

# REPORT TO COUNCIL

## City of Sacramento

17

915 I Street, Sacramento, CA 95814-2604  
www.CityofSacramento.org

STAFF  
February 12, 2008

Honorable Mayor and  
Members of the City Council

**Title:** Transportation Programming Guide

**Location/Council District:** Citywide

**Recommendation:** Adopt a **Resolution** approving the 2008 Transportation Programming Guide (TPG) Project List Development and Scoring Criteria and Speed Hump Program Guidelines.

**Contact:** Tim Mar, Supervising Engineer, (916) 808-7531

**Presenters:** Tim Mar

**Department:** Transportation

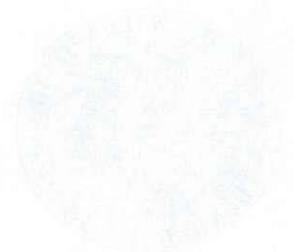
**Division:** Engineering Services

**Organization No:** 3434

### Description/ Analysis

**Issue:** The Transportation Programming Guide (TPG) is a comprehensive document that prioritizes the City's transportation projects to provide the City Council with information when making project funding decisions. Transportation projects are ranked according to criteria that are approved by City Council. Criteria are developed and updated to reflect the City's current policies and priorities. The proposed criteria modifications for the 2008 TPG are intended to reflect the City's strategic plan goals and policies.

The TPG process is divided into several tasks including: developing and revising project scoring criteria for each program area; scoring and ranking projects; and writing the final text of the document. Currently, staff is in the process of developing and revising the scoring criteria. Throughout the TPG process, staff consulted with the TPG Community Advisory Committee (CAC), a staff working group, and the community. The staff working group consists of representatives from Planning, Economic Development, Traffic Engineering, Street Maintenance, and the Sacramento Housing and Redevelopment Agency (SHRA). Ultimately, the City Council approves changes to the scoring criteria and approves the scored and ranked project list.



February 2017

1. Chairman's Report

2. Mayor's Report

3. Council Report

4. Report of the Mayor's Strategic Planning Committee

5. Report of the Mayor's Strategic Planning Committee

6. Report of the Mayor's Strategic Planning Committee

7. Report of the Mayor's Strategic Planning Committee

8. Report of the Mayor's Strategic Planning Committee

The Mayor's Strategic Planning Committee has been set up to provide a strategic framework for the Council's work. The Committee will be responsible for developing and reviewing the Council's Strategic Plan, which will set out the Council's vision, mission and values, and the key strategic objectives that it will pursue over the next five years. The Committee will also be responsible for monitoring and reporting on the Council's progress towards these objectives.

The Mayor's Strategic Planning Committee will be a standing committee of the Council, and will be chaired by the Mayor. The Committee will be made up of representatives from the Council's various departments, and will meet regularly to discuss and develop the Council's Strategic Plan. The Committee will also be responsible for reviewing the Council's progress towards its strategic objectives, and for reporting on this to the Council.

The Mayor's Strategic Planning Committee will be established in early 2017, and will begin its work immediately. The Committee will be responsible for developing and reviewing the Council's Strategic Plan, which will set out the Council's vision, mission and values, and the key strategic objectives that it will pursue over the next five years.

Staff is proposing criteria changes to different sections of the current TPG including Traffic Signals, Speed Humps, Major Street Improvements, Streetscape Enhancement, and Sidewalks to Schools. Also, staff recommends creating a new Pedestrian Improvements Section as recommended in the approved Pedestrian Master Plan.

On July 31, 2007, staff presented at a City Council workshop, proposed changes to the project eligibility and scoring criteria. City Council directed staff to report back with clarification on the proposed change to the Economic Development criteria. Upon subsequent discussions with Economic Development staff, it is recommended that no changes occur to the Economic Development criteria.

### **Existing TPG Sections**

The TPG is divided into eleven sections as follows:

- Major Street Improvements
- Street Maintenance
- Street Reconstruction
- Traffic Signals
- Alternate Modes
- Bridge Replacement and Rehabilitation
- Streetscape Enhancement
- Sidewalks to Schools
- Speed Humps
- Train Horn Quiet Zone
- Development Driven (projects listed, but not scored and ranked)

### **Proposed Changes**

The TPG staff working group, working with the TPG CAC, is proposing changes to the following sections:

- Major Street Improvements – Minor changes to the Alternate Modes Criteria.
- Traffic Signal – Changes to the project development process and to the scoring criteria.
- Alternate Modes – Change the name of the section to Bicycle Section.
- Streetscape Enhancement - Minor changes to the Alternate Modes Criteria.
- Speed Hump – Changes to street eligibility to allow the use of speed tables, and to allow for converting speed humps to speed lumps at the request of the Fire Department.
- Sidewalks to Schools – Merge this section into the new Pedestrian Improvements Section.

**New Section**

Staff is recommending a new Pedestrian Improvements Section be added to the 2008 Transportation Programming Guide in accordance with recommendations in the Pedestrian Master Plan that was approved by City Council on July 25, 2006. The project eligibility and scoring criteria are included on pages 26-29 of this report.

A full summary of the proposed changes and new section are on Attachment 1, page 5.

**Next Steps:** Upon approval by City Council of the project eligibility and scoring and ranking criteria, staff will apply the criteria to the project lists. Draft scored and ranked lists will be posted on the City website for public review and comment on March 1, 2008. The scored and ranked list will be presented to City Council for approval on April 1, 2008. The 2008 TPG will be published and distributed and available for download from the City's website in April, 2008.

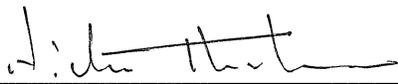
**Policy Considerations:** The proposed criteria changes and new section are consistent with the City's Strategic Plan goals of improving public safety and enhancing livability. The proposed new Pedestrian Improvements Section of the TPG is consistent with the recommendations in the City Council adopted Pedestrian Master Plan.

**Environmental Considerations:** The requested action is not subject to the provisions of the California Environmental Quality Act (CEQA) under the general rule (Section 15061 (b)(3)) that CEQA applies only to projects that have the potential for causing a significant effect on the environment.

**Rationale for recommendation:** Modifying the scoring criteria and creating a new section in the 2008 TPG will better reflect the City's adopted policies and better guide City Council in making transportation funding decisions.

**Financial Considerations:** There are no financial considerations associated with this report. The TPG is not a funding document, but is a tool used to assist in identifying and prioritizing the City's transportation needs.

**Emerging Small Business Development (ESBD):** None, since no goods or services are being purchased with this action.

Respectfully Submitted by:   
Nicholas Theocharides  
Engineering Services Manager

Approved by:   
Jerry Way  
Director of Transportation

Recommendation Approved:

  
RAY KERRIDGE  
City Manager

*for*

**Table of Contents:**

Report	Pg 1
<b>Attachments</b>	
1 Criteria changes	Pg 5
2 Resolution	Pg 50
Exhibit A: Major Street Improvements Section – Project Eligibility and Scoring Criteria	Pg 51
Exhibit B: Speed Hump Program Guidelines	Pg 85
3 Powerpoint Presentation	Pg 94

**Attachment 1**

**Summary of Proposed Changes**

Staff, working with the TPG CAC, is proposing changes to the following sections:

**Major Street Improvements –**

Minor changes to the Alternate Modes Criteria - Refer to page 9

**Street Reconstruction–**

Minor changes to the Alternate Modes Criteria - Refer to page 11

**Traffic Signals –**

Project List Development - Refer to page 14

Changes to Phase I – Investigation Review - Refer to pages 14 - 16

Changes to Phase II – Signal Warrant and Feasibility Review - Refer to pages 16 -19

Project Ranking Process

Changes to Collisions Criteria - Refer to pages 19 - 20

Changes to Pedestrian Criteria - Refer to pages 20 - 21

New Bicycle Master Plan Criteria - Refer to page 21

Changes to ADT Volumes Criteria - Refer to page 22

Changes to Peak Hour Volumes Criteria - Refer to page 22

Changes to Speed Criteria - Refer to page 23

Changes to Special Conditions Criteria - Refer to pages 23 - 24

**Alternate Modes –**

Change the name of the section to Bicycle Section - Refer to page 26

**Streetscape Enhancement –**

Minor changes to the Alternate Modes Criteria - Refer to page 30

**Sidewalks to Schools –**

Merge this section into the new Pedestrian Improvements Section -  
Refer to pages 32

**Speed Humps –**

Changes to Speed Hump Program Guidelines - Refer to pages 37 - 46

Changes to Eligible Residential Street Segments - Refer to page 47

Changes to Eligible Parks and Schools Street Segments - Refer to pages 47 - 48

Changes to Eligible Bypass Street Segments - Refer to page 48

**New Section**

Staff is proposing a new Pedestrian Improvements Section be added to the 2008 Transportation Programming Guide in accordance with recommendations in the Pedestrian Master Plan that was approved by City Council on July 25, 2006. - Refer to pages 32 - 35

## **MAJOR STREET IMPROVEMENTS SECTION**

**Major Street Improvements Section**

**Project Eligibility and Scoring Criteria**

**Proposed Changes shown as italic letters and strikeouts**

**PROJECT LIST DEVELOPMENT**

NO CHANGES

**PROJECT RANKING PROCESS**

Eligible projects are scored and ranked using nine criteria: Congestion, Public Safety, Economic Development, Infill Development, Cost (to the City), Deliverability/Readiness, Volume, Gap Closure, and Alternative Modes. If the roadway segment or intersection has not yet been built, then the criteria are applied to the facility that will receive the most benefit from the project. The maximum possible score is 100 points, which are assigned for the nine criteria as described below.

**1. Public Safety .....(Max. Points: 20)**

The accident rate of the project is compared to the highest accident rate of all the Major Street projects being evaluated. The accident rate used is the average rate for the three latest years for which accident data is available. Points are assigned as follows:

$$\frac{\text{3 Year Average Accident Rate}^1 \text{ of Project}}{\text{Highest Accident Rate of Projects Considered}} \times 20 = \underline{\hspace{2cm}}$$

**2. Economic Development .....(Max. Points: 10)**

- Is the project within the Economic Development Strategy?:
  - Does the project fall within one of the nineteen (19) Neighborhood Commercial Revitalization Areas?
  - Is the project located within one of the twenty-seven (27) Key Development Opportunity Areas or Sites?
  - Is the project located in either the Merged Downtown or SP/Richards Redevelopment Area?

If Yes on any of the above (5 points) \_\_\_\_\_

- Is the project located in a Business Improvement District (BID) or Property-Based Improvement District (PBID)?
  - \_\_\_\_\_ Yes (5 points)                      \_\_\_ No (0 points)

---

<sup>1</sup> The accident Rate is the annual number of accidents per 1 million vehicle miles. Accident Rate = Accidents x 10<sup>6</sup>/ (ADT x segment miles x 365)

**3. Congestion** ..... **(Max. Points: 20)**

Existing and future (Year 2025) congestion are determined for each project by calculating the volume to capacity ratio (V/C), which is the ratio of the average daily traffic (ADT) to the theoretical maximum ADT the facility can carry. The ratios are then compared to the highest V/C of all the Major Street projects being evaluated, as follows:

$$\frac{\text{Existing V/C of Project}}{\text{Highest Existing V/C of Projects Considered}} \times 12 = \underline{\hspace{2cm}}$$

$$\frac{\text{Year 2025 V/C of Project}}{\text{Highest Year 2025 V/C of Projects Considered}} \times 8 = \underline{\hspace{2cm}}$$

**4. Infill Development** ..... **(Max. Points: 15)**

Is the project in one of the Infill Areas as defined in the City of Sacramento Infill Strategy adopted on May 14, 2002. This document defines infill in four categories:

(Maximum Points 10)

- Target Residential Area \_\_\_\_\_ Yes (10 points) \_\_\_\_\_ No (0 points)
- Central City Area \_\_\_\_\_ Yes (10 points) \_\_\_\_\_ No (0 points)
- Neighborhood Commercial Revitalization Area \_\_\_\_\_ Yes (5 points) \_\_\_\_\_ No (0 points)
- Transit Station Area \_\_\_\_\_ Yes (10 points) \_\_\_\_\_ No (0 points)

Is the project in a City Redevelopment Area excluding the Merged Downtown or SP/Richards Area or in a Community Development Block Grant eligible area?  
 Yes (5 points) \_\_\_\_\_ No (0 points)

**5. Cost** ..... **(Max Points: 5)**

Points are assigned inversely proportionally to the cost of the project as follows:

$$\frac{\text{Lowest Cost Project}}{\text{Project Cost}} \times 5 = \underline{\hspace{2cm}}$$

**6. Deliverability/Readiness** ..... **(Max. Points 5)**

Projects are scored based on whether critical milestones have been completed, as detailed below:

Has the Environmental Determination been approved?  
\_\_\_\_\_ Yes (3 points) \_\_\_\_\_ No (0 points)

Has a Project Study Report or a Feasibility Study been approved or completed with a result that the project is feasible?  
\_\_\_\_\_ Yes (3 points) \_\_\_\_\_ No (0 points)

**7. Volume..... (Max. Points: 7)**

Existing volumes on the candidate roadways are evaluated, with the higher volume streets receiving more points:

$$\frac{\text{Existing ADT of Project}}{\text{Highest Existing ADT of Projects Considered}} \times 7 = \underline{\hspace{2cm}}$$

**8. Gap Closure . .....(Max Points: 8)**

Freeway Interchanges

1 point given for each freeway interchange ramp added by project

Roadway Extension

5 points given to projects that either close a gap or connect missing links in a route

3 points given to projects that will close a bicycle facility gap

3 points given to projects that will reduce vehicle travel through a residential neighborhood

**9. ~~Alternate Modes~~ Bicycle, Pedestrian, and Transit.....(Max Points: 10)**

4 points given for streets identified as a designated Class 2 or 3 bikeway (existing or proposed) in the City/County Bikeway Master Plan

4 points given if the project is on a bus route

*4 points given if the project adds sidewalk where there currently is none*

6 points given if the project improves access to a LRT station or to a commuter rail station ~~for pedestrians, bicyclists, vehicles or buses~~

## **STREET RECONSTRUCTION SECTION**

**Street Reconstruction Section**

**Project Eligibility and Scoring Criteria**

**Proposed changes shown as italic letters and strikeouts**

**PROJECT LIST DEVELOPMENT**

NO CHANGES

**PROJECT RANKING PROCESS**

Street reconstruction projects are scored and ranked using four criteria: Cost Effectiveness, Alternate Modes, Economic Development, and Infill Development. The maximum possible score is 100 points. Criteria used to prioritize reconstruction projects are as follows:

**1. Cost Effectiveness ..... (Max Points: 50)**

The cost-effectiveness of the project is calculated by multiplying the average daily traffic (ADT) count of the segment by the length of the segment and dividing by the project cost. The cost-effectiveness scores are then compared to the highest cost-effectiveness of all the Street Reconstruction projects being evaluated, as follows:

$$\frac{\text{ADT} \times \text{Length}}{\text{City Cost}^*} = \text{Cost Effectiveness}$$

$$\frac{\text{Cost Effectiveness of Project}}{\text{Highest Cost Effectiveness of Projects Considered}} \times 50 \text{ points} = \underline{\hspace{2cm}}$$

**2. ~~Alternate Modes~~ *Bicycle, Pedestrian, and Transit* ..... (Max Points: 20)**

10 points given for streets that have an existing or planned Class 2 or Class 3 bicycle facility

10 points given for streets on a RT bus route or Light Rail Route

**3. Economic Development..... (Max. Points: 15)**

- Is the project within the Economic Development Strategy?:
  - Does the project fall within one of the nineteen (19) Neighborhood Commercial Revitalization Areas?
  - Is the project located within one of the twenty-seven (27) Key Development Opportunity Areas or Sites?
  - Is the project located in either the Merged Downtown or SP/Richards Redevelopment Area?

