



5.4

DEPARTMENT OF
PUBLIC WORKS

TRAFFIC ENGINEERING
SERVICES

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CALIFORNIA

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January 5, 2004

City Council
Sacramento, California

Honorable Members in Session:

SUBJECT: AMENDING THE SPEED HUMP PROGRAM GUIDELINES

LOCATION AND COUNCIL DISTRICT: Citywide, all council districts.

RECOMMENDATION:

This report recommends that City Council adopt the attached resolution amending the Speed Hump Program Guidelines to change the priority ranking system, include a waiting period for streets included in a Neighborhood Traffic Management Program (NTMP) project and to restrict all vertical devices in the Central City area.

CONTACT PERSON: Karen Shipley, Program Specialist, 808-8365

FOR COUNCIL MEETING OF: January 27, 2004

SUMMARY:

In order to be more responsive to safety needs, this report recommends changes to the Speed Hump Program Guidelines to address the priority ranking system, streets that have participated in a NTMP project and vertical measures in the Central City area (see Attachment A, letter from Fire department). Council action will amend the Speed Hump Guidelines as shown on Exhibit A to the resolution. A strikeout version of the guidelines is shown as Attachment B to the report.

COMMITTEE/COMMISSION ACTION:

The Citizen's Advisory Committee (CAC) reviewed the recommended Speed Hump Program Guidelines changes in December. The committee expressed appreciation for

the changes including the coordination between the Speed Hump and Neighborhood Traffic Management Programs and had no concerns about the proposed changes.

BACKGROUND INFORMATION:

Occasionally the Speed Hump Program Guidelines are updated to reflect new ways of obtaining traffic data, add terminology, correct small errors and/or make overall program changes. The three main changes proposed are in response to providing improved safety (ranking change), coordination between traffic programs and the restriction of vertical devices in the Central City area.

Ranking Change

The primary purpose for the use of speed humps is to reduce vehicular speeds on residential streets. One of the criteria used in ranking streets in the Speed Hump Program is the 85th percentile speed of vehicles. The current program guidelines give two points for every 85th percentile speed over the speed limit. In order to give more weight to streets with higher traffic speeds, it is proposed to increase the points to five points for every 85th percentile speed over the speed limit. This will improve the safety component of the ranking system for speed humps.

Traffic Program Coordination

Currently, residents can apply to the Speed Hump Program and/or the NTMP to help solve traffic problems with speed humps. Often times upon learning that their street is ranked low on the Speed Hump Program waiting list, residents will then apply to the NTMP whereby their neighborhood may participate sooner in a program to get speed humps. The proposed change to the Speed Hump Program will state that a street that has participated in the NTMP and did not receive speed humps as part of the neighborhood's traffic calming plan will not be eligible for review of speed humps as part of the Speed Hump Program until a minimum of one-year after the NTMP project has been completed. This will allow drivers in a neighborhood to adjust to the new traffic calming devices and allow staff to better evaluate the effects of the devices installed. The proposed change in the Speed Hump Guidelines will assist staff with better coordination between the two programs.

Speed Hump Restriction

While speed humps are the most effective traffic calming tool to reduce vehicular speeds, they also slow the response time for fire and medical crews. Attachment A is a letter from the City Fire Department requesting that no vertical traffic calming measures (i.e. speed humps, speed lumps, speed tables and raised crosswalks etc.) be installed in the Central City area for the reasons indicated below.

- Streets in the Central City area (boundaries of the Sacramento River on the west, the American River on the north, the business-80 Freeway and Alhambra

Boulevard on the east and Broadway on the south) are laid out in a grid pattern. Therefore, they are all considered emergency response routes.

- As experienced in other areas, there is a possibility for traffic diversion anytime speed humps are installed when a parallel street is available without speed humps. Due to the grid street pattern in the Central City area, some streets would experience increased traffic and possibly speeds from diverted traffic if speed humps were installed, resulting in adjacent streets requesting speed humps.
- The population density for residents and commuter employees is much higher in the central city area than elsewhere in the city resulting in more calls for service. Due to this volume of calls, speed humps in the area would greatly impede fire and medical response.

In response to the Fire Department's request, the restriction of speed humps in the Central City Area is included in the recommended Speed Hump Program Guidelines

Speed Humps vs. Lumps

In September, City Council asked about the installation of speed humps vs. speed lumps. Prior to November 2003, there were 15 streets with speed lumps. In November 2003, 16 additional streets received speed lumps. Sufficient data is not available at this time to adequately evaluate if speed lumps should be the standard installation rather than speed humps. Consideration needs to be given to the cost of construction, cost of maintenance, overall effectiveness and resident acceptance before a policy can be established. Staff will gather more data after a monitoring period and report back to council in early 2005 with a recommendation for the following annual speed hump/lump construction season.

FINANCIAL CONSIDERATIONS

There is no funding request associated with this report.

ENVIRONMENTAL CONSIDERATIONS:

Pursuant to Section 15378 (b) (3), this is not a project under the California Environmental Quality Act.

POLICY CONSIDERATIONS:

The Speed Hump Program is consistent with the City's Strategic Plan for enhancing and preserving neighborhoods.

City Council
Amending the Speed Hump Program Guidelines
January 5, 2004

ESBD CONSIDERATIONS:

No goods or services are being purchased.

