that the City Council adopt the attached Proposed Speed Hump Policies and Procedures.

### **Summary:**

Concerns have been expressed regarding speeding on residential streets in the City. With more and more residents requesting that the City mitigate this undesirable problem, the City Council has directed staff to develop policies and procedures for the installation of speed humps in the streets of Hermosa Beach.

The attached Speed Hump Policies and Procedures were submitted to the Public Works Commission for review and comments on July 17, 2002. The Commission voted to support the Policies and Procedures with the addition of language that the Commission review requests prior to going to City Council.\* This language has been added.

### **Background:**

Speeding on residential streets is a common occurrence throughout the City. Unfortunately, there are no easy solutions to this problem. The California Vehicle Code establishes the speed limit at 25 mph on all residential streets. The Police Department presently is using selective enforcement of speed limits on residential streets. This has been found to be effective as a tool for controlling speeds in Hermosa Beach.

Because of the high number of requests that the City Council receives for the installation of speed humps to curb speeding, City Council has directed staff to develop policies and procedures for their use in the City. Speed humps have met with widespread acceptance in many communities as a speed-reducing device.

As you know, speed humps (also known as undulations) are not official traffic control devices as approved by the State of California. They are considered to be road treatments used to reduce and control speeds on residential streets. According to Dr. Wolfgang S. Hamburger of the University of California at Berkeley, "the survey performed jointly by the Federal Highway Administration and the City of Thousand Oaks, California, found that twenty (20) responding jurisdictions had installed undulations, six (6) more were planning to install them, and sixty-three (63) others were evaluating the possibility. By early 1986, Thousand Oaks and Pasadena, California, each had about sixty (60) undulation installations and had not experienced any adverse traffic safety incidents related to them."

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\* Copy of Minutes attached.

## Purpose of Speed Humps:

The following information was taken from the “Residential Street Design and Traffic Control and Institute of Transportation Engineers” publication.

The basic purpose of pavement undulations (speed humps) is obviously to reduce speed. However, the actual design of the undulations is critical to their ability to achieve this. Tests have also shown that some designs produce less discomfort at higher speeds than at lower ones, in direct contradiction to their purpose. The most successful undulation units have the design features recommended below.

- a. **Effect on Traffic Volume.** Undulations usually cause at least small traffic volume reductions on the streets where they are employed. This is natural since the undulations introduce slower speeds and a discomfort factor to the street in question. The extent to which diversion occurs is largely dependent on the configuration of and flow conditions on the area street system rather than on the properties of the undulation installation. However, a series of closely spaced undulations are likely to produce more diversion than a broadly spaced sequence.
- b. **Effect on Traffic Speed.** Undulations have been shown to reduce the 85<sup>th</sup> percentile speed on the average between 14 and 20 mph at the device itself and to also produce substantial reductions in speeds on the road segments between undulations. The extent of speed reduction achieved between undulations is related to the spacing distance between undulations. At spacing under 800 feet (250 m), undulations exert a rather continuous effect on drivers' choices of speeds, but at greater separation distance they have an effect only in their immediate vicinity (very much like a stop sign).
- c. **Effect on Noise, Air Quality, and Energy Consumption.** When used on low-volume local streets, undulations normally produce small reductions (1 to 2 decibels) in average sound levels both at and in between devices. On busier streets or streets with significant truck volumes, noise levels can increase.
- d. **Effect on Traffic Safety.** A 1983 study of pavement undulations by a subcommittee of the California Traffic Control Devices Committee found that between 150 and 200 million vehicle crossings of the 150 to 160 undulations on public streets in the state had taken place without incident. No cases of motorists losing control of a vehicle were reported, and, while a few claims for damages to vehicles allegedly caused by the undulations had been filed, in only one instance had a plaintiff been provided compensation (less than \$20). Emergency vehicles, buses, and large trucks must pass over the undulations at relatively slow speeds (under 20 mph) or else significant jolts to the vehicle, discomfort to occupants, and jostling of cargo will be experienced.

## Desirable design and location features

- In profile the undulation should have a generally circular arc cross-section on a 12-foot (3.5 m) chord with a maximum midpoint height of 3 inches (7.5 cm) and an allowable construction tolerance of plus or minus 0.5 inch (1.2 cm). (This recommended height is less than the 4-inch (10 cm) value recommended in early research reports). The undulation should extend across

the roadway with the last 1 to 3 feet (0.3 to 1.0 m) tapered so that it becomes flush with the gutter pan to maintain drainage flows.

- Undulations should be placed singly. Closely spaced pairs, though utilized successfully by some jurisdictions, do not appear any more or less effective than single undulations.
- Undulations should be placed approximately 550 feet (165 m) or less apart.
- Undulations should be placed at least 200 feet (60 m) away from intersections and sharp horizontal curves and be otherwise located so they are clearly visible for at least 200 feet (60 m)
- Specific positioning of undulations should consider access to utilities, driveway locations, and existing illumination.
- The undulations should be marked with warning signs at the device and pavement messages in advance. Advance warning signs, advisory speed plates, and pavement markings on the device are optional.
- Unfortunately, major and collector streets, which are residential in character, are those on which traffic speed is a significant issue. However, undulations should not be utilized on these classes of streets because the level of restraint they impose is inconsistent with the functional purpose of the streets.
- Undulations should not be used on grades greater than 5 percent.
- Undulations should not be placed on primary emergency vehicle access/egress routes nor on important transit routes.