If Yes on any of the above (5 points)

- Is the project located in a Business Improvement District (BID) or Property-Based Improvement District (PBID)?  
 Yes (5 points)                       No (0 points)

**4. Infill Development..... (Max Points: 15)**

- Is the project in one of the Infill Areas as defined in the City of Sacramento Infill Strategy adopted on May 14, 2002. This document defines infill in four categories:

(Maximum Points 10)

- Target Residential Area                       Yes (10 points)  
 No (0 points)
- Central City Area  Yes (10 points)   
 No (0 points)
- Neighborhood Commercial Revitalization Area  Yes (5 points)  
 No (0 points)
- Transit Station Area  Yes (10 points)  No (0 points)

- Is the project in a City Redevelopment Area excluding the Merged Downtown or SP/Richards Area or in a Community Development Block Grant eligible area?  
 Yes (5 points)                       No (0 points)

## **TRAFFIC SIGNALS SECTION**

## Traffic Signals Section

### Project Eligibility and Scoring Criteria

Proposed changes show in italic letters and strikeouts.

### **PROJECT LIST DEVELOPMENT**

*The City evaluates approximately 10-15 new intersections each year for traffic signals. Locations are solicited through traffic investigations, resident requests, development projects, and Councilmember requests, etc. The City also reviews the top ten high collision intersections on an annual basis for potential measures, including a traffic signal, which may mitigate for collisions.*

### Eligibility Criteria

The Traffic Signal Program involves three phases. Project eligibility is determined during Phases I and II, as presented below:

#### Phase I - Investigation Review

In Phase I, the following data is collected for locations which have been suggested as candidates for a traffic signal:

*Collisions: A recent three-year compilation of reported collision history differentiating collision types and correctability is developed.*

*Traffic Volumes: Twenty-four hour volume counts with an hourly listing of each approach direction are obtained for the combined minor street volumes, the combined major street approach volumes, and a total for the entire intersection.*

*Facilities/Activity Centers: Information about nearby facilities and activity centers that serve the young, elderly, and/or persons with disabilities, including requests from persons with disabilities for accessible crossing improvements is collected at the location under study. These persons might not be adequately reflected in the pedestrian volume if the absence of a signal restrains their mobility.*

*Pedestrian/Bicycle: Pedestrian and bicycle counts may be collected if a high number of pedestrians are anticipated to cross the intersection. Also, the width of the major street crossing is recorded.*

*Existing Controls: The current type of control (i.e., two-way stop, an all-way stop, etc.) is recorded.*

*Speed: The 85th percentile speed is collected for the major and minor streets.*

~~*Collisions: A listing of the most recent three calendar years of reported collision history is compiled. Collision types that are correctable with a signal are notated.*~~

~~*Traffic Volumes: Twenty-four hour volume counts with an hourly listing of each approach direction are obtained for the combined minor street volumes, the combined major street approach volumes, and a total for the entire intersection. Peak hour (am and pm) traffic volumes by manual count for the turning and through movements are typically obtained.*~~

~~*Pedestrian/Bicycle: As part of the peak hour vehicular movement counts, pedestrian and bicycle data are collected. If the pedestrian and bicycle peak hour differs from the vehicular peak hour, a separate manual count is conducted.*~~

~~*Existing Controls: The current type of control (i.e., two-way stop, an all-way stop, etc.) is recorded.*~~

~~*The above data is collected to screen eligible projects. In addition, information on topographic/geometric features, land use, and visibility is also collected and considered when making recommendations on eligible traffic signal locations.*~~

*The above data is collected and reviewed to determine whether measures exist, other than a traffic signal, which would mitigate for the concern. If measures are feasible, they are to be*

*implemented and the location monitored for up to three years. The location is placed on the City's Traffic Signal Monitoring List. After the monitoring period, an evaluation of the effectiveness of the measures is conducted. If measures are found to be effective, the location is removed from the Traffic Signal Monitoring List and is no longer considered for the Traffic Signal Program unless conditions change. If measures are not effective, the location is to be evaluated for signal warrants as outlined in Phase II below. The City Traffic Engineer has the discretion to move forward with Phase II prior to the three year period as conditions warrant.*

#### Phase II– Signal Warrant and Feasibility Review

~~In Phase II, the information from Phase I is used to determine which locations meet one or more of the following eleven Caltrans traffic signal warrants:~~

*If no feasible measures exists, or the City Traffic Engineer advances the project, the location is evaluated in Phase II. In Phase II, the information from Phase I and updated data is used to determine which locations meet one or more of the following eight Caltrans traffic signal warrants:*

Warrant-1  
~~Minimum~~  
~~Vehicle Volume~~  
*Eight-Hour Vehicular*  
*Volume*

~~This warrant is satisfied when the volume of intersecting traffic (from the minor street as compared to the total traffic) is the principal reason for consideration of a traffic signal. For most urban locations, a minimum of 600 vehicles per hour for the heaviest eight hours must approach the intersection from the major street, and for the same 8-hour period a minimum of 200 vehicles per hour must approach the intersection from the minor street.~~

*The Eight Hour Vehicular Volume signal warrant is intended for application where (A) a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal or (B) where the traffic volume on a major street is so heavy that the traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing a major street.*

Warrant-2  
~~Interruption of~~  
~~Continuous Traffic~~  
*Four-Hour Vehicular*  
*Volume*

~~This warrant is satisfied when the traffic volume on the major street impacts the minor street by creating a hazard for traffic entering the major street. For most urban locations, a minimum of 900 vehicles per hour for the heaviest eight hours must approach the intersection from the major street, and for the same eight-hour period a minimum of 100 vehicles per hour must approach the intersection from the minor street.~~

*The Four Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.*

Warrant-3  
~~Minimum~~  
~~Pedestrian~~  
~~Volume~~*Peak Hour*

~~This warrant is satisfied when there is a minimum of 100 pedestrians per hour for four hours or a minimum of 190 pedestrians in one hour crossing the major street at regular or mid-block locations. Acceptable gaps in traffic and the distance to nearby signals are factors that are also considered in determining whether or not a signal is appropriate.~~

*The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street..*

Warrant-4  
~~School~~  
~~Areas~~*Pedestrian*  
*Volume*

~~This warrant is satisfied when there is a minimum of 100 pedestrians per hour for two hours and a minimum of 500 vehicles per hour for the same two hours in the vicinity of a school. It may also be appropriate where it is necessary to extend or create adequate crossing gaps in the flow of traffic on roadways in suggested school route areas.~~

*The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.*

Warrant-5  
~~Progressive~~  
~~Movement~~*School*  
~~Crossing~~

~~This warrant is satisfied when the distance to the nearest signalized intersection is greater than 1,000 feet, and progressive movement control requires the installation of a traffic signal where one would not otherwise be warranted. The signal will provide proper vehicle platooning and speed control. Factors considered include whether or not the streets are one-way or two-way, the operation of adjacent signals, and travel speeds.~~

*The School Crossing signal warrant is intended for application where the fact that school children cross the major street is the principal reason to consider installing a traffic signal.*

Warrant-6  
~~Collision~~*Crash*  
~~Experience~~

~~This warrant is satisfied when five or more collisions in a year, correctable by traffic signal control, are reported, and other less restrictive remedies have failed to reduce the number of collisions; where the traffic volumes of warrants one and two are 80% fulfilled; and where such a signal would not seriously disrupt progressive traffic flow.~~

*The Crash Experience Signal warrant conditions are intended for application where the severity and frequency of crashers are the principal reasons to consider installing a traffic control signal.*

Warrant-7  
~~Systems~~  
~~Warrant~~  
~~Coordinated Signal~~  
~~System~~

~~A traffic signal installation may be warranted to encourage concentration and organization of traffic flow networks where there are two major routes meeting specific volume and functional characteristics. This warrant is satisfied when there is a minimum of 1000 vehicles during any one hour of the day and both streets meet a requirement of being a major route through the City. The Coordinated Signal System warrant is intended to provide traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles, thus providing progressive movement through the corridor~~

Warrant-8  
~~Combination of~~  
~~Warrants~~*Roadway*  
~~Network~~

~~This warrant is satisfied when warrants one and two are satisfied to the extent of 80% or more of the stated numerical values.~~

*The Roadway Network warrant conditions are intended to provide a traffic control signal to encourage concentration and organization of traffic flow on a roadway network.*

Warrant-9  
~~Four Hour Warrant~~

~~This warrant is satisfied for most urban areas when for four or more hours, the minor street approach volumes exceed 200 vehicles per hour and the major street approach volume exceeds 800 vehicles per hour during the same four hours.~~

Warrant-10  
~~Peak Hour~~  
~~Delay~~

~~This warrant is satisfied when the minor street approach volume is at least 150 vehicles and the total volume of intersection approaches are 800 vehicles per hour. The number of lanes and the type of geometric configuration (4-legged or "T" intersection) is also~~

~~considered in determining whether or not minor street traffic suffers delay during the peak hour.~~

~~Warrant 11  
Peak Hour  
Volume~~

~~This warrant is satisfied for most urban areas when the minor street approach volume exceeds 200 vehicles in an hour and the major street approach volume exceeds 1,250 vehicles for the same hour. It is somewhat similar to warrant nine (four hour volumes), and recognizes minor streets that suffer delay in entering or crossing major streets.~~

*If the location meets traffic signal warrants, the location is evaluated to determine the preliminary feasibility of a traffic signal at this location. Some examples of infeasibility include impacts to hollow sidewalks, requires major roadway widening, insufficient right of way, etc. A roundabout evaluation is conducted concurrently to determine whether a roundabout can be installed at the location in lieu of a traffic signal. If found to be infeasible, the location is no longer considered in the Traffic Signal Program.*

*It should be noted that the satisfaction of a traffic signal warrant does not in itself require the installation of a traffic signal. Candidate locations will be reevaluated for signal warrants every three years, or when conditions warrant, and may be removed from the Traffic Signal Program list if the location no longer meet warrants.*

**PROJECT RANKING PROCESS**

Phase III

*Once a location is determined to be feasible, the following criteria are applied to rank the eligible locations. The maximum possible score is 100 points.*

**1. Collisions ..... (Max Points: ~~No limit~~55)**

~~Points are assigned for each reported collision that occurred at the intersection during the previous three years that was susceptible to correction by signalization, as follows:~~

<u>Type of Collision</u>	<u>Points Per Occurrence</u>
<del>Fatal</del>	<del>48</del>
<del>Injury</del>	<del>24</del>
<del>Property Damage Only</del>	<del>12</del>

~~The total points for the previous three years are divided by three to determine a yearly average that is then assigned to the proposed signal location. The collision rate of the intersection is compared to the single highest collision rate of all the intersections being evaluated. The collision rate per million vehicle miles is calculated using the following equation:~~

$$\text{Collision Rate} = \frac{\text{Total weighted correctable collisions in a 3 year period} \times 1,000,000}{3 \times 365 \times \text{total volume of entering vehicles per day}}$$

*Collisions used to calculate the collision rate are those that occurred within 100 feet of the intersection which are susceptible to correction by signalization. Correctable collision types are violations for traffic signals and signs, vehicle, pedestrian and bicycle right of way violations, etc.*

*The collision rate also factors in the severity of the collision by using an Equivalent Property Damage Only (EPDO) weighting. It attaches greater importance, or weight, to collisions resulting in an injury or fatality, and less importance to property damage only collisions. The weighting of collision types are as follows:*

<u>Type of Collision</u>	<u>Equivalent Weight</u>
Fatal	9.5
Injury	3.5
Property Damage Only	1

*Collision points are assigned as follows:*

$$\frac{\text{3 Yr Average Correctable Collision Rate of Project}}{\text{Single Highest 3 Yr Average Correctable Collision Rate of Projects Considered}} \times 55 = \underline{\hspace{2cm}}$$

**2. Pedestrians/~~Bicycles~~ ..... (Max. Points: ~~1230~~)**

~~A maximum of ten pedestrian points are assigned for each of the following:~~

~~(A) Pedestrians (General) ..... (Max. Points: 10)~~

~~Points are assigned based on the number of pedestrians crossing the higher volume street during the four highest traffic hours, as presented below:~~

<u>Pedestrians</u>	<u>Points</u>	<u>Pedestrians</u>	<u>Points</u>
<del>≥ 100</del>	<del>10</del>	<del>40-49</del>	<del>4</del>
<del>90-99</del>	<del>9</del>	<del>30-39</del>	<del>3</del>
<del>80-89</del>	<del>8</del>	<del>20-29</del>	<del>2</del>
<del>70-79</del>	<del>7</del>	<del>10-19</del>	<del>1</del>
<del>60-69</del>	<del>6</del>	<del>0-9</del>	<del>0</del>
<del>50-59</del>	<del>5</del>		