Respectfully submitted,



Martin W. Hanneman
City Traffic Engineer

RECOMMENDATION APPROVED:


ROBERT R. THOMAS
City Manager

Approved by:

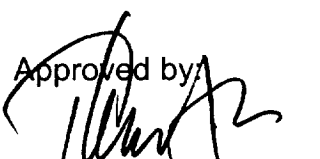

Thomas V. Lee
Deputy City Manager

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ATTACHMENT A

SACRAMENTO FIRE DEPARTMENT
"An All-Risk Organization"

DENNIS SMITH
FIRE CHIEF

CITY OF SACRAMENTO
CALIFORNIA

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MEMORANDUM

Date: January 7, 2004
To: Marty Hanneman, City Traffic Engineer
From: Dennis Smith, Fire Chief
Subject: Speed Humps/Lumps In The Downtown Area

The mission of the City Fire Department is to protect the lives and property of all persons within our community. In order to accomplish this goal, fire crews need to be able to respond as quickly as possible to emergency calls. The downtown area is a high-density area with grid streets for access. However, changes to the grid traffic patterns have, and continue to, negatively affect our response time. In our opinion, the emergency service response time would be greatly impacted if speed humps/lumps or any other vertical measures intended to slow vehicles were installed on any street within the Central City.


We strongly urge that the City Council not install any vertical measures on the streets in the Central City area with boundaries defined in the Central City Community Plan as the American River on the north, Sacramento River on the west, Alhambra Boulevard on the east, and Broadway on the south for the following reasons.

1. The density of population in the downtown area is much larger than in outlying residential neighborhoods. Therefore, the need to service more residents, businesses and workers in a small area that includes high-rise buildings necessitates the need to arrive at a call for service as quickly as possible.
2. Due to the density of the downtown area, and the grid layout of streets in the downtown area, the Fire Department considers each street a primary emergency response route.
3. Changes to the grid traffic pattern through other measures have already noticeably increased the response time of emergency services.
4. The location and spacing of existing fire resources (stations) was based on the estimated response time prior to the impact of street traffic changes. Potential increases in response time may cause the need to relocate or expand resources, or an acceptance of a decline in the level of service and corresponding reduction of effectiveness for the fire department.

Marty Hanneman

January 7, 2004

5. The Fire Department responds to over 5,000 calls for service per year (nearly 14 per day) in the downtown area. As a result, a good portion of responses into the downtown area are made by stations on the periphery of downtown while the downtown stations are already deployed to an incident. This results in an extended response time to the downtown area by distance along; vertical measures will add to that extended time.
6. The Fire Department needs to be able to service not only the front of property, but also the rear of buildings from alleyways.



Dennis Smith, Fire Chief

CITY OF SACRAMENTO SPEED HUMP PROGRAM GUIDELINES

Introduction

The City of Sacramento has had a speed hump program since 1980. Over the years, several revisions have been made to the program including street length criteria, change from undulations to speed humps, program name change, minimum speeding requirement and the installation of speed lumps on emergency response and bus routes. For simplicity of these guidelines, the term "speed hump" will refer not only to the traditional speed humps, but also the newer split hump design being called "speed lumps." Designs for both speed humps and speed lumps are included in these guidelines.

Definitions

Speed Bump – Single asphalt bumps covering approximately one foot and approximately 5 inches in height. Found in shopping centers and parking lots. Not installed on public streets.

Speed Hump – Single asphalt hump, parabolic in shape, covering 12 feet of street with a height between 3 ¼ and 3 ¾ inches. Installed on streets in Sacramento since 1995. Not installed on emergency response or bus routes.

Speed Lumps – Asphalt mounds, parabolic in shape, covering 12 feet of street with a height between 3 ¼ and 3 ¾ inches. The center mound or lump, has a width of 5 ½ feet to accommodate the wheelbase of fire trucks and buses. The lumps adjacent to the center lump vary in width to accommodate the street width. Depending on the street width, a 5 ½ foot lump may be placed in each travel lane. First testing of speed lumps in Sacramento was done in February 2000. Speed lumps have been approved by the Fire Department for use on emergency response routes and by Sacramento Regional Transit for use on bus routes.

Speed Survey – A survey of traffic speeds and volume conducted by the use of a magnetic sensor(s) or air pressure hose(s) to determine the percentage of traffic exceeding the speed limit. The speed survey shall be 24-hours in length.

Undulations – A set of adjacent speed humps placed on the street. Undulations were installed on Sacramento streets prior to 1995.

85th Percentile Speed – Otherwise known as the critical speed, is the speed at or below which 85% of the traffic is moving. The 85th percentile speed is used as one of the criteria to determine if a street qualifies for speed humps.

Program Categories

The City of Sacramento has three types of speed hump categories: Residential, Parks and Schools, and Bypass. The objectives, qualifying criteria, and priority ranking system for each of these categories are presented in subsequent sections of this report. Also in this report are construction specifications, locations selection guidelines, signs and markings, relocation and removal requirements, other funding, Regional Transit, Fire Department emergency response route, and public notification. Between 1980 and 1995, the city installed undulations (2 humps) for traffic calming. Since 1995, the city has installed speed humps (one hump) because it was determined that one hump was just as effective at slowing traffic as two humps, less costly and easier to find spacing for installation on streets.

Program Objectives

Speed humps serve to reduce vehicular speeds as well as to reduce cut-through traffic on local residential streets. Both of these effects are realized when speed humps are installed on a street, regardless of the type of program for which a street qualifies. The principle purpose of each of the three programs is as follows: The Residential Speed Hump list serves to reduce vehicular speeds on streets which include park and/or school frontage; and the Bypass Speed Humps list serves primarily to reduce inappropriate traffic volumes on certain streets.