To sum up, with the widespread acceptance of speed humps as being a speed controlling device, it is in the City's best interest to have policies and procedures that clearly delineate the process and criteria by which the City will approve the installation of speed humps.

The proposed criteria are as follows:

1. The street must have a speed limit of 25 mph as determined in accordance with State Law. The need to reduce speed substantially at speed humps would not make these devices appropriate for streets posted higher than 25 mph because of the severe speed differential such an installation would create along the street. Severe differentials between the speeds of vehicles on a street are known to contribute to traffic accidents.
2. The street shall be no more than one lane in each direction.
3. The street should not be a truck route or a transit route.
4. The street should not have grades greater than 5%.

It is further proposed that speed humps will only be considered for installation on local residential streets determined by the Public Works Department to have adequate vertical and horizontal alignment for safe sight distance. Also, that the street should not be a primary access route for emergency vehicles.

The proposed procedures for the installation of speed humps outline the steps a representative of a local residential street must take in order to initiate the speed hump investigation process.

**Alternatives:**

1. Approve proposal as is.
2. Approve proposal with modifications.
3. Send report back to staff for further study.

**Financial Impact:**

Not applicable.

**Attachments:**

1. Minutes of July 17, 2002 Public Works Commission Meeting
2. Petition Requesting Installation of Speed Humps
3. Policies, Guidelines and Procedures

Respectfully submitted,

Concur:

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Harold C. Williams, P.E.  
Director of Public Works/City Engineer

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Stephen R. Burrell  
City Manager

Concur:

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Michael Lavin  
Police Chief

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Russell Tingley  
Fire Chief



# City of Hermosa Beach

## *PUBLIC WORKS COMMISSION*

### Speed Humps Policies, Guidelines, And Procedures

December 2002

## **Policy For The Installation of Speed Humps in the City of Hermosa Beach**

### **BACKGROUND**

The primary objective for the use of speed humps is the reduction of vehicle speeds on residential streets. Speed humps are long and flat and are generally 2 5/8 inches high and twelve (12) feet long. There may be certain beneficial side effects to speed humps installations, such as a reduction in arterial traffic diverted to local streets, but the intended purpose is speed control.

### **POLICY**

All requests for speed hump shall go before the Police and Fire Department and the Public Works Commission prior to consideration by the City Council.

It is the policy of the City of Hermosa Beach to require that the following standards be met prior to consideration of speed humps installations on any street for traffic calming purposes.

### **STANDARDS**

1. Speed humps shall only be considered on non-designated emergency response routes as defined by the City of Hermosa Beach Fire Department.
2. The installation of speed humps shall take place only after all other viable traffic control measures have failed to deter drivers from exceeding the speed limit, including:
  - Traffic engineering improvements
  - Increased signage
  - Increased law enforcement
3. All streets being considered for speed humps shall be evaluated using the criteria evaluation sheet shown in Figure 1. It is important to note that the criterion pertaining to the Fire Department shall be completed by Fire Department staff (#'s 3, 17, 18, & 19). The criteria evaluation sheet shall be submitted to the Fire Department, with a written description of the proposed speed hump installation. The completed criteria evaluation sheet shall be submitted back to the Public Works Department for processing.
4. Streets considered for speed humps shall have a speed limit of no greater than 30 miles per hour.
5. Speed humps shall be considered on local residential streets where there is a demonstrated speed problem as evidence by at least 50% of the drivers exceeding the prima fascia speed by at least 20% (i.e., for 25 mph 50% of drivers  $\geq$  30 mph).
6. A minimum of two speed humps is recommended for each installation. Therefore, study area of at least 600-feet long is required to install at least two speed humps. Cul-de-sac

or dead end streets longer than 1,000 feet in length may qualify for the speed hump program.

7. The standard spacing for speed humps is at least 200 feet.
8. Speed humps shall be installed on streets that have a horizontal curve of 200-foot radius or more.
9. Speed humps installed on a vertical curve must have adequate stopping sight distance, and shall be visible for a minimum of 200 feet in advance of the hump.
10. The preferred location for speed humps is adjacent to streetlights, whenever possible.
11. Speed humps **shall not** be installed over manholes, water valves, or other utility vaults.
12. Engineering and Fire Department staff shall combine to plan, coordinate and evaluate possible speed hump installations. This joint effort will be considered a “Review Committee” for all speed hump requests. Other staff and agencies may also be included in the Review Committee, as deemed appropriate.