~~(B) Pedestrians (Schools) ..... (Max. Points: 10)~~

~~If the school warrant (Caltrans School Warrant #4) is met, 10 points are assigned.~~

~~(C) Bicycles ..... (Max. Points: 10)~~

~~If the location is identified in the City/County Bikeway Master Plan, 10 points are~~

**assigned**

*(A) Pedestrian Crossing*

*(Points: 10)*

*Points are assigned based on the average daily traffic (ADT) volumes of the major street and the crossing distance of the major street, as presented below:*

**MAJOR STREET WIDTH (FEET)**

<i>MAJOR STREET ADT</i>	<i>&lt;40</i>	<i>41-50</i>	<i>51-60</i>	<i>61-70</i>	<i>71-80</i>	<i>&gt;81</i>
<i>&lt;4,000</i>	<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>4,001-7,000</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>7,001-14,000</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
<i>14,001-21,000</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
<i>21,001-27,000</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
<i>&gt;27,001</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>

*(B) Activity Centers*

*(Points: 2)*

*One point is assigned for each of the following activity centers which generate pedestrian traffic. The activity center must be located within 300 feet of the candidate traffic signal location. The maximum number of points is two points. Examples include:*

- Arenas*
- Commercial Centers*
- Community Centers*
- Employment Centers*
- High Density Residential*
- Hospitals*
- Libraries*
- Light Rail Lines*
- Parks*
- Schools*
- Senior Centers*
- Stadiums*

**3. Bicycle Master Plan..... (Max. Points: 5)**

*5 points are given if a street is identified in the City/County Bikeway Master Plan.*

**4. Average Daily Traffic (ADT) Volumes..... (Max. Points: 10)**

Points are assigned based on a comparison of the average daily traffic (ADT) volumes on the intersecting streets, as presented below:

**MINOR STREET ADT**

MAIN STREET ADT	<21,000	21,001-52,000	53,001-103,000	104,001 - 154,000	155,001-205,000	>205,000
<42,000	0	1	2	3	4	5
42,001-75,000	1	2	3	4	5	6
75,001-1410,000	2	3	4	5	6	7
1410,001-2115,000	3	4	5	6	7	8
2115,001-2720,000	4	5	6	7	8	9
>2720,000	5	6	7	8	9	10

**45. Peak Hour Traffic Volumes..... (Max. Points: 10)**

Points are assigned based on a comparison of side street traffic volume to main street traffic volume during the peak hour, as presented below:

**MINOR STREET PEAK HOUR VOLUME**

MAJOR STREET PEAK HOUR VOLUME	<100	101-200	201-300	301-400	>400
<400	0	0	1	2	3
400-600	0	1	2	3	4
601-800	1	2	3	4	5
801-1,000	2	3	4	5	6
1,001-1,200	3	4	5	6	7
1,201-1,400	4	5	6	7	8
1,401-1,600	5	6	7	8	9
>1,601	6	7	8	9	10

**56. Speed ..... (Max. Points: 5)**

Points are assigned in this category to account for the difficulty that motorists, *bicyclists, and pedestrians* may have judging gaps in traffic on high-speed streets. More points are assigned for the higher-speed streets, as presented below:

<u>85<sup>th</sup> Percentile</u> Posted Speed (mph)	<u>Points</u>
50+	5
40-49	4
35-39	3
30-34	2
25-29	1
<25	0

*Zero points are assigned if the intersection has an all way stop.*

**67. Special Conditions ..... (Max. Points: 35)**

~~Points are added based on special conditions related to the benefits or drawbacks of signaling an intersection as determined by the City Traffic Engineer. Although the sum of the three categories below may total more than five points for a candidate location, no more than five points are assigned.~~

~~(A) Activity Centers ..... (Max. Points: 3)~~

~~One point is assigned for each of the following activity centers that generate pedestrian or emergency vehicle traffic and are within 1,000 feet of the candidate traffic signal location:—~~

- ~~•School~~
- ~~•Park~~
- ~~•Library~~
- ~~•Employment~~
- ~~•Stadium~~
- ~~•Arena~~
- ~~•Senior Center~~
- ~~•Commercial Center~~
- ~~•Fire Station~~
- ~~•Rail Line~~
- ~~•Hospital~~
- ~~•High-Density Residential~~

~~(B) Rail Crossing ..... (Max. Points: 2)~~

~~Up to two points may be assigned if a rail crossing that would benefit from adjacent traffic signal pre-empt operation is within 1,000 feet.~~

~~(C) Other Safety Concerns ..... (Max. Points: 2)~~

~~Two points are assigned when restricted sight distance is a concern, or there is a favorable condition for signal coordination.~~

*Points are assigned based on special or unique conditions related to the benefits or drawbacks of signalizing a particular intersection. Some considerations include distance to a heavy rail crossing, proximity to fire stations, beneficial coordination with adjacent signals, restricted sight distance, etc. The number of points is determined by the City Traffic Engineer.*

## **ALTERNATE MODES SECTION**

**Alternate Modes Section**

**Proposed change to section name.**

~~**ALTERNATE MODES PROGRAM**~~ **BICYCLE SECTION**

**PROJECT LIST DEVELOPMENT**

NO CHANGES

**PROJECT RANKING PROCESS: FOR ON-STREET AND OFF-STREET BIKEWAYS**

NO CHANGES

**PROJECT RANKING PROCESS FOR BICYCLE AND PEDESTRIAN BRIDGES**

NO CHANGES

## **STREETSCAPE ENHANCEMENTS SECTION**

**Streetscape Enhancement Section**

**Project Eligibility and Scoring Criteria**

Proposed change shown as italic letters and strikeouts.

**PROJECT LIST DEVELOPMENT**

NO CHANGES

**PROJECT RANKING PROCESS**

**1. Project Readiness (scoring is not cumulative).....(Max. points: 20)**

Scoring based on current project phase at time all projects are scored and ranked. Points given for highest project phase, phases are not cumulative. Master Plans and Urban Design Plans are complete when they have been accepted by City Council.

<u>Project phase</u>	<u>Assigned points</u>
Construction documents complete	20
Construction documents in progress	17
Master Plan complete	14
Master Plan in progress	11
Urban Design Plan complete	8
Urban Design Plan in progress	5

**2. Traffic volume..... (Max. points: 10)**

Many of the older commercial corridors were designed to move traffic volumes, without consideration for aesthetics or pedestrian comfort. Streetscape enhancements will provide traffic calming benefits, improve the pedestrian experience, and bring more foot traffic to local businesses. Scoring is based on average daily traffic (ADT) measured for the length of the corridor. Streets with the highest traffic volumes receive the highest points.

<u>Average Daily Traffic (vehicles/day)</u>	<u>Assigned points</u>
40,000+	10
35,000+	9
<u>Average Daily Traffic (vehicles/day)</u>	<u>Assigned points</u>
30,000+	7
25,000+	6
20,000+	4
15,000+	3
10,000+	1

**3. Economic Development..... (Max. Points:15)**

- Is the project within the Economic Development Strategy?:
  - Does the project fall within one of the nineteen (19) Neighborhood Commercial Revitalization Areas?
  - Is the project located within one of the twenty-seven (27) Key Development Opportunity Areas or Sites?
  - Is the project located in either the Merged Downtown or SP/Richards Redevelopment Area?

If Yes on any of the above (5 points) \_\_\_\_\_

- Is the project located in a Business Improvement District (BID) or Property-Based Improvement District (PBID)?

\_\_\_\_\_Yes (5 points)                      \_\_\_No (0 points)

**4. Infill Development .....(Max Points: 15)**

Is the project in one of the Infill Areas as defined in the City of Sacramento Infill Strategy adopted on May 14, 2002?:

- Target Residential
- Central City Area
- Transit Station Area

If Yes on any of the above (10 points) \_\_\_\_\_

Note: Neighborhood Commercial Corridors Infill Areas are not included in this criterion since this section includes only projects that are on these corridors.

Is the project in a City Redevelopment Area excluding the Merged Downtown or SP/Richards Area or in a Community Development Block Grant eligible area?

Yes (5 points)                      \_\_\_\_\_No (0 points)

**5. Current Appearance ..... (Max Points: 10)**

Priority is given to streets that have existing medians or planter areas that need to be landscaped and irrigated over those that do not have existing medians or planter areas. More enhancements can be achieved with a lower investment on those streets that need only landscaping and irrigation. Scoring is based on the predominant condition observed for the length of the corridor.

Current condition Assigned points

Existing median or curbside planter – not landscaped		10
Existing median or curbside planter – landscaping in poor condition	7	
No existing median or curbside planter or concrete median		3

**6. Linkage to Activity Centers ..... (Max. Points: 15)**

Points are assigned for projects that are adjacent to, or provide access to, activity centers:

<u>Activity Center</u>	<u>Points</u>
Public Colleges/Universities	8 per facility
Schools/Parks/Libraries/Community Centers	4 per facility
Commercial Centers	4 per center
Employment Centers	4 per 100 employees
High Density Residential	4 per site

**7. ~~Alternate Modes~~ *Bicycle, Pedestrian, and Transit* ..... (Max Points: 15)**

*5 points given if there has been a collision involving a pedestrian during the previous three years along the street segment being evaluated*

~~6-5~~ points given for streets identified as a designated Class 2 or 3 bikeway (existing or proposed) in the City/County Bikeway Master Plan

~~6-5~~ points given if the project is on a bus route

~~9-5~~ points given if the project ~~improves access to a LRT station for pedestrians, bicyclists, vehicles or buses~~ *is within ½ mile of a LRT or other commuter rail station platform*

## **NEW PEDESTRIAN IMPROVEMENTS SECTION**

**New Pedestrian Improvements Section**

**Project Eligibility and Scoring Criteria**

**Proposed changes**

Merging Sidewalks to Schools Program Section with Pedestrian Improvements Section

Previous versions of the Transportation Programming Guide included a section called Sidewalks to Schools. This section recognized the ongoing need to provide better ways for children to walk to school. It has been one of the resources used by the city to seek grant funding in the Safe Routes to School Grant Funding program.

Because the new Pedestrian Improvements Section will identify sidewalk projects, there is some duplication of effort, and potentially room for confusion. The proposal for the Sidewalks to Schools Program Section, therefore, is to merge it into the Pedestrian Improvements Section. The projects in the previous TPG’s Sidewalks to Schools Section will all be evaluated and included in the New Pedestrian Improvements Section.

**PROJECT LIST DEVELOPMENT**

Candidate project locations for the Pedestrian Improvements Section are determined by reviewing the highest ranking locations identified in the adopted Pedestrian Master Plan and Safe Route to Schools by soliciting requests through public outreach. Project locations then undergo the following three-step evaluation process:

- Preliminary analysis - Analysis of the general project location identification using maps and aerial photographs.
- On-site investigation -Assessment and documentation of existing conditions. Areas that need new, replacement or upgraded infrastructure are identified, which is the starting point for a project definition
- Fatal flaw analysis - Once and initial project is identified, a number of basic feasibility questions are answered to determine if the project has a fatal flaw. Once past the fatal flaw analysis, the project is ready to be scored and ranked.

**PROJECT RANKING PROCESS**

The following criteria are being proposed to score and rank pedestrian improvement projects.

**1. Barrier Elimination .....(Max Points: 15)  
(combinable)**

- Project’s ability to remove obstacles for safe travel or to introduce a shorter travel distance.*
- 15 points – fills an unpaved gap between two existing sidewalks on a thru street
- 10 points – creates a new pedestrian way replacing an out of direction path greater than ¼ mile.

- 10 points – removes physical barriers (fixed objects with <36” clear path)
- 10 points – increases an existing sidewalk width to 4 foot minimum clear path.
- 10 points – fixes all non-compliant features (ramps, driveways, slopes)
- 5 points – fixes one or more non-compliant ramps or driveways, but not all.
- 5 points – introduces new street crossing improvements
- 5 points – introduces a new pedestrian way that connects a dead end street to other streets.

**2. Infrastructure Completeness .....(Max Points: 15)  
(combinable)**

*Project’s ability to improve existing conditions to bring into compliance with the assigned category of Basic, Upgrade or Premium.*

*All Projects:*

- 10 points – no sidewalk
- 5 points – existing sidewalk width less than 4 feet.
- 5 points – no street lights
- 5 points – no curb and gutter
- 5 points – unmarked crosswalk

*Additional points generally for Upgrade and Premium Projects:*

- 5 points – existing sidewalk width less than 6 feet.
- 7 points – no planting strip
- 3 points – no trees in planting strip
- 5 points – low level lighting (infrequent spacing)
- 5 points – no pedestrian island, bulb-out, or raised crosswalk
- 5 points – no traffic signal enhancements at signals (countdown, detection)

*Additional points for Premium Projects only:*

- 5 points – existing sidewalk width less than 8 feet.
- 3 points – no street furniture (benches, way-finding signage, trash containers)
- 2 points – no public art, places for public events and gatherings

**3. Pedestrian Involved Collisions .....(Max Points: 10)  
(combinable)**

*Reported collision between car and pedestrian that occurred during the previous three years.*

- 0 points – zero or one collisions
- 5 points – two collisions
- 2 points – per each additional collision

**4. Speed .....(Max Points: 10)**

*Posted speed limit at the project location. Intersection projects shall use the highest posted speed limit of the streets.*

- 10 points – streets with posted speed of 45 mph or higher
- 8 points – streets with posted speed of 40 mph
- 6 points – streets with posted speed of 35 mph
- 4 points – streets with posted speed of 30 mph
- 2 points – streets where vehicles are allowed
- 0 points – streets where no motorized vehicles are allowed.