Other, less costly, forms of traffic control (e.g., stop signs) should be considered the primary means of discouraging speeding and/or bypass traffic. Stop signs are less costly to install and can be installed immediately at locations which qualify. When these forms of traffic control are inappropriate, the location may be studied further to determine whether or not it qualifies for speed humps. The application of speed humps is limited to streets where geometric configuration or design fails to passively deter many drivers from exceeding the speed limit or from using streets as bypass routes. The proper application of speed humps enhances public safety.

Qualifying Criteria

In order for a residential street to be studied for speed humps, a petition from ten residents from the affected street must first be submitted.

A street qualifies for the installation of speed humps when the results of an investigation demonstrate that the criteria presented on page ~~two~~ **three** of this document are met for the respective types of programs. Once a street has qualified, it will be assigned points and ranked with other qualifying streets based on the criteria **ranking system shown** on page ~~three~~ **four** of this document.

Streets, which have already qualified for one of the speed hump categories under previously established criteria shall ~~remain on the speed hump priority list~~ **be reevaluated**. Their point totals, however, shall be adjusted, as necessary, in accordance with the priority ranking system as set forth in this document.

Qualifying Criteria by Category

Residential

The segment must be 750 feet in length between traffic controls, four way intersections, and/or curves with less than a 250-foot radius.

The street cannot be located in the Central City Community Plan area****

Posted speed limit must be 30 mph or less.

Street frontage of subject street segment must be at least 75% residential.

Street will not be considered for speed humps, but will be considered for speed lumps if it is a part of the Regional Transit bus network, or identified as an emergency response route by the Fire Department.

A minimum of 25% of ballots mailed shall be returned and a two-thirds majority of residents that vote are in favor of the installation of speed humps. **

A speed survey shall indicate that the 85th percentile speed is at five or more miles per hour over the speed limit.

Parks & Schools

The segment must be 500 feet in length between traffic controls, four-way intersections, and/or curves with less than a 250-foot radius.

The street cannot be located in the Central City Community Plan area****

Posted speed limit must be 30 mph or less.

Street frontage of Street segment must contain ***be adjacent to*** a school * or park.

Street will not be considered for speed humps, but will be considered for speed lumps if it is a part of the Regional Transit bus network, or identified as an emergency response route by the Fire Department.

A minimum of 25% of ballots mailed shall be returned and a two-thirds majority of residents that vote are in favor of the installation of speed humps. **+

A speed survey shall indicate that the 85th percentile speed is at five or more miles per hour over the speed limit.

Bypass

The segment must be 500 feet in length between traffic controls, four way intersections, and/or curves with less than a 250-foot radius.

The street cannot be located in the Central City Community Plan area****

Posted speed limit must be 30 mph or less.

Street frontage of subject street segment must be at least 75% residential.

Street will not be considered for speed humps, but will be considered for speed lumps if it is a part of the Regional Transit bus network, or identified as an emergency response route by the Fire Department.

A minimum of 25% of ballots mailed shall be returned and a two-thirds majority of residents that vote are in favor of the installation of speed humps. **

A speed survey shall indicate that the 85th percentile speed is at five or more miles per hour over the speed limit.

Minimum average daily traffic (ADT) of ***must be*** 500 vehicles per day.

The street(s) must serve to bypass *** major streets with a four-way stop, a signalized intersection, or another street with speed humps.

* Preschool, Day care school, elementary, middle, or high school.

** One vote per household is allowed; voter(s) must reside at the household (whether they are owners or tenants), as they are the primary users of the street being considered for speed humps.

+ If the survey of residents on a parks and schools street does not demonstrate a two-third majority favoring the installation of speed humps, the City Council member representing the district in which the street is located may override the survey.

*** To be considered a "bypass" location, the ADT must be at least 50% higher than the volume that would be expected using the following trip generation rates: 10-trips/day/single family residential (SFR) unit, 6-trips/day/multi family residential (MFR) unit, 50-trips/day/acre of school, and 5-trips/day/acre of park. Land uses which do not front the bypass location itself, but which could reasonably be expected to use the bypass street(s) should be considered when determining the expected volume.

**** ***The Central City Community Plan area is defined as the area bound by the Sacramento River on the west, the American River on the north, the Business-80 Freeway and Alhambra Boulevard on the east and Broadway on the south.***

When Voting Requirement Not Met

If a street fails to receive the necessary two-thirds majority approval, the street may not be considered again for speed humps/lumps for five (5) years.

Priority Ranking System

The following point allocation method will be used in order to rank streets qualifying for the speed hump categories:

Residential

One point for every 50 vehicles traveling the street in a 24-hour study period.

One point for each residential unit fronting the street.

~~Two~~ **Five** points for every 85th percentile speed of traffic exceeding the speed limit.

Parks & Schools

One point for every 50 vehicles traveling the street in a 24-hour study period.

One point for each residential unit fronting the street, plus ~~two~~ **one** points for each ~~50~~ **25** feet of school, park, playground, or apartment frontage.

~~Two~~ **Five** points for every 85th percentile speed of traffic exceeding the speed limit.

Bypass

One point for every ~~25~~ **50** vehicles traveling the street in a 24-hour study period.

One point for each residential unit fronting the street, plus ~~two~~ **one** points for each ~~50~~ **25** feet of school, park, playground, or apartment frontage.

One point for every 10 vehicles that are considered "bypass traffic."

Construction Specifications (Single Hump)

Upon installation of the single humps, the asphalt concrete speed hump will have a width of 12 feet, a minimum height of three and one-quarters inches and a maximum height of three and three-quarters inches (3 ¼" to 3 ¾"), and a vertical curvature of 72 feet (refer to Figure 1). Speed hump will extend from lip of gutter to lip of gutter. There will be a two-foot (2') horizontal taper originating at the crest of the speed hump and converging at the lip of curb. Asphalt concrete shall be mixed and placed in accordance with Section 22 of the City of Sacramento Standard Specifications. Page 9 is a drawing of the proposed speed hump cross section.

