



Sustainability and Transportation Committee Report

Date: November 2, 2017
To: Sustainability and Transportation Committee
Through: Karolyn Kent, Assistant City Manager
From: RJ Zeder, Transportation Director
Sabine Ellis, City Traffic Engineer
Subject: Speed Hump Policy

Purpose

The purpose of this report is to document the current City of Mesa speed hump and cushion process, provide details on the speed hump policy (Policy), and to seek direction from the Sustainability and Transportation Committee (Committee) on whether the neighborhood survey and public outreach requirements of the Policy should be modified.

Background

In December of 1997, Mesa formally adopted a Policy. At that time, the neighborhood survey, which is circulated by a neighborhood liaison, included properties adjacent to the subject street and required a 70% approval rate. In addition, staff's practice had been to include properties located along cul-de-sacs or looping streets intersecting that street with no other way out of the neighborhood. Over the years, the Policy was revised to also include properties within 300 feet on each side street based on the input from residents, City Management, and the Transportation Advisory Board (TAB).

Initially, Mesa's Policy only included speed humps, which could not be used on streets that are dedicated as fire routes. Fire routes are typically located along collector streets which serve as a connection between the arterial and local neighborhood streets. Collector streets are still low-speed streets, but include more users such as neighborhood residents, other Mesa residents, school traffic, and the Fire Department. Staff then developed speed cushions, which can be used on such collector streets and allow fire trucks to traverse them without slowing down as much as for speed humps. Because collector streets affect road users within a larger area than local streets, the Policy requires a 2-week public comments phase and approval of the Transportation Advisory Board to install speed cushions. Speed humps however, since the majority of users of the subject street are included in the neighborhood survey, do not require additional public outreach.

Refer to Appendix A for the current Policy.

Discussion

Based on citizens' requests and at the direction of City Management, this report is brought forward to discuss and receive direction on the survey process and public outreach that is currently involved with the approval of speed humps or cushions.

Staff has reviewed Mesa's Policy against other municipalities in the valley: Phoenix, Tempe, Scottsdale, Chandler, Glendale, Gilbert, and Peoria. Appendix B includes two tables comparing Mesa's requirements with those of the other agencies. Table 1 shows the engineering process, including which type of streets are eligible, what the maximum allowable speed limit is, and speed criteria to qualify for speed humps or cushions. Table 2 shows the public process and provides details such as the required support by the neighborhood, which properties are to be surveyed, and if a wider community support is sought.

The engineering process is balanced between all agencies. Generally, speed humps or cushions are used within residential neighborhoods, the Fire Department has a right to veto and the speed warrant ranges from 6 miles per hour to 10 miles per hour over the posted speed limit.

For the public process, half of the agencies require a higher initial neighborhood support and approval rate than Mesa while Chandler and Gilbert include more properties in their neighborhood survey. Phoenix and Peoria require that only properties adjacent to the subject street be surveyed. Just like Mesa, Tempe and Chandler seek wider community support by means of a public meeting while the other agencies move forward with the installation of speed humps or cushions once the neighborhood survey achieved the required approval rate. Only Scottsdale has an appeal process, which is handled by their Transportation Commission or Council. However, six of eight agencies have a formal removal process in place. In Mesa, residents can request removal, at the City's cost, if the speed humps or cushions have been in place for 12 months and 51% of the originally surveyed property owners are in agreement. Phoenix and Gilbert have the same approval rate but residents have to pay for the removal. Chandler and Glendale do not have a formal removal process and the rest of the agencies require a higher approval rate.

Who is deemed affected by the installation of speed humps or cushions is the main point of contention when the Policy is questioned. The neighborhood survey area is a divisive subject between those who live directly on the street and drivers who use the street but live nearby. Residents adjacent to the street where the speeding occurs experience it every day and are affected by drivers' behavior when it comes to theirs and their family's safety. Those who utilize the street to get to their home, work, school, etc., are affected by it due to concerns with perceived damage to their vehicles, increased emergency response times, and possible diversion of traffic to alternate routes within the neighborhood. Because of these two different mindsets, the farther

someone lives from the subject street, the less the likelihood of them agreeing with speed humps or cushions. Historically more weight has been given to the desires of the residents of a street in implementing traffic calming while still leaving the street available to all drivers.

