

# YUBA COUNTY

## TRAFFIC UNDULATION PROGRAM

### **Program Descriptions**

Yuba County Public Works Department proposes three types of undulation (i.e. speed humps) programs: Residential; Parks and Schools; and Bypass. The objectives and qualifying criteria for each of these programs are presented in subsequent sections of this report. Also in this report are construction specifications, location selection guidelines, signs and markings, relocation and removal requirements, emergency response routes and public notification.

### **Program Objectives**

Undulations serve to reduce vehicular speeds as well as to reduce cut-through traffic on local residential streets. The principal purpose for each of the three programs is as follows: The Residential Undulations serve to reduce vehicular speeds on residential streets; the Parks and Schools Undulations serve to reduce vehicular speeds on streets which include parks and/or schools having frontage; and the Bypass Undulations serve primarily to reduce inappropriate traffic volumes on certain streets.

Other less costly forms of traffic control should be considered the primary means of discouraging speeding and/or bypass traffic. When other forms of traffic control are inappropriate, the location may be studied further to determine whether or not it qualifies for undulations. The application of undulations 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 undulations enhances public safety.

### **Qualifying Criteria**

In order for a residential street to be studied, a petition signed by at least fifty percent (50%) of the affected residences (one vote per residence) must first be submitted to the Public Works Department. All residences on the proposed street segment and those whose most direct route of access is the proposed segment shall have a vote on the installation, relocation, or removal of an undulation. The Public Works Department will review the surrounding area of the proposed street segment to determine a radius of affected properties to be included in the voting thresholds indicated in the three categories on the next page.

A street qualifies for the installation of undulations when the results of an investigation demonstrate that the criteria presented on page two of this document are met for the respective types of programs. Once a street has qualified, Public Works Staff will schedule the project to be constructed in the following fiscal year, if resources are available.

A street does not qualify for the installation of undulations when the street has a grade that exceeds 8%, has two or more traffic lanes in one direction, is greater than 40' wide, or experiences drainage problems as specified by the Public Works Department.

Undulations should typically be installed only on streets with an average daily traffic volume of 2,000 vehicles or less. When considered for installation on streets with higher volumes, their use should receive special evaluation, justification and must qualify as a bypass before approval. 2,500 vehicle average daily traffic volume is the maximum that will qualify with special consideration.

## QUALIFYING CRITERIA

### Residential

- The segment must be 750 feet or more in length between traffic controls, four-way intersections, and/or curves with less than 250-foot radius.
- Posted speed limits must be 30 mph or less.
- Street frontage of subject street segment must be at least 75% residential.
- Street cannot be part of the Yuba Sutter Transit bus network.
- Street cannot be identified as an emergency response route by the Fire Department.
- Street cannot be near a rest home.
- Two-thirds majority of the residences in the affected radius must vote in favor of the installation of undulations.\*
- Streets must have curbs and gutters, unless approved by the Director of Public Works.

### Parks & Schools\*\*

- The segment must be 500 feet or more in length between traffic controls, four-way intersections, and/or curves with less than a 250-foot radius.
- Posted speed limit must be 30 mph or less.
- Street frontage of street segment must contain a park or school.
- Street cannot be part of the Yuba Sutter Transit bus network.
- Street cannot be identified as an emergency response route by the Fire Department.
- Street cannot be near a rest home.
- Two-thirds majority of the residences in the affected radius must vote in favor of the installation of undulations.\*
- Streets must have curbs and gutters, unless approved by the Director of Public Works.

### Bypass\*\*\*

- The segment must be 500 feet or more in length between traffic controls, four-way intersections, and/or curves with less than a 250-foot radius.
- Posted speed limit must be 30 mph or less.
- Street frontage of subject segment must be at least 75% residential.
- Street cannot be part of the Yuba Sutter Transit bus network.
- Street cannot be identified as an emergency response route by the Fire Department.
- Street cannot be near a rest home.
- Two-thirds majority of the residences in the affected radius must vote in favor of the installation of undulations.\*
- Minimum average daily traffic (ADT) of 500 vehicles per day.
- The street(s) must serve to bypass major street with a four-way stop, a signalized intersection, or another street with undulations.
- Street must have curbs and gutters, unless approved by the Director of Public Works.