**5. Volume .....(Max Points: 10)**



- 3 points – building, set back from sidewalk but connected with walkways
- 1 points – building, blank – no entry at public sidewalk
- 0 points – existing landscaping or open space

**10. Land Use .....(Max Points: 10)**

*Points are assigned to a project based on the predominant adjacent General Plan land use designations.*

- 10 points – high density residential, commercial, mixed use and office designations
- 5 points – medium and low density residential uses
- 1 points – industrial uses
- 0 points – passive open space and agricultural uses

**11. Activity Centers .....(Max Points: 10)  
(combinable)**

*Points are assigned to activity centers when a project is within a 600 foot radius to the parcel boundary of the activity center.*

- 10 points – Schools, Colleges and Universities with enrollment greater than 400 students
- 8 points – Schools, Colleges and Universities with enrollments less than 400 students
- 6 points – Libraries, Parks, Senior Citizen Facilities, Community Centers
- 4 points – Shopping areas, Employment centers
- 2 points – Extra points for K-8 Schools

Within the new Pedestrian Improvements Section of the TPG, there will be a column in the project table that will indicate which Safe Routes to School Grant the project is eligible for. Since projects in the Traffic Signal, Streetscape Enhancement and Bicycle Section priority lists are also eligible for Safe Routes to Schools grants, an eligibility column will also be added to these lists.

## **SPEED HUMPS**

## Speed Hump Program Guidelines

Proposed changes shown as italics blue and strikeouts.

Project eligibility shown as italics and strikeouts.

### 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, *a* change from undulations to speed humps, *a* program name change, *the addition of a* 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 humps,” *and speed tables*. Designs for ~~both~~ speed humps, ~~and~~ speed humps *and speed tables* 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~~1996. 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 Table – An elongated hump, incorporating a 10-foot flat surface in the middle and covering a total of 22 feet of street, with a height between 3 ¼ and 3 ¾ inches. Speed tables have been installed on streets in Sacramento as part of the Neighborhood Traffic Management Program (NTMP). Within the Transportation Programming Guide Speed Hump Program, they are used on minor collector roadways with park or school frontage and posted speeds of 35 mph. Speed tables have been approved by the Fire Department for use on emergency response routes and by Sacramento Regional Transit for use on bus routes on a case by case basis.*

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~~*pair* of adjacent speed humps placed on the street. Undulations were installed on Sacramento streets prior to 1996.

85<sup>th</sup> Percentile Speed – Otherwise known as the critical speed, is the speed at or below which 85% of the traffic is moving. The 85<sup>th</sup> 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 routes, and public notification. Between 1980 and 1995, the city installed undulations (2 humps) for traffic calming. Since 1996, 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 *and the Parks and Schools list* serves to reduce vehicular speeds on streets ~~which include~~*with residential frontage or* 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 *segment* 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 is comprised of contiguous segments with no stop controls and all side streets entering the segments are stopped. The total length of the contiguous segments must be at least 750' in length.*

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.

Posted speed limit must be 30 mph or less ~~or 35 mph when considering the placement of speed tables.~~

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.

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.

**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, *plus one point for each 25 feet of apartment frontage.*

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 one point for each 25 feet of school, park, playground, or apartment frontage.

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

**Bypass**

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 one point for each 25 feet of 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~~ Refer to ~~Figure 1~~ *Pages 10 - 12*). ~~Speed~~ *The 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~~ (*Refer to Page 10 of for* 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. *(Refer to Page 11 for ~~Page 10~~ is a drawing of the proposed speed lump cross section for a typical residential street of 33 feet or less in width).*

### **Construction Specifications (Speed Tables)**

*Upon installation of speed tables, the asphalt concrete speed tables will have a width of 22 feet, made up of a 6' long vertical curvature of 72 feet reaching a minimum height of three and one-quarter inches and a maximum height of three and three-quarters inches (3 ¼" to 3 ¾") on each end of a 10' long flat surface (refer to Page 12). There will be a two-foot (2') horizontal taper originating at the crest of the speed table 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. (Refer to Page 12 for the proposed speed hump cross section).*

### **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 any~~ horizontal curve(s) *with less than a 650' radius.*
- 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~~ *Where possible, at least* two speed humps will be placed on a residential or parks and schools street *or qualifying contiguous segments*, 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~~ *from* the back of curb *and shall allow a minimum of 48" of clear sidewalk width to allow for wheelchair access.* (~~refer~~ Refer to ~~Figure 3~~ *Pages 10 - 12*).

## 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 *and a second line with an advisory speed of 15 MPH.*; ~~above~~ *Above* which ~~this text~~ is a pictorial of a speed hump. ~~A second sign recommending a speed of 15 mph is placed directly below the warning sign~~ (~~refer~~ Refer to ~~Figure 2~~ *Pages 10 and 11*). *Signage for a speed table includes a 30-inch sign stating "SPEED TABLE" in four-inch (4") letters and a second line with an advisory speed of 20 MPH. Above this text is a pictorial of a speed table. (Refer to Page 12).*

Pavement markings for speed humps *and speed tables* shall include twelve-inch (12") wide *stripes, forming a longitudinal ladder markings at four feet (4') on center chevron, extending six feet (6') from the approach edge of the speed hump to the apex of the speed hump and centered in each travel lane, which are stenciled across each speed hump.* *Sixty feet (60') of centerline shall be striped across the hump, extending thirty feet (30") from the apex of the speed hump in both directions. Speed tables shall be striped with seventy feet (70') of centerline, extending thirty-five feet (35') from the apex of the*

*speed table in both directions.* Pavement markings for speed lumps shall include diamond striping on the center lump(s) and ~~arrow-chevron~~ 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. *(Refer to Pages 10 -12).*

### ~~Relocation of Speed Humps or Additional Speed Humps~~

~~Changing the location or a~~ Adding speed humps on a street that has existing speed humps may be considered when all of the criteria listed below are met:

1. For Residential and Parks and Schools Locations: Where existing speed humps are found to be ineffective in reducing speeds of vehicles based on speed survey conducted for 24-hour period. The ~~average-85<sup>th</sup> percentile 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.~~ *must be 5 mph or greater than the posted or prima facie speed on the street segment.*

For Bypass Locations: Where existing speed humps are found to be 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. *Existing speed humps must be at least five hundred feet (500') apart.*
3. *There is a petition with ten signatures requesting additional humps. One resident signature per household having driveway access onto the street in question is allowed; a resident may be either an owner or tenant.*
4. *If all criteria are met, the segment will be ranked on the speed hump list. The segment will be balloted prior to installation. 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.*

### *Relocation of Existing Speed Humps*

*Changing the location of existing speed humps on a street may be considered when all of the criteria listed below are met:*

- ~~2.1.~~ Existing speed humps were placed in a location conflicting with the adopted guidelines, and another location exists which does not conflict with the adopted guidelines.

32. 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.
3. 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: Existing speed humps are ineffective in reducing speeds of vehicles based on speed survey conducted for a 24-hour period. The 85<sup>th</sup> 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: Existing 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. Existing 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.
4. 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 *segment* 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'~~ *Transportation* 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 lumps 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'~~ *Transportation's* 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.

*At the request of the Fire Department, the Department of Transportation will consider including the conversion of existing speed humps to speed lumps in the annual Speed Hump Project installation. Residents will be notified prior to the conversion.*

## Public Notification

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

~~1. Ballots may be hand delivered by city staff,~~

~~2.1.~~ 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 balloted residents and ~~city~~ *City council* ~~Council~~ 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 January 2008*

## Speed Hump Section

### Project Eligibility and Criteria Changes

#### PROJECT LIST DEVELOPMENT

#### Eligibility Criteria

A street qualifies for the installation of Residential, Parks and Schools, or Bypass speed humps when the following minimum criteria are met.

##### Residential

- The segment is a minimum of 750 feet in length between traffic controls, four-way intersections, and/or curves with less than a 250-foot radius.
- *The street is comprised of contiguous segments with no stop controls and all side streets entering the segments are stopped. The total length of the contiguous segments must be at least 750' in length.*
- The speed limit is 30 mph or less.
- Street frontage is at least 75% residential.
- The street is not part of the Regional Transit bus network.<sup>1</sup>
- The street is not identified as an emergency response route by the Fire Department.<sup>1</sup>
- The 85th percentile speed must be a minimum of 5 mph over the speed limit.
- Two-thirds majority of residents that vote are in favor of the installation of speed humps.<sup>4</sup> A minimum 25% return rate is required.
- *On streets segments with curves, speed humps will only be placed in curves with a radius greater than 650'.*
- *Street segments requesting additional speed humps must meet the above criteria and the existing speed humps must be at least 500 feet apart.*

##### Parks and Schools

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

---

1 Speed humps will not be approved on Regional Transit bus routes and emergency response routes, although speed humps and/or speed tables may be approved on these streets by RT and the Fire Department.

2 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.

- The speed limit is 30 mph or less *or 35 mph when considering the placement of speed tables.*<sup>2</sup>
- Street frontage is adjacent to a school<sup>3</sup> or park.
- The street is not part of the Regional Transit bus network.<sup>1</sup>
- The street is not identified as an emergency response route by the Fire Department.<sup>1</sup>
- The 85th percentile speed must be a minimum of 5 mph over the speed limit.
- Two-thirds majority of residents that vote are in favor of the installation of speed humps.<sup>4</sup> –A minimum 25% return rate is required.
- *On streets segments with curves, speed humps will only be placed in curves with a radius greater than 650'.*
- *Street segments requesting additional speed humps must meet the above criteria and the existing speed humps must be at least 500 feet apart.*

### Bypass

- The segment is a minimum of 500 feet in length between traffic controls, four-way intersections, and/or curves with less than a 250-foot radius.
- The speed limit is 30 mph or less.
- Street frontage is at least 75% residential.
- The street is not part of the Regional Transit bus network.<sup>1</sup>
- The street is not identified as an emergency response route by the Fire Department.<sup>1</sup>
- Average daily traffic (ADT) is at least 500 vehicles.
- The street(s) serve to bypass<sup>5</sup> major streets with a four-way stop, a signalized intersection, or another street with speed humps.
- Two-thirds majority of residents that vote are in favor of the installation of speed humps.<sup>4</sup> A minimum 25% return rate is required.
- *On streets segments with curves, speed humps will only be placed in curves with a radius greater than 650'.*
- *Street segments requesting additional speed humps must meet the above criteria and the existing speed humps must be at least 500 feet apart.*

### Project Identification

~~In order for a street to be studied for speed humps, a petition signed by residents from ten households on the affected street segment must first be submitted. Petitions are available from the Traffic Engineering Section at 916-808-8300. A street segment~~

3 Preschool, day care school, elementary, middle or high school.

4 One vote per household is allowed; voter(s) must reside at the household (whether they be owner or tenants), as they are the primary users of the street being considered for speed humps. If the balloting of residents on the Parks and Schools streets does not demonstrate a two-thirds majority favoring the installation of speed humps, the City Council member representing the district in which the street is located may override the ballot results.

5 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 that 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.

~~qualifies for the installation of speed humps when the results of a traffic investigation demonstrate that the criteria, which are presented in this document, are met.~~

**PROJECT RANKING PROCESS**

NO CHANGES

**Attachment 2**

**RESOLUTION NO.**

**ADOPTED BY THE SACRAMENTO CITY COUNCIL**

**APPROVE THE YEAR 2008 TRANSPORTATION PROGRAMMING GUIDE (TPG) PROJECT LIST DEVELOPMENT AND SCORING CRITERIA AND THE ADDITION OF A NEW PEDESTRIAN IMPROVEMENTS SECTION**

**BACKGROUND**

- A. The Transportation Programming Guide process consists of several tasks including: developing project scoring criteria for each program area; scoring and ranking projects; and writing the final text of the document.
- B. On July 25, 2006, the City Council approved the Pedestrian Master Plan.
- C. The Speed Hump Program Guidelines were last amended and approved by the City Council on January 27, 2004.

**BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL RESOLVES AS FOLLOWS:**

- Section 1. The 2008 Transportation Programming Guide (TPG) Project List Development and Scoring Criteria, shown in Exhibit A, for the following program areas are approved: Major Street Improvements, Street Maintenance, Street Reconstruction, Traffic Signals, Bicycle, Bridge Replacement/Rehabilitation, Streetscape Enhancement, and Speed Humps, and Train Horn Quiet Zones.
- Section 2. A new section of the Transportation Programming Guide; the Pedestrian Improvements Section, shown in Exhibit A, is approved.
- Section 3. The Speed Hump Program Guidelines are approved as shown in Exhibit B.

**Table of Contents:**

Exhibit A: The 2008 Transportation Programming Guide project list development and project scoring criteria – 45 pages

Exhibit B: Speed Hump Program Guidelines – 10 pages

**EXHIBIT A****Major Street Improvements Section - Project Eligibility and Scoring Criteria****PROJECT LIST DEVELOPMENT****Eligibility Criteria**

Projects on Major Streets are considered if they support the previously identified goals, and one or more of the following conditions exist:

<u>Roadway Widening:</u>	If the existing volume on a street exceeds 80% of the street's capacity (i.e., the Level of Service is below C), lanes are of substandard width, or widening is needed to serve anticipated development.
<u>Extensions/Connections:</u>	If extending a major street or connecting two major streets will close a gap, improve traffic circulation, or relieve congestion on other streets that have a service level below C (i.e., LOS D, E, or F).
<u>Grade Separations:</u>	If the existing service level is below C, or there are problems with conflicts between vehicular traffic and/or rail traffic.
<u>Interchange Construction:</u>	If an interchange is needed to serve development or to relieve congestion at a nearby interchange with an existing service level below C.
<u>Interchange Modification:</u>	If the existing service level at the over-crossing, at the ramp intersections, or on the ramps is below C, or if a partial interchange exists and the modification will upgrade it to a full interchange.

**PROJECT RANKING PROCESS**

Eligible projects are scored and ranked using nine criteria: Congestion, Public Safety, Economic Development, Infill Development, Cost (to the City), Deliverability/Readiness, Volume, Gap Closure, and Alternative Modes. If the roadway segment or intersection has not yet been built, then the criteria are applied to the facility that will receive the most benefit from the project. The maximum possible score is 100 points, which are assigned for the nine criteria as described below.