In order to determine if the current Policy should be modified, staff is seeking direction from the Committee on:

- Properties included in neighborhood survey and approval rate
- Appeal process once installation has been approved or denied
- Public comment phase and TAB approval for speed humps, not only cushions

What must be carefully considered when increasing the survey area is striking a balance between the desires of those that live on the subject street and those that use the street but live elsewhere. Adding more properties to the neighborhood survey not only means that the neighborhood liaison circulating the survey has to spend more time and effort to collect the necessary signatures, but it also makes reaching the 70% approval rate more difficult. For example, Appendix C shows a typical neighborhood where the 300-foot distance on side streets was doubled to 600 feet. This also doubled the number of properties that had to be surveyed from 105 to 209. If the desire is to increase the survey area, a reduction of the required approval rate to something less than 70% would be an option to maintain a reasonable possibility to meet all warranting criteria.

Currently no formal appeal process exists once the TAB has voted on a motion. Staff is seeking input as to whether there should be an appeal process that comes to this Committee or City Council.

Speed humps on local streets have not been subject to a public comment phase or TAB approval because most users of the subject street are already included in the initial neighborhood survey. These steps could be added to the Policy for the sake of consistency and to provide an opportunity for others to voice their opinion.

Fiscal Impact

Modifying the public process for speed humps and cushions would not have any direct fiscal impact. However, if it becomes too difficult for neighborhoods to meet the warranting criteria, the City may have to use other, potentially more costly or less effective traffic calming measures to address speeding concerns.

CITY OF MESA - SPEED HUMP POLICY

The speed hump policy identifies warranting criteria to be used when considering speed hump and speed cushion installations. This policy also outlines the mandatory neighborhood support needed for approving installation and cost responsibilities associated with these devices.

The neighborhood must have a liaison willing to serve as a contact person with whom the City can work throughout the request process. The neighborhood liaison must live in the affected area to be eligible to act as the neighborhood liaison. This person should contact Transportation at 644-2160 for a preliminary inspection.

In the preliminary inspection, a City representative from Transportation will check for traffic conditions on the street where the devices are desired. A location may not be studied more than once in a twelve-month period, unless significant changes in traffic conditions occur.

A. Warranting Criteria

Speed humps and speed cushions shall be considered for installation only when a location meets all of the warranting criteria. The warranting criteria are listed below:

1. The devices must be located on a paved, residential street (alleys are not eligible);
2. The street should have vertical curb abutting the proposed device locations. Devices may be placed on streets with roll curb or ribbon style sidewalk after a review to determine the best possible location. In this case, it may be necessary to take additional measures to prevent drivers from going around the devices;
3. The posted speed limit on the street shall be 30 m.p.h. or less;
4. The 85th percentile speed on the street shall be at least 8 m.p.h. over the posted speed limit;
5. Traffic volumes on the street must fall between 500 vehicles per day for full City cost participation, and 5,000 vehicles per day (the maximum traffic volume allowed). Devices may be installed where traffic volumes are less than 500 vehicles per day if the neighborhood shares in the cost as defined in item D. below;
6. The devices shall not be located within 200 feet of a stop sign or traffic signal on the subject street;
7. The street is not an arterial or major collector street;
8. Drainage on the street shall not be compromised due to the installation of the devices;
9. Streets designated as fire routes will be treated with speed cushions; other streets will be treated with speed humps. The configuration of the speed cushions will vary depending on the width of the street;
10. The Fire Department retains the right to veto the installation of speed humps or cushions.

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B. Neighborhood Support – Adequate neighborhood support must be shown for the project.

Neighborhood Acceptance Survey

Once the street has passed the warranting criteria and favorable conditions exist, the installation must then follow a neighborhood acceptance procedure (survey form). This is to assure that a majority of the property owners affected by the devices will support the installation. City of Mesa personnel will determine affected properties in the area.