\* One vote per household is allowed: voter(s) must reside at the household (whether they be owners or tenants), as they are the primary users of the street being considered for undulations. The two-thirds majority is a two-thirds majority of all the residents within the affected radius, whether they vote or not.

\*\* Preschool, elementary, middle, or high school.

\*\*\* To be considered a "bypass" location, the ADT must be at least 50% higher than the volume that would be expected using the following generation rates: 10 trips/day/single family residential unit, 6 trips/day/multi family residential 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 reasonable be expected to use the bypass street(s), should be considered when determining the expected volume.

## **Construction Specification**

Upon installation of the single/double hump, the asphalt concrete undulation will have a length of 12 feet, a height of four inches, and fit on a parabolic crown. Undulations will extend from lip of gutter to lip of gutter, or from edge of pavement to edge of pavement. There will be a two foot (2') horizontal taper originating at the crest of the undulation and converging at the lip of curb. Asphaltic concrete shall be mixed and placed in accordance with Section 39 of the State of California, Department of Transportation, Standard Specifications. See traffic undulation detail for further information.

## **Location Selection Guidelines**

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

- Undulations shall not be located over manholes, water valves, or street monumentation, or within twenty-five feet of fire hydrants, as they prevent/impede access to these facilities.
- Undulations should be located five to ten feet away from driveways, whenever possible, to minimize their effect on driveway access.
- Undulations should be located on or near property lines, whenever possible, to minimize the impact on access to individual properties.
- Undulations shall not be placed on a crest vertical curve unless stopping sight distance at grade can be achieved with undulations included in the sight distance evaluation.
- Undulations should be located near streetlights, whenever possible, in order to enhance their visibility at night.
- Undulations should be located a minimum distance of 200 feet from corners, whenever possible, and shall never be located within a corner radius.
- Where undulations are constructed on streets having curves with greater than 250 foot radius, no undulations shall be located on the horizontal curve(s).
- Undulations shall be spaced at a minimum interval of 300 feet and a maximum interval of 600 feet. Undulations will be placed no closer than 200 feet from traffic control devices or four-way intersections.
- No less than two undulations, unless as directed by the Director of Public Works, will be placed on a residential or parks/schools streets, as two humps are the minimum for effective speed control. When undulations 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 humps is dictated by street length and spacing requirements.

## **Signs and Markings**

All signs and markings required with the undulations shall be part of the contract bid package.

Street signs and pavement markings are used to alert motorists of upcoming undulations. The signing includes a thirty inch (30") sign stating "BUMP" in four inch (4") series "C" letters placed 100' prior to the undulation, or placed where practical. A second sign recommending a speed of 15 mph shall be placed directly below the warning sign.

Pavement markings shall include twenty-four inch (24") wide longitudinal markings with four feet (4') separation between markings (refer to traffic undulation detail). In addition, raised reflectorized pavement markers shall be installed and placed on the centerline, positioned on the crest and in the front of the undulation from approach directions. This provides warning during the night and early morning hours. All warning devices should be easily visible on approaches to undulations.

## **Relocation of Undulations or Additional Undulations**

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

1. For Residential and Parks & Schools Locations: The undulation is ineffective in reducing speeds of vehicles based on a traffic speed study. The undulation is considered ineffective if the average speed is not reduced from the speed demonstrated prior to the installation of undulation.

For Bypass Locations: Undulations 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 undulations in order to be considered ineffective.

2. Undulations were placed in a location that conflict with revised guidelines from the original date of installation, and another location exists which does not conflict with new guidelines.
3. There is a petition with a two-thirds majority of the street's residents in favor of the undulation 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.

If the decision is made to relocate existing undulations, the Board of Supervisors must approve of the decision by resolution. When approved by the Board of Supervisors, the relocation procedures may be initiated. Relocation of undulations which have been installed for less than three years will only be considered if the County is compensated by those requesting undulation relocation for the full cost of relocating the undulations, including design, construction, inspection and administration.