**1. Public Safety. ....(Max. Points: 20)**

The accident rate of the project is compared to the highest accident rate of all the Major Street projects being evaluated. The accident rate used is the average rate for the three latest years for which accident data is available. Points are assigned as follows:

$$\frac{\text{3 Year Average Accident Rate}^2 \text{ of Project}}{\text{Highest Accident Rate of Projects Considered}} \times 20 = \underline{\hspace{2cm}}$$

**2. Economic Development.....(Max. Points: 10)**

- Is the project within the Economic Development Strategy?:
  - Does the project fall within one of the nineteen (19) Neighborhood Commercial Revitalization Areas?
  - Is the project located within one of the twenty-seven (27) Key Development Opportunity Areas or Sites?
  - Is the project located in either the Merged Downtown or SP/Richards Redevelopment Area?

If Yes on any of the above (5 points) \_\_\_\_\_
- Is the project located in a Business Improvement District (BID) or Property-Based Improvement District (PBID)?
 

\_\_\_\_\_ Yes (5 points)                      \_\_\_ No (0 points)

**3. Congestion ... ..... (Max. Points: 20)**

Existing and future (Year 2025) congestion are determined for each project by calculating the volume to capacity ratio (V/C), which is the ratio of the average daily traffic (ADT) to the theoretical maximum ADT the facility can carry. The ratios are then compared to the highest V/C of all the Major Street projects being evaluated, as follows:

$$\frac{\text{Existing V/C of Project}}{\text{Highest Existing V/C of Projects Considered}} \times 12 = \underline{\hspace{2cm}}$$

$$\frac{\text{Year 2025 V/C of Project}}{\text{Highest Year 2025 V/C of Projects Considered}} \times 8 = \underline{\hspace{2cm}}$$

**4. Infill Development.....(Max. Points: 15)**

Is the project in one of the Infill Areas as defined in the City of Sacramento Infill Strategy adopted on May 14, 2002. This document defines infill in four categories:

---

<sup>2</sup> The accident Rate is the annual number of accidents per 1 million vehicle miles. Accident Rate = Accidents x 10<sup>6</sup>/ (ADT x segment miles x 365)

(Maximum Points 10)

Target Residential Area \_\_\_\_\_ Yes (10 points) \_\_\_\_\_ No (0 points)

Central City Area \_\_\_\_\_ Yes (10 points) \_\_\_\_\_ No (0 points)

Neighborhood Commercial Revitalization Area \_\_\_\_\_ Yes (5 points)

\_\_\_\_\_ No (0 points)

Transit Station Area \_\_\_\_\_ Yes (10 points) \_\_\_\_\_ No (0 points)

Is the project in a City Redevelopment Area excluding the Merged Downtown or SP/Richards Area or in a Community Development Block Grant eligible area?

Yes (5 points) \_\_\_\_\_ No (0 points)

**5. Cost..... (Max. Points: 5)**

Points are assigned inversely proportionally to the cost of the project as follows:

$$\frac{\text{Lowest Cost Project}}{\text{Project Cost}} \times 5 = \underline{\hspace{2cm}}$$

**6. Deliverability/Readiness..... (Max. Points 5)**

Projects are scored based on whether critical milestones have been completed, as detailed below:

Has the Environmental Determination been approved?

\_\_\_\_\_ Yes (3 points) \_\_\_\_\_ No (0 points)

Has a Project Study Report or a Feasibility Study been approved or completed with a result that the project is feasible?

\_\_\_\_\_ Yes (3 points) \_\_\_\_\_ No (0 points)

**7. Volume..... (Max. Points: 7)**

Existing volumes on the candidate roadways are evaluated, with the higher volume streets receiving more points:

$$\frac{\text{Existing ADT of Project}}{\text{Highest Existing ADT of Projects Considered}} \times 7 = \underline{\hspace{2cm}}$$

**8. Gap Closure . ..... (Max. Points: 8)**

Freeway Interchanges

1 point given for each freeway interchange ramp added by project

Roadway Extension

5 points given to projects that either close a gap or connect missing links in a route

3 points given to projects that will close a bicycle facility gap

3 points given to projects that will reduce vehicle travel through a residential neighborhood

**9. Bicycle, Pedestrian, and Transit.....(Max. Points: 10)**

4 points given for streets identified as a designated Class 2 or 3 bikeway (existing or proposed) in the City/County Bikeway Master Plan

4 points given if the project is on a bus route

4 points given if the project adds sidewalk where there currently is none

6 points given if the project improves access to a LRT station or to a commuter rail station

**Street Maintenance Section - Project Eligibility and Scoring Criteria****PROJECT LIST DEVELOPMENT****Pavement Management Application Update**

The City performed an inventory of the entire road network, in segments of one hundred (100) foot increments, during the spring and summer of 1999 and again in 2002.

Thirteen different distress and roughness data were collected. Each distress was measured with three severity levels and five density levels. The roughness was collected using five levels.

Structural data was collected from record drawings, soil core samples and road condition observations. Traffic data were obtained from the city's Traffic Engineering Division. Other information included in the inventory was the age, location, and maintenance history of the roadway, council districts, curb shoulder and pavement types and street functional classifications.

**Performance Indicators**

All of this data was converted to three performance indicators that make up the street segment's overall condition number or Pavement Quality Index (PQI). These indicators are Ride Comfort Index (RCI), Surface Distress Index (SDI) and Structural Adequacy Index (SAI).

**PROJECT RANKING PROCESS**

The needs list is developed using the SuperPMA computer program. The analytical routines unique to the SuperPMA allow the City to better assess the whole street network objectively. They also allow the city to develop a rehabilitation program that maintains every street at the most cost-effective point.

Street Maintenance Services is continuing to develop a ten-year rehabilitation cycle that will include every street in the City of Sacramento. This cycle is important to provide a gauge to determine if funding is keeping up with or falling behind the goal of providing maintenance at the most cost-effective point.

**Street Reconstruction Section - Project Eligibility and Scoring Criteria**

**PROJECT LIST DEVELOPMENT**

**Eligibility Criteria**

Street segments with a PQI of 4 or below, and that have no other rehabilitation strategies available, may be deemed beyond rehabilitation and are considered for reconstruction.

**PROJECT RANKING PROCESS**

Street reconstruction projects are scored and ranked using four criteria: Cost Effectiveness, Alternate Modes, Economic Development, and Infill Development. The maximum possible score is 100 points. Criteria used to prioritize reconstruction projects are as follows:

**1. Cost Effectiveness ..... (Max. Points: 50)**

The cost-effectiveness of the project is calculated by multiplying the average daily traffic (ADT) count of the segment by the length of the segment and dividing by the project cost. The cost-effectiveness scores are then compared to the highest cost-effectiveness of all the Street Reconstruction projects being evaluated, as follows:

$$\frac{\text{ADT} \times \text{Length}}{\text{City Cost}^*} = \text{Cost Effectiveness}$$

$$\frac{\text{Cost Effectiveness of Project}}{\text{Highest Cost Effectiveness of Projects Considered}} \times 50 \text{ points} = \underline{\hspace{2cm}}$$

**2. Bicycle, Pedestrian, and Transit .....(Max. Points: 20)**

- 10 points given for streets that have an existing or planned Class 2 or Class 3 bicycle facility
- 10 points given for streets on a RT bus route or Light Rail Route

**3. Economic Development.....(Max. Points: 15)**

- Is the project within the Economic Development Strategy?:
  - Does the project fall within one of the nineteen (19) Neighborhood Commercial Revitalization Areas?
  - Is the project located within one of the twenty-seven (27) Key Development Opportunity Areas or Sites?
  - Is the project located in either the Merged Downtown or SP/Richards Redevelopment Area?

If Yes on any of the above (5 points) \_\_\_\_\_

- Is the project located in a Business Improvement District (BID) or Property-Based Improvement District (PBID)?
  - \_\_\_\_\_ Yes (5 points)                      \_\_\_ No (0 points)

**4. Infill Development..... (Max. Points: 15)**

- Is the project in one of the Infill Areas as defined in the City of Sacramento Infill Strategy adopted on May 14, 2002. This document defines infill in four categories:

(Maximum Points 10)

- Target Residential Area \_\_\_\_\_ Yes (10 points)  
     \_\_\_ No (0 points)
  - Central City Area \_\_\_\_\_ Yes (10 points) \_\_\_\_\_  
     No (0 points)
  - Neighborhood Commercial Revitalization Area \_\_\_\_\_ Yes (5 points)  
     \_\_\_\_\_ No (0 points)
  - Transit Station Area \_\_\_\_\_ Yes (10 points) \_\_\_\_\_ No (0 points)
- Is the project in a City Redevelopment Area excluding the Merged Downtown or SP/Richards Area or in a Community Development Block Grant eligible area?  
     \_\_\_\_\_ Yes (5 points)                      \_\_\_ No (0 points)

**Traffic Signals Section - Project Eligibility and Scoring Criteria**

**PROJECT LIST DEVELOPMENT**

The City evaluates approximately 10-15 new intersections each year for traffic signals. Locations are solicited through traffic investigations, resident requests, development projects, Councilmember requests, etc. The City also reviews the top ten high collision intersections on an annual basis for potential measures, including a traffic signal, which may mitigate for collisions.

**Eligibility Criteria**

The Traffic Signal Program involves three phases. Project eligibility is determined during Phases I and II, as presented below:

**Phase I - Investigation Review**

In Phase I, the following data is collected for locations which have been suggested as candidates for a traffic signal:

- Collisions: A recent three-year compilation of reported collision history differentiating collision types and correctability is developed.
- Traffic Volumes: Twenty-four hour volume counts with an hourly listing of each approach direction are obtained for the combined minor street volumes, the combined major street approach volumes, and a total for the entire intersection.
- Facilities/Activity Centers: Information about nearby facilities and activity centers that serve the young, elderly, and/or persons with disabilities, including requests from persons with disabilities for accessible crossing improvements is collected at the location under study. These persons might not be adequately reflected in the pedestrian volume if the absence of a signal restrains their mobility.
- Pedestrian/Bicycle: Pedestrian and bicycle counts may be collected if a high number of pedestrians are anticipated to cross the intersection. Also, the width of the major street crossing is recorded.
- Existing Controls: The current type of control (i.e., two-way stop, an all-way stop, etc.) is recorded.
- Speed: The 85th percentile speed is collected for the major and minor streets.

The above data is collected and reviewed to determine whether measures exist, other than a traffic signal, which would mitigate for the concern. If measures are feasible, they are to be implemented and the location monitored for up to three years. The location is placed on the City’s Traffic Signal Monitoring List. After the monitoring period, an evaluation of the effectiveness of the measures is conducted. If measures are found to be effective, the location is removed from the Traffic Signal Monitoring List and is no longer considered for the Traffic Signal Program unless conditions change. If measures are not effective, the location is to be evaluated for signal warrants as outlined in Phase II below. The City Traffic Engineer has the discretion to move forward with Phase II prior to the three year period as conditions warrant.

Phase II– Signal Warrant Review

If no feasible measure exists, or the City Traffic Engineer advances the project, the location is evaluated in Phase II. In Phase II, the information from Phase I and updated data is used to determine which locations meet one or more of the following eight Caltrans traffic signal warrants:

- Warrant-1  
Eight-Hour Vehicular Volume

The Eight Hour Vehicular Volume signal warrant is intended for application where (A) a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal or (B) where the traffic volume on a major street is so heavy that the traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing a major street.
- Warrant-2  
Four-Hour Vehicular Volume

The Four Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.
- Warrant-3  
Peak Hour

The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street.
- Warrant-4  
Pedestrian Volume

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.
- Warrant-5  
School Crossing

The School Crossing signal warrant is intended for application where the fact that school children cross the major street is the principal reason to consider installing a traffic signal.
- Warrant-6  
Crash Experience

The Crash Experience Signal warrant conditions are intended for application where the severity and frequency of crashers are the principal reasons to consider installing a traffic control signal.

Warrant-7  
Coordinated Signal System      The Coordinated Signal System warrant is intended to provide traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles, thus providing progressive movement through the corridor

Warrant-8  
Roadway Network      The Roadway Network warrant conditions are intended to provide a traffic control signal to encourage concentration and organization of traffic flow on a roadway network.

If the location meets traffic signal warrants, the location is evaluated to determine the preliminary feasibility of a traffic signal at this location. Some examples of infeasibility include impacts to hollow sidewalks, requires major roadway widening, insufficient right of way, etc. A roundabout evaluation is conducted concurrently to determine whether a roundabout can be installed at the location in lieu of a traffic signal. If found to be infeasible, the location is no longer considered in the Traffic Signal Program.

It should be noted that the satisfaction of a traffic signal warrant does not in itself require the installation of a traffic signal. Candidate locations will be reevaluated for signal warrants every three years, or when conditions warrant, and may be removed from the Traffic Signal Program list if the location no longer meet warrants.

**PROJECT RANKING PROCESS**

Phase III

Once a location is determined to be feasible, the following criteria are applied to rank the eligible locations. The maximum possible score is 100 points.

**1. Collisions ..... (Max. Points: 55)**

The collision rate of the intersection is compared to the single highest collision rate of all the intersections being evaluated. The collision rate per million vehicle miles is calculated using the following equation:

$$\text{Collision Rate} = \frac{\text{Total weighted correctable collisions in a 3 year period} \times 1,000,000}{3 \times 365 \times \text{total volume of entering vehicles per day}}$$

Collisions used to calculate the collision rate are those that occurred within 100 feet of the intersection which are susceptible to correction by signalization. Correctable collision types are violations for traffic signals and signs, vehicle, pedestrian and bicycle right of way violations, etc.