Construction Specifications (Speed Lumps)

Upon installation of speed lumps, the asphalt concrete speed lumps will have a width of 12 feet, a minimum height of three and one-quarter inches and a maximum height of three and three-quarters inches (3 ¼" to 3 ¾"), and a vertical curvature of 72 feet (refer to Figure 2). The center lump (or lumps if the design requires one lump in each travel lane) will be five and one-half (5 ½') feet across. There will be a gap between lumps of one-foot (1') to accommodate the wheelbase of fire trucks and buses. The outside speed lumps will extend from the center lump to the lip of gutter. There will be a two-foot (2') horizontal taper originating at the crest of the speed lump and converging at the lip of curb. Asphalt concrete shall be mixed and placed in

accordance with Section 22 of the City of Sacramento Standard Specifications. Page 10 is a drawing of the proposed speed lump cross section for a typical residential street of 33 feet or less in width.

Location Selection Guidelines

In selecting precise locations for the speed hump installation, the following guidelines shall be adhered to:

- Speed humps shall not be located over manholes, water valves, or street monumentation, or whenever possible, within twenty-five feet of fire hydrants, as they prevent/impece access to these facilities.
- Speed humps should be located five to ten feet away from driveways, whenever possible, to minimize their effect on driveway access.
- Speed humps should be located on or near property lines, whenever possible, to minimize the impact on (access to) individual properties.
- Speed humps should be located near streetlights, whenever possible, in order to enhance their visibility at night.
- Speed humps should be located a minimum distance of 200 feet from corners, whenever possible, and should never be located within a corner radius.
- Where speed humps are constructed on streets having curves with greater than a 250-foot radius, no speed humps shall be located on the horizontal curve(s).
- Speed humps shall be spaced at a minimum interval of 250 feet and a maximum interval of 600 feet. Speed humps will be placed no closer than 200 feet from traffic control devices or four-way intersections.
- No less than two speed humps will be placed on a residential or parks and schools street, as two humps are the minimum for effective speed control. When speed humps are to be installed at a Bypass location, one hump may be placed if the street segment or one of the streets in a series of street segments is less than 600 feet in length. The maximum number of speed humps is dictated by street length and spacing requirements.
- To deter driver from driving around speed humps where no vertical curb exists, a two-inch (2") pipe shall be set in the sidewalk, centered on the speed hump in each approach direction. The pipes shall be placed at a maximum of six inches (6") from the back of curb (refer to Figure 3).

Signs and markings

All signs and markings required with the speed humps shall be part of the contract bid package, ***unless these items are to be installed by City crews.***

There are two types of advanced warning devices used to alert motorists of upcoming speed humps: street signs and pavement markings. The signing includes a 30-inch sign stating

“SPEED HUMPS AHEAD” in four-inch (4”) series “C” letters, above which is a pictorial of a speed hump. A second sign recommending a speed of 15 mph is placed directly below the warning sign (refer to Figure 2).

Pavement markings **for speed humps** shall include twelve-inch (12”) wide longitudinal ladder markings at four feet (4’) on center, which are stenciled across each speed hump. ~~In addition, raised reflectorized pavement markers shall be installed and placed on the centerline, positioned on the crest and in the front of the speed hump from approach directions. This provides warning during the night and early morning hours (refer to Figure 3). All warning devices should be easily visible on approaches to speed humps.~~

Pavement markings for speed humps shall include diamond striping on the center lump(s) and arrow markings on the side lumps. A reflective pavement marker will indicate the middle of the center lump(s) to assist RT and fire truck drivers to center their vehicle over the lump.

Relocation of Speed Humps or Additional Speed Humps

Changing the location or adding additional speed humps on a street may be considered when all of the criteria listed below are met.

1. For Residential and Parks and Schools Locations: Speed humps are ineffective in reducing speeds of vehicles based on speed survey conducted for 24-hour period. ~~If less than 30 cars are observed in one hour, the survey shall be 1-1/2 hours in length.~~ The average speeds must each be less than two mph lower than those speeds demonstrated prior to the installation of speed humps in order to be considered ineffective.

For Bypass Locations: Speed humps are ineffective in reducing the volume of vehicles, based on an average daily traffic (ADT) count. Traffic volumes must be reduced by less than 10% from the street’s ADT count prior to the installation of speed humps in order to be considered ineffective.

2. Speed humps were placed in a location conflicting with the adopted guidelines, and another location exists which does not conflict with the adopted guidelines.
3. There is a petition with a two-thirds majority of the street’s residents in favor of the speed humps relocation. One resident signature per household having driveway access onto the street in question is allowed; a resident may be either an owner or tenant.

A community meeting should be held, with the support of the district’s City Council member, to discuss the advantages of speed humps. If the decision is made to relocate existing speed humps, a Council report and resolution must be drafted. When approved by the City Council, the relocation procedures may be initiated. Relocation of speed humps which may have been installed for less than two years will only be considered if the City is compensated by those requesting speed hump relocation for the full cost of relocating the speed humps, including design, construction, inspection, and administration.

Removal of Speed Humps

Removing speed humps from a street may be considered when all of the criteria listed below are met:

1. For Residential and Parks and Schools Locations: Speed humps are ineffective in reducing speeds of vehicles based on speed survey conducted for a 24-hour period. If less than 30 cars are observed in one hour, the survey shall be 1½ hour in length. The 85th percentile and average speeds must each be less than 2 mph lower than those speeds demonstrated prior to the installation of speed humps in order to be considered effective.