**Figure 1: Speed Hump Criteria Evaluation Sheet**

Figure 1: Speed Hump Criteria Evaluation Sheet				
Street Name:	From:	To:		
<b>CRITERIA</b>	NOTATIONS	SATISFIED		POINTS
		Yes	No	
1. Street Classification: Local Residential, Residential Collector, Collector* (1pt)				
2. Speed Limit: < 25 mph, 30 mph, 35 mph				
3. SpeedZone Survey: critical speed > posted (20 pts > 50% of drivers over 20% if posted, 0 otherwise)				
4. Street Width: 40' or less; 56' or less for collectors that qualify* (1 pt)				
5. One Lane Each Direction* (1 pt)				
6. Average Daily Traffic (ADT): 1,000 – 3,500 (2 pts); 10,000 – 22,000* (5 pts)				
7. Longitudinal Grade: 8% or less (1 pt)				
8. Street Segment Length: ≥ 800' uninterrupted (1 pt)				
9. Not a Cul-De-Sac (1 pt)				
10. Not Scheduled for Street Work Within 18 Months (5 pt)				
11. Not a Transit / Truck / Bicycle Route (1 pt)				
12. Accident History: 5 accidents in 3 years (up to 5 pts, one point per accident)				
13. Likelihood of Traffic Diversion: (5 pts = no possibility; 2 pts = some possibility; 0 pts = highly possible)				
14. Pedestrian Generators in Area: i.e., schools, parks, etc. (5 pts for children generators; 2 pts all other)				
15. Residential Density: High, Medium, Low (1 pt for medium/low, 0 for high)				
16. No continuous Sidewalk or Sidewalk on One side of street only (1 pts)				
17. Is this street a designated emergency route? ** (20 pts for non-emergency route; 0 pts if an emergency route)				
18. Is modeled response time greater than 6 minutes? Yes/No (10 pts for No; 0 pts for Yes)				
19. Is this street segment outside of the 6 minute emergency response time requirement? (15 pts No; 0 pts Yes; 1 to 15 pts if within reasonable limits)				
<b>Total Points</b>				
<b>Notes:</b>				
* = Collector facilities with reasonable residential densities and other characteristics may also be considered.				
** = Designated emergency routes shall not have speed humps installed unless approved by the Police & Fire Departments				
<b>75 points needed to warrant speed hump consideration.</b>				



### **CITIZEN REQUEST**

Requests for installation, modification and/or removal of speed humps may be initiated by a citizen request in accordance with the process outlined below:

1. All requests shall be made by formal petition (petition to be prepared and provided by City staff). A separate petition shall be used for each street. Only one signature per household (see Figure 2 – Sample Petition).
2. For locations that are immediately adjacent to a School District, the school principal must coordinate with the School Traffic and Safety Committee, including the PTA. The signature of an authorized representative from the School Traffic and Safety Committee and the PTA must support the principal's signature. Private schools require the signature of the principal, preferably supported by the head of the school's governing body.
3. Corner properties often have addresses on streets different from the speed hump request. Because these properties are impacted by the installation of speed humps these addresses must be included when obtaining signatures.
4. Completed petitions shall be delivered or mailed to:

**City of Hermosa Beach  
Public Works Department  
Civic Centers  
1315 Valley Drive  
Hermosa Beach, CA 90254**

5. After the petition had been received by the Public Works Director/City Engineer, the following validation process shall be completed:
  - Verify the number of signatures per petition sheet. A proportion of 75% establishes majority support. The petition must have language that clearly explains the potential impacts of speed humps.
  - The petition areas shall be within the limits of the defined street segment determined as impacted by City's engineering staff.
  - If the number of citizen requests is in excess of staff resources to concurrently process them, staff will prepare a listing of requests, prioritized by date of receipt.
  - Staff will prepare a recommendation to the Public Works Commission and the City Council if the request(s) are consistent with the City of Hermosa Beach process for speed humps and installation is warranted as identified in the criteria evaluation sheet.
  - The Director of Public Works/City Engineer shall publish a notice of a public hearing at which point the commission(s) and the City Council will consider the request for speed humps. All affected residents will be invited to appear and address the

commission(s) and/or City Council. Public hearing notices shall be mailed to all affected residents at least 10 days prior to the public hearing.

6. Upon recommendation by the Public Works Commission, the City Council shall decide if speed humps should be installed along any given street segments as conditions warrant.

**Neighborhood-funded installation:**

The City of Hermosa Beach handles requests in the order received. Privately funded locations are not given priority in the study process. However, construction may begin immediately after the City of Hermosa Beach written approval has been received.

Petitioners of approved but un-funded locations may choose to retain a contractor and privately finance the speed humps installation, per the City of Hermosa Beach requirements, through the permit process of the City. Once a location has been approved, and only after the petitioners have indicated in writing a willingness to privately fund the installation, the City will prepare a drawing indicating the number and location of humps, signs, and pavement messages required. The City Engineer will mark the speed hump and warning sign locations along each segment of the street with paint to facilitate construction. Installation costs vary from location to location, depending on the width of the street and the number of humps and warning signs. Construction costs range from a low of \$4,000 to a high of \$20,000.



**SPEED HUMP DESIGN**

Speed humps shall be designed in accordance with the Institute of Transportation Engineers “Guidelines for the Design and Application of Speed Humps.” A speed hump design is shown on Figure 3.