The neighborhood liaison and City staff will conduct the review of possible device locations. The neighborhood liaison must then circulate a survey of acceptance to the affected property owners. The survey must confirm at least 70% approval from the affected property owners to install the devices.

Property owners who do not respond to the survey process or mark "no opinion" are considered opposed to the installation.

All property owners within 50 feet along each side of the device must approve of the installation.

If there is less than 70% approval from affected residents, or if it is not possible to place the devices on the street under consideration due to opposition from adjacent property owners, no device will be installed.

The completed survey must be returned to the City of Mesa Transportation Department.

Affected Property Owners

At a minimum, the affected properties will include all that abut the street on which the devices are being considered, and a minimum of 300 feet on each side of any cross streets. These cross streets can be public or private, and include driveway-type access streets.

Panhandle shaped properties, whose only access is from the subject street, will be included in the neighborhood survey, regardless of how far the main part of the property is located from the subject street.

If a street parallel to the subject street is encountered prior to the 300 foot distance, no additional property owners need be notified on that parallel street unless City staff recommends additional notifications.

Where a cross street is at the terminating end of the subject street, properties on both sides of the cross street within 300 feet of the subject street shall be included, unless the cross street is more than 48 feet in width. In that case, properties on the far-side of the cross street shall not be included.

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Properties or tracts that are not developable-sized lots, and are dedicated for road, access, drainage, or landscaping purposes shall not be included in the neighborhood survey, but owners of such lots shall have a say in whether they approve of the installation of the device within 50 feet of their property/tract.

Once neighborhood support is confirmed (via the neighborhood survey for speed hump installations and via the Transportation Advisory Board for speed cushion installations), City staff will identify exact locations for the devices based on input from the survey. Shortly prior to construction, City staff will confirm that property owners within 50 feet of each proposed device continue to support the installation at that location. In the event that support is withdrawn, staff and the neighborhood liaison will determine whether a suitable alternate location exists and whether to proceed with the remaining device installations.

Opinions of Other Road Users

If the street is a collector type street, the level of support from other road users must also be determined. This will be handled by City staff. Information signs will be posted on the subject street inviting the public to comment on the proposed installation of speed cushions. Comments will be accepted in a variety of formats (on-line survey, neighborhood meeting, telephone, email).

Results of the neighborhood survey and comments received from other roadway users will be presented to the Transportation Advisory Board.

C. Data Collection Costs

The neighborhood will be responsible for all data collection costs required to determine if the street under consideration meets the warranting criteria. Traffic volume and speed data will be collected by one of the City of Mesa's traffic counting contractors. Typically, sufficient data is collected using road tubes in one location for 48 consecutive hours. Two count locations are generally necessary for street segments over one-half mile in length or if the character of the street or adjacent land use varies considerably from one end of the street segment to the other. The cost of the speed counts is per the current Schedule of Fees and Charges.

IMPORTANT NOTES: The neighborhood shall pay for the data collection prior to the traffic speed and volume counts being taken on the street under consideration. This payment is non-refundable once the traffic counts have been taken. This payment is strictly to determine if the street qualifies for speed humps or speed cushions and in no way guarantees that such device will eventually be installed on the street under consideration. If for any reason, speed humps or speed cushions are not installed on the street under consideration, the cost of data collection will not be reimbursed to the neighborhood.

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D. Installation and Maintenance Costs

A typical installation on a quarter-mile long residential street consists of two devices. A minimum of two devices spaced about 500 feet apart is recommended for them to be effective.

The City of Mesa will install the devices and be responsible for their perpetual maintenance costs. Installation and maintenance include the costs of material, construction, signing, striping, maintenance and removal of the devices (if necessary).

If the neighborhood wishes to pursue the installation of the devices on a street with traffic volumes below 500 vehicles per day, but satisfying all of the other warranting criteria, the devices could be installed. In this case, the neighborhood would be responsible for a \$500 per device fee to be paid to the City. The neighborhood may collect monies in any manner they deem equitable but all monies submitted to the City must be submitted at the same time and be for the full amount of the required neighborhood contribution. These monies must be received in order for the street to be considered for ranking as described in paragraph E.