The collision rate also factors in the severity of the collision by using an Equivalent Property Damage Only (EPDO) weighting. It attaches greater importance, or weight, to collisions resulting in an injury or fatality, and less importance to property damage only collisions. The weighting of collision types are as follows:

<u>Type of Collision</u>	<u>Equivalent Weight</u>
Fatal	9.5
Injury	3.5
Property Damage Only	1

Collision points are assigned as follows:

$$\frac{\text{3 Yr Average Correctable Collision Rate of Project}}{\text{Single Highest 3 Yr Average Correctable Collision Rate of Projects Considered}} \times 55 = \underline{\hspace{2cm}}$$

**2. Pedestrians ..... (Max. Points: 12)**

*(A) Pedestrian Crossing (Points: 10)*

Points are assigned based on the average daily traffic (ADT) volumes of the major street and the crossing distance of the major street, as presented below:

**MAJOR STREET WIDTH (FEET)**

MAJOR STREET ADT	<40	41-50	51-60	61-70	71-80	>81
<4,000	0	1	2	3	4	5
4,001-7,000	1	2	3	4	5	6
7,001-14,000	2	3	4	5	6	7
14,001-21,000	3	4	5	6	7	8
21,001-27,000	4	5	6	7	8	9
>27,001	5	6	7	8	9	10

*(B) Activity Centers (Points: 2)*

One point is assigned for each of the following activity centers which generate pedestrian traffic. The activity center must be located within 300 feet of the candidate traffic signal location. The maximum number of points is two points. Examples include:

- Schools
- Parks
- Libraries
- Employment Centers
- Stadiums
- Arenas
- Senior Centers

- Commercial Centers
- Light Rail Lines
- Hospitals
- High Density Residential

**3. Bicycle Master Plan ..... (Max. Points: 5)**

5 points are given if a street is identified in the City/County Bikeway Master Plan.

**4. Average Daily Traffic (ADT) Volumes..... (Max. Points: 10)**

Points are assigned based on a comparison of the average daily traffic (ADT) volumes on the intersecting streets, as presented below:

**MINOR STREET ADT**

MAIN STREET ADT	<1,000	1,001-2,000	2,001-3,000	3,001 - 4,000	4,001-5,000	>5,000
<4,000	0	1	2	3	4	5
4,001-7,000	1	2	3	4	5	6
7,001-14,000	2	3	4	5	6	7
14,001-21,000	3	4	5	6	7	8
21,001-27,000	4	5	6	7	8	9
>27,000	5	6	7	8	9	10

**5. Peak Hour Traffic Volumes ..... (Max. Points: 10)**

Points are assigned based on a comparison of side street traffic volume to main street traffic volume during the peak hour, as presented below:

**MINOR STREET PEAK HOUR VOLUME**

MAJOR STREET PEAK HOUR VOLUME	<100	101-200	201-300	301-400	>400
<400	0	0	1	2	3
400-600	0	1	2	3	4
601-800	1	2	3	4	5
801-1,000	2	3	4	5	6

1,001-1,200	3	4	5	6	7
1,201-1,400	4	5	6	7	8
1,401-1,600	5	6	7	8	9
>1,601	6	7	8	9	10

**6. Speed ..... (Max. Points: 5)**

Points are assigned in this category to account for the difficulty that motorists, bicyclists, and pedestrians may have judging gaps in traffic on high-speed streets. More points are assigned for the higher-speed streets, as presented below:

<u>85<sup>th</sup> Percentile Posted Speed (mph)</u>	<u>Points</u>
50+	5
40-49	4
35-39	3
30-34	2
25-29	1
<25	0

Zero points are assigned if the intersection has an all way stop.

**7. Special Conditions ..... (Max. Points: 3)**

Points are assigned based on special or unique conditions related to the benefits or drawbacks of signaling a particular intersection. Some considerations include distance to a heavy rail crossing, proximity to fire stations, beneficial coordination with adjacent signals, restricted sight distance, etc. The number of points is determined by the City Traffic Engineer.

**Bicycle Section - Project Eligibility and Scoring Criteria**

**PROJECT LIST DEVELOPMENT**

The 2010 Bikeway Master Plan was used to develop an initial list of projects, which was then reviewed by the Transportation Programming Guide Community Advisory Committee and City staff. Projects were solicited from the Bicycle Advisory Committee, the Community Advisory Committee, and through the TPG public outreach.

**PROJECT RANKING PROCESS: FOR ON-STREET AND OFF-STREET**

The Bicycle Advisory Committee, with input by the Community Advisory Committee, developed the scoring and ranking criteria. There are eight scoring criteria categories for evaluating bikeway projects:

- Links to Activity Centers and Infill Areas (employment/residential/recreation)
- Barrier Elimination (reduction in cycling distance)
- Traffic Characteristics (volume/speed/lane width)
- Right-of-Way/Cost (ownership and land use)
- Linkage to Transportation System (i.e., bus, LRT, train etc.)
- Travel Continuity (stops per mile)
- Geographic Distribution (spacing between bikeways)
- Recreation Potential (proximity to parks/open space)

Eligible projects are scored and ranked using the eight criteria outlined below. The maximum score is 100 points.

**1. Linkage to Activity Centers and Infill Areas..... (Max. Points: 20)**

- Points are assigned for projects that are adjacent to, or provide access to, activity centers:

<u>Activity Center</u>	<u>Points</u>	
Public Colleges/Universities	20	per facility
Schools/Parks/Libraries/Community Centers	10	per facility
Commercial Centers	5	per center
Employment Centers	5	per 100 employees
High Density Residential	5	per site

- 5 points are assigned if the project is located in one of the following “infill” areas as defined by the City of Sacramento Infill Strategy adopted on May 14, 2002:
  - *Target Residential Areas*
  - *Central City Areas*
  - *Commercial Corridors*
  - *Transit Areas*

- Note: Commercial Centers** = Commercial sites containing a minimum of 40,000 square feet  
**Employment Centers** = Non-residential sites containing a minimum of 100 employees  
**High Density Residential** = A common project site containing 20 dwelling units per acre and a minimum of 100 dwelling units

**2. Barrier Elimination ..... (Max. Points: 15)**

Points are assigned based on the reduced distance the cyclists would travel with the project in place.

<u>Distance (miles)</u>	<u>Points</u>
Less than 0.25	0
0.25 - 0.5	2
.6 - 1.0	4
1.1 - 1.5	6
1.6 - 2.0	10
More than 2.0	15

**3. Traffic Characteristics ..... (Max. Points: 15)**

**Bike Trails** (Off-Street Bikeways)

Trails are separated from motorized traffic; therefore, they receive full 15 points.

**Bike Lanes/Routes** (On-Street Bikeways)

Points for Traffic Characteristics were given on the basis of whether the proposed project is a Class 2 or Class 3 facility using the point system below. Projects on major streets were classified as Class 2 facilities for scoring purposes only. The feasibility of each Class 2 facility has not been evaluated and will be determined in the scoping/funding process.

Points are assigned based on existing curb lane width, average daily traffic (ADT) volume, and posted speed limit.

**(A) Class 2**

1)	Volume:	<u>ADT</u>	<u>Points</u>
		>40,000	5
		30,001 – 40,000	4
		20,001 – 30,000	3
		10,001 – 20,000	2
		3,000 – 10,000	1
		<3,000	0 (Class 3 Recommended)
2)	Speed:	<u>Speed</u>	<u>Points</u>
		≥50	5
		45	4

40	3
35	2
30	1
<30	0

- 3) High existing usage: Five points are assigned if bicycle counts on the candidate bikeway segment indicate 25 or more bikes per hour.

**(B) Class 3**

1) Volume: ADT Points

>20,000	0
10,001-20,000	1
5,001-10,000	2
3,001-5,000	3
1,001-3,000	4
<1,000	5

2) Speed: Speed Points

>35	0
35	1
30	2
25	3
20	4
≤15	5

- 3) High existing usage: Five points are assigned if bicycle counts on the candidate bikeway segment indicate 25 or more bikes per hour.

**4. Right-of-Way/Cost..... (Max. Points: 15)**

<u>Land Ownership Factors</u>		<u>Land Modification Factors</u>	
City Owned	7	Unused/Vacant Land	8
Public (non-City)	4	Relocatable Use	4
Private	0	Non-Relocatable	0

**5. Linkage to Transportation System..... (Max. Points: 10)**

- (A) Links to other bikeways ..... Max. Points: 5

One point is assigned for each existing or planned bikeway to which the candidate bikeway will connect.

- (B) Links to other modes ..... Max. Points: 5

Five points are assigned for a connection with another transportation mode that accommodates bicycles by carrying them or providing secure parking. Other modes include light rail stations, buses with bike racks, AMTRAK station, Sacramento International Airport, and park and ride lots.

**6. Travel Continuity..... (Max. Points: 10)**

Points are assigned based on the number of stops per mile along the route.

<u>Stops Per Miles</u>	<u>Points</u>
0	10
1-4	7
5-9	5
>10	0

**7. Geographic Distribution..... (Max. Points: 5)**

Points are assigned based on the candidate bikeway's distance from the nearest parallel existing route at the closest point:

<u>Distance (miles)</u>	<u>Points</u>
0 - .5	1
.6 - 1.0	2
1.1 - 1.5	3
1.6 - 2.0	4
>2.0	5

**8. Recreational Potential ..... (Max. Points: 10)**

	<u>Points</u>	
	<u>Yes</u>	<u>No</u>
(A) Does the bikeway have scenic views?	2	0
(B) Does the bikeway have shaded portions?	2	0
(C) Does the bikeway have low slopes?	2	0
(D) Is the bikeway greater than two miles long?	2	0
(E) Is there existing street lighting?	2	0

**PROJECT RANKING PROCESS FOR BICYCLE AND PEDESTRIAN BRIDGES**

**B1. Population ..... (Max. Points: 20)**

Points are assigned based on population density within 2 miles:

One point for every multiple of 750 persons per square mile.  
 (population density of 750 = 1 point, density of 1500 = 2 points...density equal to or greater than 15,000 = 20 points)

One point for every multiple of 1000 jobs per square mile.  
 (job density of 1000 = 1 point, density of 2000 = 2 points...density of 5,000 or greater =5 points)

**B2. Link to Activity Centers and Infill Areas ..... (Max. Points: 20)**

- Activity Center Points
  - Public Colleges/Universities 20 per facility
  - Schools/Parks/Libraries/Community Centers 5 per facility
  - Commercial Center 5 per facility
  
- 5 points are assigned if the project is located in one of the following “infill” areas as defined by the City of Sacramento Infill Strategy adopted on May 14, 2002:
  - *Target Residential Areas*
  - *Central City Areas*
  - Commercial Corridors
  - Transit Areas

**Note: Commercial Centers** = Commercial sites containing a minimum of 40,000 square feet

**B3. Barrier Elimination..... (Max. Points: 40)**

Points are assigned based on the reduced distance the pedestrian or bicyclist cyclists would travel with the project in place.

<u>Distance (miles)</u>	<u>Points</u>
Less than 0.25	0
0.25 - 0.5	5
.5 - 1.0	10
1 - 2	20
2 - 3	30
Greater than 3	40

**B4. Type of Crossing..... (Max. Points: 5)**

Bridges that cross waterways, freeways and mainline railways receive 5 points.  
 Bridges that cross expressways with ADT’s >20,000 receive 3 points.  
 Bridges over streets with ADT’s less than 20,000 and greater than 10,000 receive 2 points.

**B5. Right-of-Way/Cost ..... (Max. Points: 5)**

<u>Land Ownership Factors</u>		<u>Land Modification Factors</u>	
City Owned	3	Unused/Vacant Land	2

Public (non-City)	2	Relocatable Use	1
Private	0	Non-Relocatable	0

**B6. Linkage to Transportation System ..... (Max. Points: 5)**

Does it have existing bikeways  
or walkways on both ends leading to it 5 points

or  
Will it require bikeway or walkway  
construction greater than 1000 feet at one end 3 points

or  
Will require bikeway or walkway  
construction greater than 2000 feet at both ends 1 point

**B7. Travel Continuity..... (Max. Points: 5)**

Points are assigned based on the number of interruptions per mile along the route.

<u>Design speed on bridges</u>	<u>Points</u>
>10 mph	5
5-10 mph	3
<5mph	0

**Bridges Section - Project Eligibility and Scoring Criteria****PROJECT LIST DEVELOPMENT****Eligibility Criteria**

The Sufficiency Rating assigned by Caltrans is a numeric value that indicates the sufficiency of a bridge to remain in service. Sufficiency Ratings range from zero to 100, with zero representing an entirely insufficient or deficient bridge, and 100 representing an entirely sufficient bridge. Structures that are assigned a Sufficiency Rating of 80 or less are considered eligible for replacement or rehabilitation.

**Project Identification**

Caltrans inspects and assigns Sufficiency Ratings to all structures in the City's inventory which carry vehicular traffic or cross a route carrying vehicular traffic and are a minimum of 20 feet in length. Sufficiency Ratings are established by using federal bridge inspection and appraisal guidelines, and represent a weighted analysis of a bridges structural adequacy and safety, serviceability and functional obsolescence, and essentialness for public use. In addition to the sufficiency rating, Caltrans assigns a status flag indicating whether a bridge is Structurally Deficient (SD) or Functionally Obsolete (FO) The SD/FO status of a bridge is determined through the results of the structural inspections and appraisals performed by Caltrans in accordance with item 9 of the Federal - Aid Policy Guide for Title 23, CFR 650.

Candidate bridge replacement and rehabilitation projects are identified by reviewing the Sufficiency Ratings and the SD/FO Status Flags assigned to the structures by Caltrans. City bridges that are not inspected by Caltrans are reviewed periodically and, if known deficiencies exist, are added to the candidate list. All of the bridges in the Year 2005 Transportation Programming Guide are inspected by Caltrans.

**PROJECT RANKING PROCESS**

Eligible projects are ranked in order of priority based on a deficiency rating system. The higher the total deficiency points assigned to a candidate project, the higher the project is ranked on the list. The ranking consists of assigning deficiency points to each of three major categories. The three categories and their weighting with respect to a maximum deficiency point total of 100 are listed below:

**1. Structural Deficiency ..... (Max. Points: 50)**

Points = 50 (If the Sufficiency Rating  $\leq 50$  and the structure is flagged as Structurally Deficient (SD) or Functionally Obsolete (FO).)

Points = 25 (If the Sufficiency Rating  $\leq 80$  and the structure is flagged as Structurally Deficient (SD) or Functionally Obsolete (FO).)

Bridges rated Structurally Deficient (SD) or Functionally Obsolete (FO) with a Sufficiency Rating (SR)  $\leq 50$  are eligible candidates for replacement under the State of California, Highway Bridge Replacement and Rehabilitation Program (HBRRP). Bridges rated Structurally Deficient (SD) or Functionally Obsolete (FO) with a Sufficiency Rating (SR)  $\leq 80$  are eligible for rehabilitation under this program.