For Bypass Locations: Speed humps are ineffective in reducing the volume of vehicles, based on an average daily traffic (ADT) count. Traffic volumes must be reduced by less than 10% from the street's ADT count prior to the installation of speed humps in order to be considered ineffective.

2. Speed humps were placed in a location conflicting with the adopted guidelines, and no other location exists which does not conflict with the adopted guidelines.
3. There is a petition with a two-thirds majority of street's residents' signatures in favor of the speed hump removal. One resident signature per household having driveway access onto the street in question is allowed; a resident may be either an owner or tenant.

A community meeting should be held, with the support of the district's City Council Member, to discuss the advantages of speed humps. If the decision is made to remove existing speed humps, a Council report and resolution must be drafted. When approved by the City Council, the removal procedures may be initiated. Removal of speed humps which have been installed for less than two years will only be considered if the City is compensated by those requesting speed humps removal for the full cost of the original installation, including design, construction, inspection, and administration. This would not apply if a street became a Regional Transit bus route.

Other Funding

A street which qualifies for any one of the speed hump categories may be funded by an individual or a group of individuals. The individual or group of individuals must enter into a memorandum of understanding (MOU) with the City of Sacramento, wherein they agree to pay for all costs associated with the installation of speed humps on their street (construction, inspection, administration, etc). Once a MOU is executed, the location to receive speed humps shall be included in the next City CIP speed hump project. Private payment for speed humps does not relieve a location from the requirement of a two-thirds majority of residents favoring the installation of speed humps, or from any other criterion set forth in these guidelines.

Regional Transit

Regional Transit (RT) adopted a policy on bus routing with regard to speed humps in 1982. This policy authorizes RT staff to modify bus routes so they do not utilize streets with existing or future speed humps, and to coordinate future placement of such devices. The Department of Public Works' policy is to provide RT with the locations of future speed humps so that problems, which this might create, can be avoided. Speed humps will not be placed on streets where RT bus service exists. However, RT has approved speed humps for placement on bus routes.

Fire Department Emergency Response Routes

The City of Sacramento Fire Department has expressed concerns regarding speed humps, and desires that they not be placed on streets, which they identify as emergency response routes. The Department of Public Works' policy is to provide the Fire Department with the locations of future speed humps so that they can identify emergency response routes. Speed humps will not be placed on streets, which the Fire Department identifies as emergency response routes. However, the Fire Department has approved speed humps for emergency response routes on a case-by-case basis.

Central City Restriction

No vertical measure including speed humps, speed lumps, traffic tables and raised crosswalks shall be installed on city streets or alleys in the Central City area as defined by the Central City Community Plan boundaries of the Sacramento River on the west, the American River on the north, the business-80 Freeway and Alhambra Boulevard on the east and Broadway on the south.

Public Notification

Public notifications, which are used for balloting and to inform residents of purposed speed humps and to have them vote, may be distributed by one of two methods:

1. ~~Door hangers, with ballots attached,~~ may be hand delivered **by city staff**, by an area youth group or a temporary service.
2. ~~The fliers/ballots~~ may be mailed out to residents of affected streets.

Note: ~~Fliers, which require a response,~~ **Ballots with a response requested** should be sent far enough in advance to reach the public two and one half (2 ½) weeks prior to the response deadlines.

Street Participation in the Neighborhood Traffic Management Program (NTMP)

The NTMP reviews all streets within a neighborhood for possible traffic calming measures. In doing so, streets are evaluated for speed humps. If the traffic calming plan approved by resident and city council votes does not include speed humps on a street, that street is ineligible to be considered for further traffic calming measures such as speed humps for a minimum of one-year after the NTMP project has been closed.

Revised: ~~July 30, 2002~~ **January 27, 2004**

RESOLUTION NO.

ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON DATE OF _____

**RESOLUTION AMENDING THE SPEED HUMP PROGRAM GUIDELINES
TO CHANGE THE PRIORITY RANKING SYSTEM, TO INCLUDE A WAITING
PERIOD FOR STREETS INCLUDED IN A NEIGHBORHOOD TRAFFIC
MANAGEMENT PROGRAM (NTMP) PROJECT AND
TO RESTRICT ALL VERTICAL DEVICES IN THE CENTRAL CITY AREA**

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SACRAMENTO THAT:

The Speed Hump Program Guidelines (Exhibit A) are hereby amended to include the following:

1. A change in the priority ranking system to give more points to the speed of vehicles as a safety consideration.
2. A waiting period of a minimum of one-year for any street to request and be considered for speed humps whereby the street participated in a Neighborhood Traffic Management Program project and did not receive speed humps as part of the neighborhood traffic calming plan.
3. A restriction of all vertical devices including speed humps, speed lumps, traffic tables and raised crosswalks on streets and alleys in the Central City area as defined by the Central City Community Plan.

MAYOR

ATTEST:

CITY CLERK

FOR CITY CLERK USE ONLY

RESOLUTION NO.: _____

DATE ADOPTED: _____

CITY OF SACRAMENTO SPEED HUMP PROGRAM GUIDELINES

Introduction

The City of Sacramento has had a speed hump program since 1980. Over the years, several revisions have been made to the program including street length criteria, change from undulations to speed humps, program name change, minimum speeding requirement and the installation of speed humps on emergency response and bus routes. For simplicity of these guidelines, the term "speed hump" will refer not only to the traditional speed humps, but also the newer split hump design being called "speed lumps." Designs for both speed humps and speed lumps are included in these guidelines.