E. Prioritization of Installations

Rankings will be established for all streets that have passed the warranting criteria, have submitted the survey with at least 70% approval from the affected property owners, and submitted the neighborhood contribution, if applicable, by the first Monday in September or the first Monday in March. Qualified streets with traffic volumes of 500 vehicles per day or more will be ranked first based on their 85th percentile speeds, then on traffic volumes. Qualified streets with less than 500 vehicles per day will be ranked after qualified streets having 500 vehicles per day or more, regardless of the 85th percentile speeds.

Approximately half the annual program budget will be available for each review period. Prioritization will be divided into two categories: speed humps and speed cushions. Of the total budget, 1/3 will be available to treat streets with speed humps, and 2/3 will be available to treat streets with speed cushions.

Available funding will be applied to eligible streets in order of priority until all funds are committed. Candidate streets not receiving funding will be carried forward to the next review period at which time they will be prioritized with all eligible requests identified by that time. Candidate streets will not be carried forward for more than two years. After two years, the survey process must begin anew. If funds are left over from either of the two categories, the funds can be applied to the next eligible candidate in the other category.

F. Removal of Speed Humps or Speed Cushions

Once devices have been in place for at least one year, a survey requesting removal may be conducted and submitted to the Transportation Department. All affected properties, which were previously identified in the neighborhood survey process, shall be involved in the removal process as well. A simple majority of the affected property owners must approve of the removal. Property owners who do not respond to the survey process or mark "no opinion" are considered opposed to the removal of the devices. Once the survey has been verified, the City of Mesa will be responsible

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for removal of the device(s) and all costs associated with the removal. Devices removed from a location under this process cannot be reconsidered for re-installation for three years after the devices are removed.

G. Design/Construction Specifications

The City of Mesa has adopted two speed hump designs; a 14-foot long speed hump for 25 m.p.h. streets and a 22-foot long speed hump for 30 m.p.h. streets. Both speed hump designs are 3 inches at their highest point and vary in width, depending on the width of the road. See Details 1 and 2.

The City of Mesa has adopted a 12-foot long speed cushion design for use on fire routes. The cushions are 3 inches at their highest point, and are a minimum of 6 feet wide. See Detail 3.

H. Revision

The City Manager or designee may make adjustments to the requirements for speed hump installation as necessary. All adjustments shall be in writing and on file in the Transportation Department office.

A cross-sectional diagram of a curb and gutter. On the left is a sidewalk. To its right is a vertical curb face. To the right of the curb is a gutter. The gutter has a maximum width of 2 feet and tapers to a width of 12 inches. The gutter is labeled with a radius of $R=12.5(D-1/2)$. A tack coat is shown at the bottom of the gutter.

Figure 1: Typical cross-section of a 14' wide, 12" deep, 12" high concrete bridge deck. The diagram shows a cross-section of a bridge deck with a total width of 14 feet and a depth of 12 inches. The deck is supported by two 2-foot wide, 12-inch high concrete piers. The deck is divided into three sections: a 6-foot wide section on the left, a 2-foot wide section in the middle, and a 6-foot wide section on the right. The deck is reinforced with steel bars (rebar) and has a 1-inch thick concrete top layer. The deck is shown with a typical cross-section of a bridge deck, including the deck, piers, and reinforcement.

CROSS SECTION

2)

SIDEWALK

CURB EXISTING

GUTTER

6' (TYP.)