**2. Service Deficiency ..... (Max. Points: 20)**

The service deficiency of a bridge is determined by comparing the type of facilities it provides to those which are desired. The three types of facilities considered are vehicular, bicycle, and pedestrian. The cumulative score in the service deficiency category has a range from 0 to 20, with 20 reflecting a high degree of deficiency.

*Vehicular Facilities*

*(Max. Points: 10)*

Points = 10 (If  $V/C > 0.8$  (below Level of Service C))

Points = 0 (If  $V/C \leq 0.8$  (Level of Service C or better))

Service deficiencies in the vehicular facilities of a structure are determined by evaluating the volume to capacity ratio (V/C) of the roadway segment between the two intersections nearest to the structure.

*Bicycle Facilities*

*(Max. Points: 10)*

Points = 10 (If Class II Bike routes<sup>3</sup> have a gap across or are detoured around the bridge)

A gap across the structure exists when bike lanes on either the structure and its approaches are absent for an existing Class II Bike route. A gap also exists if the travel lane closest to the curb is less than 15 feet for bridges that are not included in the 2010 Bikeway Master Plan (BMP).

*Pedestrian Facilities*

*(Max. Points: 10)*

Points = 10 (If there are sidewalk gaps across the bridge)

A gap across the structure exists if sidewalks are absent from the structure or its approaches in either direction of travel.

---

3 A Class II Bike route is an on-street route with striped bike lanes.

**3. Functional Deficiency ..... (Max. Points: 30)**

The functional deficiency of a bridge is determined by evaluating the adequacy of its facilities. The factors used to determine and rate functional deficiency are summarized below.

*Accident Rate* *(Max. Points: 10)*

The accident rate of the bridge is compared to the highest accident rate of all the bridges being evaluated. The accident rate used is the average rate for the three latest years for which accident data is available. Points are assigned as follows:

$$\frac{\text{3 Year Average Accident Rate}^4 \text{ of Project}}{\text{Highest Accident Rate of Projects Considered}} \times 10 = \underline{\hspace{2cm}}$$

*Deck Geometry* *(Max. Points: 10)*

The deck geometry adequacy is evaluated based on the geometric features of a structure with respect to minimum vehicle lane width, bike lane width, sidewalk width, and horizontal and vertical clearances<sup>5</sup>. Deficiency points are assigned to a structure that does not meet certain minimum criteria, as follows:

- 1 point per foot short for each vehicle lane width less than 11 feet
- 2 points per foot short for each bike lane less than 5 feet
- 2 points per foot short for each sidewalk width less than 4 feet
- 1 point per foot short of horizontal clearance less than 3 feet
- 1 point per inch short of overhead clearance less than 14 feet

Deficiency points are totaled for each structure and normalized, as follows:

Points = (point total of project/highest point total of all candidate projects) x 10

*Waterway Adequacy* *(Max. Points: 10)*

Points = 10 (If bridge has a score ≤ 3 for Caltrans Item 71)

Points = 0 (If bridge has a score > 3 for Caltrans Item 71)

The Waterway Adequacy (Caltrans Item 71) is based on the frequency of floodwater overtopping the structure and approaches, and the significance of the resulting traffic delays. The Waterway Adequacy appraisal rating is reported on a scale of 0 (bridge closed) to 9 (superior to present desirable criteria). The City's rating system assigns waterway adequacy points to only those structures with a code of 3 (requiring high priority of corrective action) or less.

---

4 The accident Rate is the annual number of accidents per 1 million vehicle miles. Accident Rate = Accidents x 10<sup>6</sup> / (ADT x segment miles x 365)

5 Horizontal clearance is measured from the edge of the travel lane to the nearest obstruction, such as an abutment, column, or bridge rail.

## Streetscape Enhancement Section - Project Eligibility and Scoring Criteria

### PROJECT LIST DEVELOPMENT

#### COMMERCIAL CORRIDOR PROGRAM

The eligible commercial corridors are those identified in the Economic Development Strategy Framework, approved by the City Council in April 2000. The following corridors, within the identified boundaries, are eligible for the Streetscape Enhancement Commercial Corridor program:

1. **12th Street (UPRR to I Street)**
2. **16th Street (Elvas to Broadway)**
3. **65th Street**
4. **Broadway West (Miller Park to Alhambra)**
5. **Broadway East (Alhambra to Stockton Boulevard)**
6. **Del Paso Boulevard (Acoma to Marysville Boulevard)**
7. **Florin Road (Franklin Boulevard to 24th Street)**
8. **Folsom Boulevard West (Alhambra to UPRR Overcrossing)**
9. **Folsom Boulevard East (UPRR Overcrossing to Watt Avenue)**
10. **Franklin Boulevard (Sutterville to Fruitridge)**
11. **Freeport Boulevard (2nd Avenue to City Limits, excluding William Land Park)**
12. **Fruitridge Road (65th Street to Power Inn Road)**
13. **Mack Road (Center Parkway to Highway 99)**
14. **Marysville Boulevard (Roanoake Avenue to Arcade Creek)**
15. **Midtown BDA (16th to 29th Street, J to L Streets)**
16. **Northgate Boulevard (Garden Highway to I-80)**
17. **R Street Corridor (3rd Street to 17th Street)**
18. **Richards Boulevard (12th Street to Jibboom)**
19. **Stockton Boulevard (X Street to Riza)**

#### Eligible Enhancements

The following improvements may be considered under the Commercial Corridors Program:

- In-fill street lighting to satisfy design guideline practices (lighting above the design guideline practices is to be paid for by property owners)
- New landscaped medians
- Landscaping existing medians
- New curbside planter strips
- Landscaping existing planter strips
- Irrigation for landscaping
- Sidewalks where missing or lacking adequate width
- Bicycle lane striping and signage where consistent with Bicycle Master Plan (on-street bicycle funding will be primary funding source)
- Stamped crosswalks or other types of crosswalk delineation
- Pedestrian bulbs
- Signage/banners
- Trash receptacles/enclosures

**OTHER CORRIDOR PROGRAM**

The corridors eligible for streetscape enhancement under the Other Corridors program include all the streets that are not identified in the Economic Development Strategy Framework. Landscaped medians and curbside planter strips are included on streets that have cross sections consistent with the City of Sacramento’s adopted Street Standards.

**Eligible Enhancements**

The following improvements may be considered under the Other Corridors Program:

- In-fill street lighting to satisfy design guideline practices (lighting above the design guideline practices is to be paid for by property owners)
- New landscaped medians
- Landscaping existing medians
- New curbside planter strips
- Landscaping existing curbside planter strips
- Irrigation for landscaping
- Sidewalks where missing or lacking adequate width
- Bicycle lane striping and signage where consistent with Bicycle Master Plan (on-street bicycle funding will be primary funding source)
- Stamped crosswalks or other types of crosswalk delineation
- Pedestrian bulbs
- Signage/banners
- Trash receptacles/enclosures

**PROJECT RANKING PROCESS**

**1. Project Readiness (scoring is not cumulative)..... (Max. Points: 20)**

Scoring based on current project phase at time all projects are scored and ranked. Points given for highest project phase, phases are not cumulative. Master Plans and Urban Design Plans are complete when they have been accepted by City Council.

<u>Project phase</u>	<u>Assigned points</u>
Construction documents complete	20
Construction documents in progress	17
Master Plan complete	14
Master Plan in progress	11
Urban Design Plan complete	8
Urban Design Plan in progress	5

**2. Traffic volume..... (Max. Points: 10)**

Many of the older commercial corridors were designed to move traffic volumes, without consideration for aesthetics or pedestrian comfort. Streetscape enhancements will provide traffic calming benefits, improve the pedestrian experience, and bring more foot traffic to local businesses. Scoring is based on average daily traffic (ADT) measured for the length of the corridor. Streets with the highest traffic volumes receive the highest points.

<u>Average Daily Traffic (vehicles/day)</u>	<u>Assigned points</u>
40,000+	10
35,000+	9
<u>Average Daily Traffic (vehicles/day)</u>	<u>Assigned points</u>
30,000+	7
25,000+	6
20,000+	4
15,000+	3
10,000+	1

**3. Economic Development ..... (Max. Points: 15)**

- Is the project within the Economic Development Strategy?:
  - Does the project fall within one of the nineteen (19) Neighborhood Commercial Revitalization Areas?
  - Is the project located within one of the twenty-seven (27) Key Development Opportunity Areas or Sites?
  - Is the project located in either the Merged Downtown or SP/Richards Redevelopment Area?
- If Yes on any of the above (5 points) \_\_\_\_\_ Is the project located in a Business Improvement District (BID) or Property-Based Improvement District (PBID)?  
 \_\_\_\_\_ Yes (5 points)                      \_\_\_ No (0 points)

**4. Infill Development ..... (Max. Points: 15)**

Is the project in one of the Infill Areas as defined in the City of Sacramento Infill Strategy adopted on May 14, 2002?:

- Target Residential
- Central City Area
- Transit Station Area

If Yes on any of the above (10 points) \_\_\_\_\_

Note: Neighborhood Commercial Corridors Infill Areas are not included in this criterion since this section includes only projects that are on these corridors.

Is the project in a City Redevelopment Area excluding the Merged Downtown or SP/Richards Area or in a Community Development Block Grant eligible area?

Yes (5 points) \_\_\_\_\_ No (0 points)

**5. Current Appearance ..... (Max. Points: 10)**

Priority is given to streets that have existing medians or planter areas that need to be landscaped and irrigated over those that do not have existing medians or planter areas. More enhancements can be achieved with a lower investment on those streets that need only landscaping and irrigation. Scoring is based on the predominant condition observed for the length of the corridor.

Current condition Assigned points

Existing median or curbside planter – not landscaped	10
Existing median or curbside planter – landscaping in poor condition	7
No existing median or curbside planter or concrete median	3

**6. Linkage to Activity Centers ..... (Max. Points: 15)**

Points are assigned for projects that are adjacent to, or provide access to, activity centers:

<u>Activity Center</u>	<u>Points</u>
Public Colleges/Universities	8 per facility
Schools/Parks/Libraries/Community Centers	4 per facility
Commercial Centers	4 per center
Employment Centers	4 per 100 employees
High Density Residential	4 per site

**7. Bicycle, Pedestrian, and Transit ..... (Max. Points: 15)**

5 points given if there has been a collision involving a pedestrian during the previous three years along the street segment being evaluated

5 points given for streets identified as a designated Class 2 or 3 bikeway (existing or proposed) in the City/County Bikeway Master Plan

5 points given if the project is on a bus route

5 points given if the project is within ½ mile of a LRT or other commuter rail station platform

**Pedestrian Improvements Section - Project Eligibility and Scoring Criteria**

**PROJECT LIST DEVELOPMENT**

Candidate project locations for the pedestrian improvement program are determined by looking at the highest ranking locations identified in the adopted Pedestrian Master Plan and by soliciting requests through public outreach. Project locations then undergo the following three-step evaluation process:

- Preliminary analysis - Analysis of the general project location identification using maps and aerial photographs.
- On-site investigation -Assessment and documentation of existing conditions. Areas that need new, replacement or upgraded infrastructure are identified, which is the starting point for a project definition
- Fatal flaw analysis - Once and initial project is identified, a number of basic feasibility questions are answered to determine if the project has a fatal flaw. Once past the fatal flaw analysis, the project is ready to be scored and ranked.

**PROJECT RANKING PROCESS**

The following criteria are being proposed to score and rank pedestrian improvement projects.

Overview:

Safety oriented criteria

<u>Points</u>	<u>Description</u>
15	Barrier Elimination
15	Infrastructure Completeness (new)
10	Car/Pedestrian Collisions
10	Speed
10	Volume

Project setting criteria

<u>Points</u>	<u>Description</u>
5	Transit Access
5	Economic Development
5	Infill Development
5	Adjoining Property (new)
10	Land Use (new)
<u>10</u>	Activity Centers

Total 100

**1. Barrier Elimination .....(Max. Points: 15)  
(combinable)**

*Project's ability to remove obstacles for safe travel or to introduce a shorter travel distance.*

- 15 points – fills an unpaved gap between two existing sidewalks on a thru street
- 10 points – creates a new pedestrian way replacing an out of direction path greater than ¼ mile.
- 10 points – removes physical barriers (fixed objects with <36” clear path)
- 10 points – increases an existing sidewalk width to 4 foot minimum clear path.
- 10 points – fixes all non-compliant features (ramps, driveways, slopes)
- 5 points – fixes one or more non-compliant ramps or driveways, but not all.
- 5 points – introduces new street crossing improvements
- 5 points – introduces a new pedestrian way that connects a dead end street to other streets.

**2. Infrastructure Completeness .....(Max. Points: 15)  
(combinable)**

*Project's ability to improve existing conditions to bring into compliance with the assigned category of Basic, Upgrade or Premium.*

*All Projects:*

- 10 points – no sidewalk
- 5 points – existing sidewalk width less than 4 feet.
- 5 points – no street lights
- 5 points – no curb and gutter
- 5 points – unmarked crosswalk

*Additional points generally for Upgrade and Premium Projects:*

- 5 points – existing sidewalk width less than 6 feet.
- 7 points – no planting strip
- 3 points – no trees in planting strip
- 5 points – low level lighting (infrequent spacing)
- 5 points – no pedestrian island, bulb-out, or raised crosswalk
- 5 points – no traffic signal enhancements at signals (countdown, detection)

*Additional points for Premium Projects only:*

- 5 points – existing sidewalk width less than 8 feet.
- 3 points – no street furniture (benches, way-finding signage, trash containers)
- 2 points – no public art, places for public events and gatherings

**3. Pedestrian Involved Collisions .....(Max. Points: 10)  
(combinable)**

*Reported collision between car and pedestrian that occurred during the previous three years.*

- 0 points – zero to one collision
- 5 points – two collisions
- 2 points – per each additional collision

**4. Speed .....(Max. Points: 10)**

*Posted speed limit at the project location. Intersection projects shall use the highest posted speed limit of the streets.*

- 10 points – streets with posted speed of 45 mph or higher
- 8 points – streets with posted speed of 40 mph
- 6 points – streets with posted speed of 35 mph
- 4 points – streets with posted speed of 30 mph
- 2 points – streets where vehicles are allowed
- 0 points – streets where no motorized vehicles are allowed.