Definitions

Speed Bump – Single asphalt bumps covering approximately one foot and approximately 5 inches in height. Found in shopping centers and parking lots. Not installed on public streets.

Speed Hump – Single asphalt hump, parabolic in shape, covering 12 feet of street with a height between 3 ¼ and 3 ¾ inches. Installed on streets in Sacramento since 1995. Not installed on emergency response or bus routes.

Speed Lumps – Asphalt mounds, parabolic in shape, covering 12 feet of street with a height between 3 ¼ and 3 ¾ inches. The center mound or lump, has a width of 5 ½ feet to accommodate the wheelbase of fire trucks and buses. The lumps adjacent to the center lump vary in width to accommodate the street width. Depending on the street width, a 5 ½ foot lump may be placed in each travel lane. First testing of speed lumps in Sacramento was done in February 2000. Speed lumps have been approved by the Fire Department for use on emergency response routes and by Sacramento Regional Transit for use on bus routes.

Speed Survey – A survey of traffic speeds and volume conducted by the use of a magnetic sensor(s) or air pressure hose(s) to determine the percentage of traffic exceeding the speed limit. The speed survey shall be 24-hours in length.

Undulations – A set of adjacent speed humps placed on the street. Undulations were installed on Sacramento streets prior to 1995.

85th Percentile Speed – Otherwise known as the critical speed, is the speed at or below which 85% of the traffic is moving. The 85th percentile speed is used as one of the criteria to determine if a street qualifies for speed humps.

Program Categories

The City of Sacramento has three types of speed hump categories: Residential, Parks and Schools, and Bypass. The objectives, qualifying criteria, and priority ranking system for each of these categories are presented in subsequent sections of this report. Also in this report are construction specifications, locations selection guidelines, signs and markings, relocation and removal requirements, other funding, Regional Transit, Fire Department emergency response route, and public notification. Between 1980 and 1995, the city installed undulations (2 humps) for traffic calming. Since 1995, the city has installed speed humps (one hump) because it was determined that one hump was just as effective at slowing traffic as two humps, less costly and easier to find spacing for installation on streets.

Program Objectives

Speed humps serve to reduce vehicular speeds as well as to reduce cut-through traffic on local residential streets. Both of these effects are realized when speed humps are installed on a street, regardless of the type of program for which a street qualifies. The principle purpose of each of the three programs is as follows: The Residential Speed Hump list serves to reduce vehicular speeds on streets which include park and/or school frontage; and the Bypass Speed Humps list serves primarily to reduce inappropriate traffic volumes on certain streets.

Other, less costly, forms of traffic control (e.g., stop signs) should be considered the primary means of discouraging speeding and/or bypass traffic. Stop signs are less costly to install and can be installed immediately at locations which qualify. When these forms of traffic control are inappropriate, the location may be studied further to determine whether or not it qualifies for speed humps. The application of speed humps is limited to streets where geometric configuration or design fails to passively deter many drivers from exceeding the speed limit or from using streets as bypass routes. The proper application of speed humps enhances public safety.

Qualifying Criteria

In order for a residential street to be studied for speed humps, a petition from ten residents from the affected street must first be submitted.

A street qualifies for the installation of speed humps when the results of an investigation demonstrate that the criteria presented on page three of this document are met for the respective types of programs. Once a street has qualified, it will be assigned points and ranked with other qualifying streets based on the ranking system shown on page four of this document.

Streets, which have already qualified for one of the speed hump categories under previously established criteria shall be reevaluated in accordance with the priority ranking system as set forth in this document.

Qualifying Criteria by Category

Residential

The segment must be 750 feet in length between traffic controls, four way intersections, and/or curves with less than a 250-foot radius.

The street cannot be located in the Central City Community Plan area****

Posted speed limit must be 30 mph or less.

Street frontage of subject street segment must be at least 75% residential.

Street will not be considered for speed humps, but will be considered for speed lumps if it is a part of the Regional Transit bus network, or identified as an emergency response route by the Fire Department.

A minimum of 25% of ballots mailed shall be returned and a two-thirds majority of residents that vote are in favor of the installation of speed humps. **

A speed survey shall indicate that the 85th percentile speed is at five or more miles per hour over the speed limit.

Parks & Schools

The segment must be 500 feet in length between traffic controls, four-way intersections, and/or curves with less than a 250-foot radius.

The street cannot be located in the Central City Community Plan area****

Posted speed limit must be 30 mph or less.

Street segment must be adjacent to a school * or park.

Street will not be considered for speed humps, but will be considered for speed lumps if it is a part of the Regional Transit bus network, or identified as an emergency response route by the Fire Department.

A minimum of 25% of ballots mailed shall be returned and a two-thirds majority of residents that vote are in favor of the installation of speed humps. **+

A speed survey shall indicate that the 85th percentile speed is at five or more miles per hour over the speed limit.

Bypass

The segment must be 500 feet in length between traffic controls, four way intersections, and/or curves with less than a 250-foot radius.

The street cannot be located in the Central City Community Plan area****

Posted speed limit must be 30 mph or less.

Street frontage of subject street segment must be at least 75% residential.

Street will not be considered for speed humps, but will be considered for speed lumps if it is a part of the Regional Transit bus network, or identified as an emergency response route by the Fire Department.

A minimum of 25% of ballots mailed shall be returned and a two-thirds majority of residents that vote are in favor of the installation of speed humps. **

A speed survey shall indicate that the 85th percentile speed is at five or more miles per hour over the speed limit.

Minimum average daily traffic (ADT) must be 500 vehicles per day.