CL OF ROADWAY

SEE CROSS SECTION

1' Gap

1' White

EDGE OF PAVEMENT

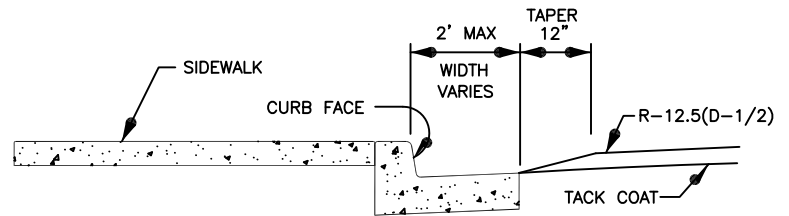
6'

PLAN VIEW

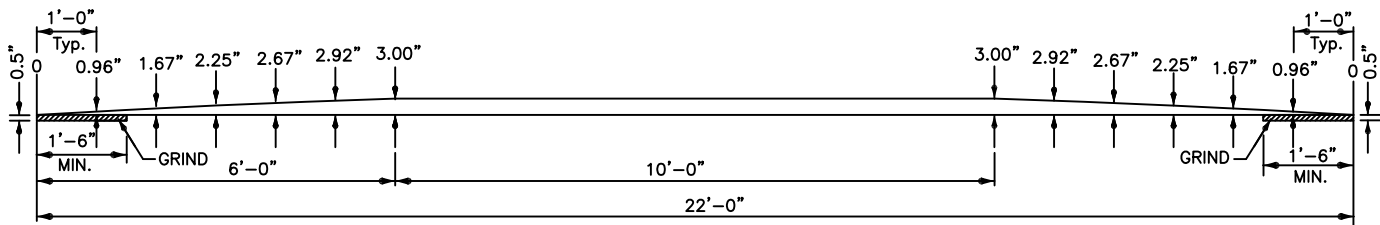
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SPEED HUMP SPECIFICATIONS

IMPORTANT: Speed Humps to be 3" in height to provide maximum effectiveness, while not being overly restrictive to emergency police and fire vehicles.



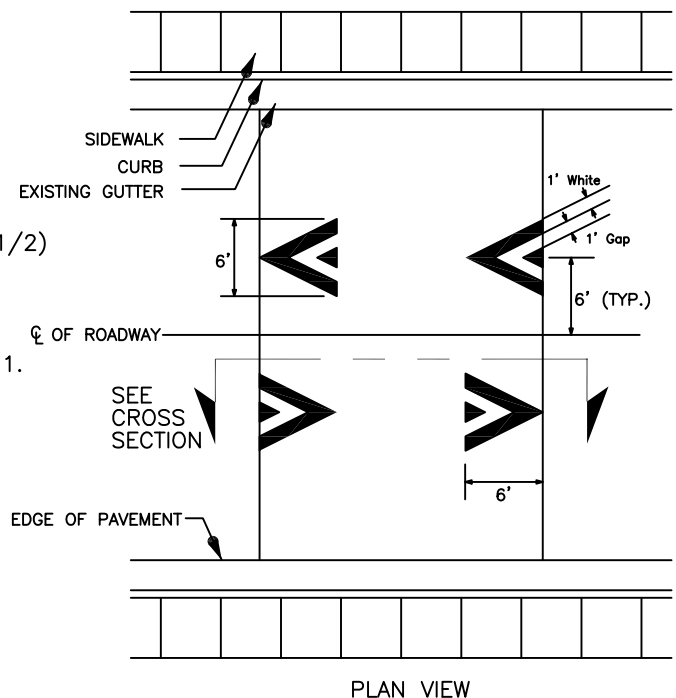
EDGE DETAIL



CROSS SECTION

NOTES:

1. Speed humps shall not be placed over manholes, water valves, survey monuments, etc.
2. Speed humps shall not be installed in a location such that roadway drainage is compromised.
3. Speed humps to be constructed with type R-12.5(D-1/2) course (M.A.G. Spec. Section 710). A tack coat shall be applied prior to application of pavement material.
4. Striping to be installed by contractor per detail M-15.1. Contact City of Mesa sign shop one week prior to installation to coordinate placement of signs.