## **Removal of Undulations**

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

1. For Residential and Parks & Schools Locations: Undulations are ineffective in reducing speeds of vehicles based on a traffic speed study. The average speed, if previously above the posted speed, must be lowered by 2 mph and the 85<sup>th</sup> percentile speed must be lowered by 5 mph than those speeds demonstrated prior to the installation of undulations in order to be considered ineffective.

For Bypass Locations: Undulations 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 undulations in order to be considered ineffective.

2. Undulations were placed in a location that conflict with revised guidelines from the original date of installation.
3. There is a petition with signatures of two-thirds majority of the streets' residents in favor of the undulation 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.

If the decision is made to remove existing undulations, the Board of Supervisors must approve of the decision by resolution. When approved by the Board of Supervisors, the removal procedures may be initiated. Removal of undulations which have been installed for less than three years will only be considered if the County is compensated by those requesting undulation removal for the full cost of removing the undulations, including undulation removal, pavement rehabilitation, inspection and administration.

### **Fire Department Emergency Response Routes**

The Department of Public Works' policy is to provide the fire departments with the locations of future undulations. Undulations will not be placed on streets listed below:

Alberta Avenue	Goldfields Parkway*	Plumas Lake Blvd*
Algodon Road	Grand Avenue	Powerline Road
Alicia Avenue	Griffith Avenue	River Oaks Blvd*
Arboga Road	Grove Avenue	Riverbank Drive*
Avondale Avenue	Hammonton-Smartville Road	Riverside Avenue
Broadway Road	Linda Avenue	Rupert Avenue*
Brophy Road	Lindhurst Avenue	Scales Avenue
Chestnut Road	Links Parkway*	Seventh Avenue
Dantoni Road	Lowe Avenue	Shad Road
Edgewater Circle	McGowan Parkway	Simpson Lane
Ella Avenue	North Beale Road	Simpson-Dantoni Road
Erle Road	Olive Avenue	Western Avenue
Feather River Blvd	Olivehurst Avenue	Wheeler Ranch Drive*
Fernwood Drive	Pasado Road	Wiget Avenue
Fleming Avenue	Plumas Arboga Road	Woodland Drive
Garden Avenue		

Additional Roads may be included at later dates when new roads are constructed or traffic patterns change. Roads with an asterisk (\*) have been added since plan adoption.

### **Public Notification/Ballots**

Public notifications which are used for balloting and information to residents of the proposed undulations may be distributed by one of two methods:

1. Door hangers, with ballots attached, may be hand delivered to all affected residences by those requesting the undulation installation.
2. The fliers/ballots may be mailed out to residences and users of the affected streets.

Note: Fliers/ballots that require a response shall be sent far enough in advance to reach the residences three (3) weeks prior to the response deadline.

The ballots shall include a summary of the undulation program, the voting requirements (one vote per residence), which street segments undulations are requested to be placed, and indicate a date for the ballots to be submitted for counting. Ballots may be mailed or hand delivered separately for each residence to the Yuba County Public Works Department for counting. Ballots must be received by the Public Works Department by the date specified in the ballot. Any ballots received after the deadline date will not be counted.

# PETITION REQUESTING INSTALLATION OF SPEED HUMPS

We, the undersigned residents hereby request the County of Yuba to install speed hump(s) on \_\_\_\_\_(street) between \_\_\_\_\_(street) and \_\_\_\_\_(street). We certify that we are legal residents of the property affected by the speed humps. We agree that speed humps and/or signs may be placed in front of our property at the discretion of the Department of Public Works. We agree that, if in the future we desire to remove the speed hump(s), the hump(s) will only be considered for removal after receipt of a petition from a two-thirds majority asking for the removal, along with sufficient funds for their removal if required.

Neighborhood Representative \_\_\_\_\_(name) Telephone \_\_\_\_\_(telephone)

DATE	SIGNATURE OF RESIDENT	ADDRESS (please print)	DAYTIME PHONE NUMBER	OK to install hump and/or sign in front of my residence?	Owner or Renter?
				<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Owner <input type="checkbox"/> Renter
				<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Owner <input type="checkbox"/> Renter
				<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Owner <input type="checkbox"/> Renter
				<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Owner <input type="checkbox"/> Renter
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