The street(s) must serve to bypass *** major streets with a four-way stop, a signalized intersection, or another street with speed humps.

- * Preschool, Day care school, elementary, middle, or high school.
- ** One vote per household is allowed; voter(s) must reside at the household (whether they are owners or tenants), as they are the primary users of the street being considered for speed humps.
- + If the survey of residents on a parks and schools street does not demonstrate a two-third majority favoring the installation of speed humps, the City Council member representing the district in which the street is located may override the survey.
- *** To be considered a "bypass" location, the ADT must be at least 50% higher than the volume that would be expected using the following trip generation rates: 10-trips/day/single family residential (SFR) unit, 6-trips/day/multi family residential (MFR) unit. Land uses which do not front the bypass location itself, but which could reasonably be expected to use the bypass street(s) should be considered when determining the expected volume.
- **** The Central City Community Plan area is defined as the area bound by the Sacramento River on the west, the American River on the north, the Business-80 Freeway and Alhambra Boulevard on the east and Broadway on the south.

When Voting Requirement Not Met

If a street fails to receive the necessary two-thirds majority approval, the street may not be considered again for speed humps/lumps for five (5) years.

Priority Ranking System

The following point allocation method will be used in order to rank streets qualifying for the speed hump categories:

<u>Residential</u>	<u>Parks & Schools</u>	<u>Bypass</u>
One point for every 50 vehicles traveling the street in a 24-hour study period.	One point for every 50 vehicles traveling the street in a 24-hour study period.	One point for every 50 vehicles traveling the street in a 24-hour study period.
One point for each residential unit fronting the street.	One point for each residential unit fronting the street, plus one point for each 25 feet of school, park, playground, or apartment frontage.	One point for each residential unit fronting the street, plus one point for each 25 feet of apartment frontage.
Five points for every 85th percentile speed of traffic exceeding the speed limit.	Five points for every 85th percentile speed of traffic exceeding the speed limit.	One point for every 10 vehicles that are considered "bypass traffic."

Construction Specifications (Single Hump)

Upon installation of the single humps, the asphalt concrete speed hump will have a width of 12 feet, a minimum height of three and one-quarters inches and a maximum height of three and three-quarters inches (3 ¼" to 3 ¾"), and a vertical curvature of 72 feet (refer to Figure 1). Speed hump will extend from lip of gutter to lip of gutter. There will be a two-foot (2') horizontal taper originating at the crest of the speed hump and converging at the lip of curb. Asphalt concrete shall be mixed and placed in accordance with Section 22 of the City of Sacramento Standard Specifications. Page 9 is a drawing of the proposed speed hump cross section.

Construction Specifications (Speed Lumps)

Upon installation of speed lumps, the asphalt concrete speed lumps will have a width of 12 feet, a minimum height of three and one-quarter inches and a maximum height of three and three-quarters inches (3 ¼" to 3 ¾"), and a vertical curvature of 72 feet (refer to Figure 2). The center lump (or lumps if the design requires one lump in each travel lane) will be five and one-half (5 ½') feet across. There will be a gap between lumps of one-foot (1') to accommodate the wheelbase of fire trucks and buses. The outside speed lumps will extend from the center lump to the lip of gutter. There will be a two-foot (2') horizontal taper originating at the crest of the speed lump and converging at the lip of curb. Asphalt concrete shall be mixed and placed in accordance with Section 22 of the City of Sacramento Standard Specifications. Page 10 is a

drawing of the proposed speed lump cross section for a typical residential street of 33 feet or less in width.

Location Selection Guidelines

In selecting precise locations for the speed hump installation, the following guidelines shall be adhered to:

- Speed humps shall not be located over manholes, water valves, or street monumentation, or whenever possible, within twenty-five feet of fire hydrants, as they prevent/impede access to these facilities.
- Speed humps should be located five to ten feet away from driveways, whenever possible, to minimize their effect on driveway access.
- Speed humps should be located on or near property lines, whenever possible, to minimize the impact on (access to) individual properties.
- Speed humps should be located near streetlights, whenever possible, in order to enhance their visibility at night.
- Speed humps should be located a minimum distance of 200 feet from corners, whenever possible, and should never be located within a corner radius.
- Where speed humps are constructed on streets having curves with greater than a 250-foot radius, no speed humps shall be located on the horizontal curve(s).
- Speed humps shall be spaced at a minimum interval of 250 feet and a maximum interval of 600 feet. Speed humps will be placed no closer than 200 feet from traffic control devices or four-way intersections.
- No less than two speed humps will be placed on a residential or parks and schools street, as two humps are the minimum for effective speed control. When speed humps are to be installed at a Bypass location, one hump may be placed if the street segment or one of the streets in a series of street segments is less than 600 feet in length. The maximum number of speed humps is dictated by street length and spacing requirements.
- To deter driver from driving around speed humps where no vertical curb exists, a two-inch (2") pipe shall be set in the sidewalk, centered on the speed hump in each approach direction. The pipes shall be placed at a maximum of six inches (6") from the back of curb (refer to Figure 3).

Signs and markings

All signs and markings required with the speed humps shall be part of the contract bid package, unless these items are to be installed by City crews.

There are two types of advanced warning devices used to alert motorists of upcoming speed humps: street signs and pavement markings. The signing includes a 30-inch sign stating "SPEED HUMPS AHEAD" in four-inch (4") series "C" letters, above which is a pictorial of a

speed hump. A second sign recommending a speed of 15 mph is placed directly below the warning sign (refer to Figure 2).