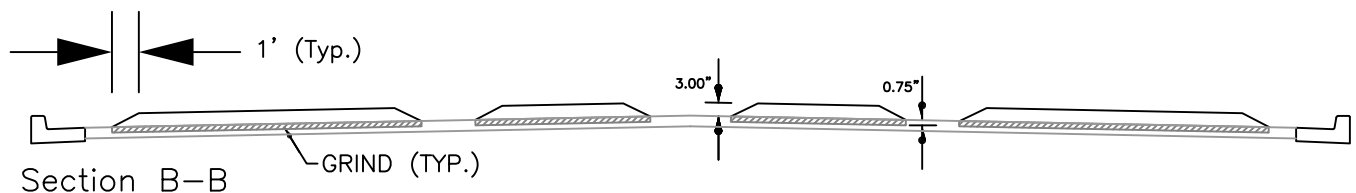
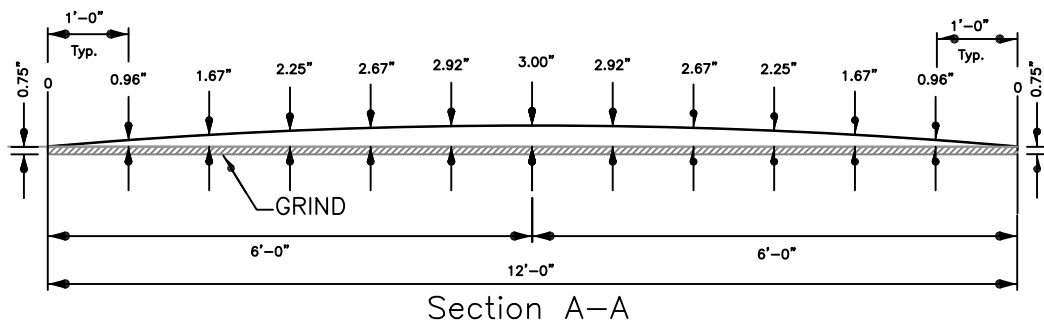
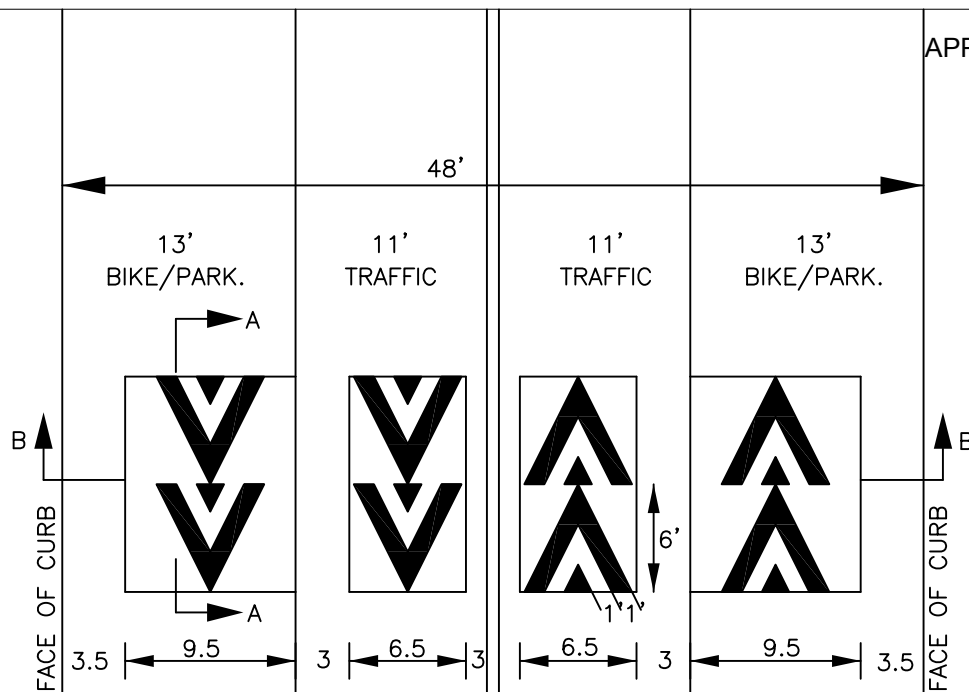


PLAN VIEW

DETAIL 2: 22' SPEED HUMP

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NOTES

SPEED CUSHIONS SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MONUMENTS, ETC.