Pavement markings for speed humps shall include twelve-inch (12") wide longitudinal ladder markings at four feet (4') on center, which are stenciled across each speed hump. Pavement markings for speed lumps shall include diamond striping on the center lump(s) and arrow markings on the side lumps. A reflective pavement marker will indicate the middle of the center lump(s) to assist RT and fire truck drivers to center their vehicle over the lump.

Relocation of Speed Humps or Additional Speed Humps

Changing the location or adding additional speed humps on a street may be considered when all of the criteria listed below are met.

1. For Residential and Parks and Schools Locations: Speed humps are ineffective in reducing speeds of vehicles based on speed survey conducted for 24-hour period. The average speeds must each be less than two mph lower than those speeds demonstrated prior to the installation of speed humps in order to be considered ineffective.

For Bypass Locations: Speed humps are ineffective in reducing the volume of vehicles, based on an average daily traffic (ADT) count. Traffic volumes must be reduced by less than 10% from the street's ADT count prior to the installation of speed humps in order to be considered ineffective.

2. Speed humps were placed in a location conflicting with the adopted guidelines, and another location exists which does not conflict with the adopted guidelines.
3. There is a petition with a two-thirds majority of the street's residents in favor of the speed humps relocation. One resident signature per household having driveway access onto the street in question is allowed; a resident may be either an owner or tenant.

A community meeting should be held, with the support of the district's City Council member, to discuss the advantages of speed humps. If the decision is made to relocate existing speed humps, a Council report and resolution must be drafted. When approved by the City Council, the relocation procedures may be initiated. Relocation of speed humps which may have been installed for less than two years will only be considered if the City is compensated by those requesting speed hump relocation for the full cost of relocating the speed humps, including design, construction, inspection, and administration.

Removal of Speed Humps

Removing speed humps from a street may be considered when all of the criteria listed below are met:

1. For Residential and Parks and Schools Locations: Speed humps are ineffective in reducing speeds of vehicles based on speed survey conducted for a 24-hour period. The 85th percentile and average speeds must each be less than 2 mph lower than those speeds demonstrated prior to the installation of speed humps in order to be considered effective.

For Bypass Locations: Speed humps are ineffective in reducing the volume of vehicles, based on an average daily traffic (ADT) count. Traffic volumes must be reduced by less than 10% from the street's ADT count prior to the installation of speed humps in order to be considered ineffective.

2. Speed humps were placed in a location conflicting with the adopted guidelines, and no other location exists which does not conflict with the adopted guidelines.
3. There is a petition with a two-thirds majority of street's residents' signatures in favor of the speed hump removal. One resident signature per household having driveway access onto the street in question is allowed; a resident may be either an owner or tenant.

A community meeting should be held, with the support of the district's City Council Member, to discuss the advantages of speed humps. If the decision is made to remove existing speed humps, a Council report and resolution must be drafted. When approved by the City Council, the removal procedures may be initiated. Removal of speed humps which have been installed for less than two years will only be considered if the City is compensated by those requesting speed humps removal for the full cost of the original installation, including design, construction, inspection, and administration. This would not apply if a street became a Regional Transit bus route.

Other Funding

A street which qualifies for any one of the speed hump categories may be funded by an individual or a group of individuals. The individual or group of individuals must enter into a memorandum of understanding (MOU) with the City of Sacramento, wherein they agree to pay for all costs associated with the installation of speed humps on their street (construction, inspection, administration, etc). Once a MOU is executed, the location to receive speed humps shall be included in the next City CIP speed hump project. Private payment for speed humps does not relieve a location from the requirement of a two-thirds majority of residents favoring the installation of speed humps, or from any other criterion set forth in these guidelines.

Regional Transit

Regional Transit (RT) adopted a policy on bus routing with regard to speed humps in 1982. This policy authorizes RT staff to modify bus routes so they do not utilize streets with existing or future speed humps, and to coordinate future placement of such devices. The Department of Public Works' policy is to provide RT with the locations of future speed humps so that problems, which this might create, can be avoided. Speed humps will not be placed on streets where RT bus service exists. However, RT has approved speed humps for placement on bus routes.

Fire Department Emergency Response Routes

The City of Sacramento Fire Department has expressed concerns regarding speed humps, and desires that they not be placed on streets, which they identify as emergency response routes. The Department of Public Works' policy is to provide the Fire Department with the locations of future speed humps so that they can identify emergency response routes. Speed humps will not be placed on streets, which the Fire Department identifies as emergency response routes.

However, the Fire Department has approved speed lumps for emergency response routes on a case-by-case basis.

Central City Restriction

No vertical measure including speed humps, speed lumps, traffic tables and raised crosswalks shall be installed on city streets or alleys in the Central City area as defined by the Central City Community Plan boundaries of the Sacramento River on the west, the American River on the north, the business-80 Freeway and Alhambra Boulevard on the east and Broadway on the south.

Public Notification

Public notifications, which are used for balloting and to inform residents of purposed speed humps and to have them vote, may be distributed by one of two methods:

1. Ballots may be hand delivered by city staff, an area youth group or a temporary service.
2. Ballots may be mailed out to residents of affected streets.

Note: Ballots with a response requested should be sent far enough in advance to reach the public two and one half (2 ½) weeks prior to the response deadlines.

Street Participation in the Neighborhood Traffic Management Program (NTMP)

The NTMP reviews all streets within a neighborhood for possible traffic calming measures. In doing so, streets are evaluated for speed humps. If the traffic calming plan approved by resident and city council votes does not include speed humps on a street, that street is ineligible to be considered for further traffic calming measures such as speed humps for a minimum of one-year after the NTMP project has been closed.

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