SPEED CUSHIONS SHALL NOT BE INSTALLED IN A LOCATION SUCH THAT DRAINAGE IS COMPROMISED.

SPEED CUSHIONS SHALL BE CONSTRUCTED WITH TYPE R-12.5 ASPHALT MIX PER EAST VALLEY ASPHALT (EVA) CRITERIA, 1996 EDITION AND BE APPROVED BY EVA COMMITTEE. A TACK COAT SHALL BE APPLIED PRIOR TO APPLICATION OF PAVEMENT MATERIAL.

THE ENTIRE BASE OF EACH CUSHION SHALL BE GROUND DOWN TO A DEPTH OF 3/4"

DETAIL 3: SPEED CUSHION (48' STREET)

TABLE 1

Agency	Initial Support	Required Approval Rate	Properties to be included	Wider Community Support	Appeal Process	Removal Process
Mesa	Requester	70%/100% within 50 feet of speed hump	Homes abutting street, 300' on each side of connecting streets (owners)	Yes (TAB)	None	51% of affected properties, 12 months after install
Phoenix	10 households	70%/100% within 100 feet of speed hump (residents)	Homes along street (residents)	None	None	51% of affected properties & at residents' cost
Tempe	Requester	75%/100% properties adjacent to speed hump/50% on adjacent streets	Affected residences (owner or occupant) - homes abutting street & homes affected	None	None	80% of affected properties after considerable time has passed
Scottsdale	Speed Awareness Program (SAP) Participation & 10 residents	70%/4 residences immediately adjacent to each speed hump	Affected residences on subject street, 3 dwelling units (DU) on intersecting streets	Yes - Public Meeting	Transportation Commission and/or Council	Same required approval rate for original installation, 12 months after install
Chandler	4 households willing to assist	75%/100% within 100 feet of speed hump & participation by 90%	Affected residents/businesses, include streets to which traffic may be diverted to	Yes - Neighborhood/ Public Meeting	None	None
Glendale	70% of residents in petition area	70%/75% adjacent to speed hump	Abutting homes, 3 DU on intersecting streets with another outlet or all homes if no other outlet	None	None	None
Gilbert	10 residents living within area	75% lots within 1,000' & 100% lots within 500'	Residents whose lots are within 1000' of the proposed location	None	None	51% of residents of the homes within 500' of the device(s) & at residents' cost
Peoria	10 households	70%/100% wadjacent to speed humps	Affected residences (owners)	None	None	Same required approval rate for original installation & at residents' cost

TABLE 2

Agency	Eligible Streets	Max Posted Speed (MPH)	Considered Emergency/Transit Routes Services	Speed Criteria	Volume Threshold (vehicles per day)	City Funding available
Mesa	Residential local or collector	30	Fire	85th percentile > 8 MPH posted	500 to 5000	Yes - Citizen pays \$58 for counts
Phoenix	Residential local or minor collector	30	Fire, buses, truck routes	N/A - can be installed if meets all other requirements	None	No
Tempe	Residential local or collector, abutting land use needs to be at least 85% residential	30	Police, fire, ambulance, transit, school districts, refuse and street department	85th percentile > 6 MPH posted	> 400 or cut-through problem identified	Yes
Scottsdale	Residential local w/ driveways, minor collectors w/restrictions	25	Fire	85th percentile > 10 MPH posted, mean > 30 MPH, 10-MPH-pace > 32 MPH, > 50% > 25 MPH	500 to 5000	No
Chandler	Residential local or collector, 6 homes facing the street every 660 feet	25	Fire, Police	85th percentile > 7 MPH posted	> 900 fully paid by City; 450 to 900 50% paid by City	Yes
Glendale	Residential	25	Fire & buses	Average speed > 30 MPH, 85th percentile > 10 MPH posted	500 to 3000	Yes
Gilbert	Local Residential in residential subdivision	30	N/A	85th percentile > 10 MPH posted	500 to 4000	No
Peoria	Local or collector, front facing homes	30	Fire	85th percentile > 5 MPH posted	> 100 & 40 veh/h local; > 1000 & 100 veh/h collector	Yes