**5. Volume .....(Max. Points: 10)**

*Average Daily Traffic (ADT) at the project location.*

- 10 points – ADT>20,000
- 8 points – ADT between 10,001 and 20,000
- 5 points – ADT between 4,001 and 10,000
- 0 points – ADT between 1 and 4,000

**6. Transit Access .....(Max. Points: 5)  
(combinable)**

*Project enables direct access to transit.*

- 5 points – Within ½ mile of a LRT or other commuter rail station platform
- 4 points – Connected to a designated Transit Bus Stop
- 3 points – Within 600 feet of a street with a Transit Bus Stop
- 0 points – No known transit at project location

**7. Economic Development .....(Max. Points: 5)  
(combinable)**

*Project falls within the Economic Development Strategy*

Does the project fall within one of the nineteen (19) Neighborhood Commercial Revitalization Areas?

Is the project located within one of the twenty-seven (27) Key Development Opportunity Areas or Sites?

Is the project located in either the Merged Downtown or SP/Richards Redevelopment Area?

If Yes on any of the above (3 points) \_\_\_\_\_

Is the project located in a Business Improvement District (BID) or Property-Based Improvement District (PBID)?

\_\_\_Yes (3 points)      \_\_\_\_\_No (0 points)

**8. Infill Development .....(Max. Points: 5)  
(combinable)**

*Project falls within the Infill Development Areas*

Is the project in one of the Infill Areas as defined in the City of Sacramento Infill Strategy adopted on May 14, 2002?

This document defines infill in four categories:

Target Residential Area \_\_\_\_\_Yes (3 points) \_\_\_\_\_No (0 points)

Central City Area \_\_\_\_\_Yes (3 points) \_\_\_\_\_No (0 points)

Neighborhood Commercial Revitalization Area \_\_\_\_\_Yes (3 points)  
\_\_\_\_\_No (0 points)

Transit Station Area \_\_\_\_\_Yes (3 points) \_\_\_\_\_No (0 points)

**9. Adjoining Property .....(Max. Points: 5)**

*Based on the orientation of the development at the back of sidewalk, or where the sidewalk would be in conditions where the sidewalk is not present.*

5 points – building with entrance at public sidewalk

3 points – building, set back from sidewalk but connected with walkways

1 points – building, blank – no entry at public sidewalk

0 points – existing landscaping or open space

**10. Land Use .....(Max. Points: 10)**

*Points are assigned to a project based on the predominant adjacent General Plan land use designations.*

10 points – high density residential, commercial, mixed use and office designations

5 points – medium and low density residential uses

1 points – industrial uses

0 points – passive open space and agricultural uses

**11. Activity Centers .....(Max. Points: 10)  
(combinable)**

*Points are assigned to activity centers when a project is within a 600 foot radius to the parcel boundary of the activity center.*

10 points – Schools, Colleges and Universities with enrollment greater than 400 students

8 points – Schools, Colleges and Universities with enrollments less than 400 students

6 points – Libraries, Parks, Senior Citizen Facilities, Community Centers

4 points – Shopping areas, Employment centers

2 points – Extra points for K-8 Schools

## Speed Hump Section Project Eligibility and Criteria Changes

### PROJECT LIST DEVELOPMENT

#### Eligibility Criteria

A street qualifies for the installation of Residential, Parks and Schools, or Bypass speed humps when the following minimum criteria are met.

#### Residential

- The segment is a minimum of 750 feet in length between traffic controls, four-way intersections, and/or curves with less than a 250-foot radius.
- The street is comprised of contiguous segments with no stop controls and all side streets entering the segments are stopped. The total length of the contiguous segments must be at least 750' in length.
- The speed limit is 30 mph or less.
- Street frontage is at least 75% residential.
- The street is not part of the Regional Transit bus network.<sup>1</sup>
- The street is not identified as an emergency response route by the Fire Department.<sup>1</sup>
- The 85th percentile speed must be a minimum of 5 mph over the speed limit.
- Two-thirds majority of residents that vote are in favor of the installation of speed humps.<sup>2</sup> A minimum 25% return rate is required.
- On streets segments with curves, speed humps will only be placed in curves with a radius greater than 650'.
- Street segments requesting additional speed humps must meet the above criteria and the existing speed humps must be at least 500 feet apart.

#### Parks and Schools

- The segment is a minimum of 500 feet in length between traffic controls, four-way intersections, and/or curves with less than a 250-foot radius.
- The speed limit is 30 mph or less or 35 mph when considering the placement of tables.
- Street frontage is adjacent to a school<sup>3</sup> or park.
- The street is not part of the Regional Transit bus network.<sup>1</sup>
- The street is not identified as an emergency response route by the Fire Department.<sup>1</sup>

---

1 Speed humps will not be approved on Regional Transit bus routes and emergency response routes, although speed humps and/or speed tables may be approved on these streets by RT and the Fire Department.

2 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.

- The 85th percentile speed must be a minimum of 5 mph over the speed limit.
- Two-thirds majority of residents that vote are in favor of the installation of speed humps.<sup>4</sup> A minimum 25% return rate is required.
- On streets segments with curves, speed humps will only be placed in curves with a radius greater than 650’.
- Street segments requesting additional speed humps must meet the above criteria and the existing speed humps must be at least 500 feet apart.

Bypass

- The segment is a minimum of 500 feet in length between traffic controls, four-way intersections, and/or curves with less than a 250-foot radius.
- The speed limit is 30 mph or less.
- Street frontage is at least 75% residential.
- The street is not part of the Regional Transit bus network.<sup>1</sup>
- The street is not identified as an emergency response route by the Fire Department.<sup>1</sup>
- Average daily traffic (ADT) is at least 500 vehicles.
- The street(s) serve to bypass<sup>6</sup> major streets with a four-way stop, a signalized intersection, or another street with speed humps.
- Two-thirds majority of residents that vote are in favor of the installation of speed humps.<sup>2</sup> A minimum 25% return rate is required.
- On streets segments with curves, speed humps will only be placed in curves with a radius greater than 650’.
- Street segments requesting additional speed humps must meet the above criteria and the existing speed humps must be at least 500 feet apart.

**PROJECT RANKING PROCESS**

NO CHANGES

Streets which meet the minimum criteria, as specified previously, are scored and ranked using the following criteria:

---

3       Preschool, day care school, elementary, middle or high school.

4       One vote per household is allowed; voter(s) must reside at the household (whether they be owner or tenants,), as they are the primary users of the street being considered for speed humps. If the balloting of residents on the Parks and Schools streets does not demonstrate a two-thirds majority favoring the installation of speed humps, the City Council member representing the district in which the street is located may override the ballot results.

5       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 that 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.

Residential

1. **Volume** **(Max. Points: No Limit)**  
 Points = Average Daily Traffic Volume / 50
2. **Frontage** **(Max. Points: No Limit)**  
 Points = (# of residential units fronting the street) + (apartment frontage / 25 feet)
3. **Speed** **(Max. Points: No Limit)**  
 Points = 5 points for every mile per hour that the 85th percentile speed of traffic exceeds the speed limit.

Parks and Schools

1. **Volume** **(Max. Points: No Limit)**  
 Points = Average Daily Traffic Volume / 50
2. **Frontage** **(Max. Points: No Limit)**  
 Points = (# of residential units fronting the street) + (lineal feet of apartment frontage / 25 feet) + (lineal feet of school frontage / 25 feet) + (lineal feet of park frontage / 25 feet) + (lineal feet of playground frontage / 25 feet)
3. **Speed** **(Max. Points: No Limit)**  
 Points = 5 points for every mile per hour that the 85th percentile speed of traffic exceeds the speed limit.

Bypass

1. **Volume** **(Max. Points: No Limit)**  
 Points = Average Daily Traffic Volume / 50
2. **Frontage** **(Max. Points: No Limit)**  
 Points = (# of residential units fronting the street) + (apartment frontage / 25 feet)
3. **Bypass Volume** **(Max. Points: No Limit)**  
 Points = Daily Bypass Volume / 10

**TPG Train Norn Quiet Zone Section - Project Eligibility and Criteria Changes**

**PROJECT LIST DEVELOPMENT**

NO CHANGES

## **Eligibility Criteria**

Crossings that are subject to the applicability of the Train Horn Rule are the only crossings that are considered for the Train Horn Quiet Zones. Railroad spurs are not included in the list of crossings. The Train Horn Rule does not apply to railroads exclusively operating freight trains on tracks which are not part of the general railroad system; passenger railroads that operate only on tracks which are not part of the general railroad system of transportation and which operate at a maximum speed of 15 mph; and rapid transit operations within an urban area that are not connected to the general railroad system of transportation.

## **PROJECT RANKING PROCESS**

NO CHANGES

Train Horn Quiet Zones are ranked using one criteria: **Person Sounding (PS)**.

The PS is an objective criterion to measure the relative impact on the affected population. The PS is calculated for each crossing by multiplying the Number of Trains by Persons. There is no maximum score.

**Number of Trains:** The daily number of trains that crosses over a specific crossing.

**Persons:** Number of people who lives within 1.5 miles from specific crossing.

**Exhibit B****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, a change from undulations to speed humps, a program name change, the addition of a minimum speed 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 split hump design called “speed lumps” and speed tables. Designs for speed humps, speed lumps and speed tables are included in these guidelines.

**Definitions**

**Speed Bump** – Single asphalt bump 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 1996. Not installed on emergency response or bus routes.

**Speed Lump** – 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 Table** – An elongated hump, incorporating a 10-foot flat surface in the middle and covering a total of 22 feet of street, with a height between 3 ¼ and 3 ¾ inches. Speed tables have been installed on streets in Sacramento as part of the Neighborhood Traffic Management Program (NTMP). With the 2008 Transportation Programming Guide, they are being added to the Speed Hump Program for use on minor collector roadways with park or school frontage and posted speeds of 35 mph. Speed tables have been approved by the Fire Department for use on emergency response routes and by Sacramento Regional Transit for use on bus routes on a case by case basis.

**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 pair of adjacent speed humps placed on the street. Undulations were installed on Sacramento streets prior to 1995.

**85<sup>th</sup> Percentile Speed** – Otherwise known as the critical speed, is the speed at or below which 85% of the traffic is moving. The 85<sup>th</sup> 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 routes, 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 and the Parks and Schools list serve to reduce vehicular speeds on streets with residential frontage or 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 segment 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.

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 is comprised of contiguous segments with no stop controls and all side streets entering the segments are stopped. The total length of the contiguous segments must be at least 750' in length.

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.

Posted speed limit must be 30 mph or less or 35 mph when considering the placement of speed tables.

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.

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. \*\*

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.

**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, plus one point for each 25 feet of apartment frontage.

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 one point for each 25 feet of school, park, playground, or apartment frontage.

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

**Bypass**

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 one point for each 25 feet of 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 Pages 10 - 12). The 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. (Refer to Page 10 for 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. (Refer to Page 11 for a drawing of the proposed speed lump cross section for a typical residential street of 33 feet or less in width).

### **Construction Specifications (Speed Tables)**

Upon installation of speed tables, the asphalt concrete speed tables will have a width of 22 feet, made up of a 6' long vertical curvature of 72 feet reaching a minimum height of three and one-quarter inches and a maximum height of three and three-quarters inches (3 ¼" to 3 ¾") on each end of a 10' long flat surface (Refer to Page 12). There will be a two-foot (2') horizontal taper originating at the crest of the speed table 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. (Refer to Page 12 for the proposed speed hump cross section).

### **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.
- No speed humps shall be located on any horizontal curve(s) with less than a 650' radius.
- 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.

- Where possible, at least two speed humps will be placed on a residential or parks and schools street or qualifying contiguous segments, 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 and shall allow a minimum of 48" of clear sidewalk width to allow for wheelchair access. (Refer to Pages 10 -12).

### **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 HUMP" in four-inch (4") letters and a second line with an advisory speed of 15 MPH. Above this text is a pictorial of a speed hump. (Refer to Pages 10 and 11). Signage for a speed table includes a 30-inch sign stating "SPEED TABLE" in four-inch (4") letters and a second line with an advisory speed of 20 MPH. Above this text is a pictorial of a speed table. (Refer to Page 12).

Pavement markings for speed humps and speed tables shall include twelve-inch (12") wide stripes, forming a chevron, extending six feet (6') from the approach edge of the speed hump to the apex of the speed hump and centered in each travel lane. Sixty feet (60') of centerline shall be striped across the hump, extending thirty feet (30") from the apex of the speed hump in both directions. Speed tables shall be striped with seventy feet (70') of centerline, extending thirty-five feet (35') from the apex of the speed table in both directions. Pavement markings for speed lumps shall include diamond striping on the center lump(s) and chevron 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. (Refer to Pages 10 -12).

### **Additional Speed Humps**

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: Where speed humps are ineffective in reducing speeds of vehicles based on speed survey conducted for 24-hour period. The 85<sup>th</sup> percentile speed must be 5 mph or greater than the posted or prima facie speed on the street segment.

For Bypass Locations: Where 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. Existing speed humps must be at least five hundred feet (500') apart.
3. There is a petition with ten signatures requesting additional humps. One resident signature per household having driveway access onto the street in question is allowed; a resident may be either an owner or tenant.
4. If all criteria are met, the segment will be ranked on the speed hump list. The segment will be balloted prior to installation. 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. \*\*

### **Relocation of Speed Humps**

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

1. Speed humps were placed in a location conflicting with the adopted guidelines, and another location exists which does not conflict with the adopted guidelines.
2. There is a petition with a two-thirds majority of the street's residents in favor of the speed hump 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.
3. 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 85<sup>th</sup> 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.
4. 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 segment 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 Transportation 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 Transportation's 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.

At the request of the Fire Department Public Information Officer, the Department of Transportation will consider including the conversion of existing speed humps to speed lumps in the annual Speed Hump Project installation. Residents will be notified prior to the conversion.

## **Public Notification**

Public notifications, which are used for balloting and to inform residents of proposed speed humps and to have them vote, may be distributed by the following method:

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 balloted residents and City Council 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 June 1 2007

# Transportation Programming Guide

**City of Sacramento**  
**Department of Transportation**

# Transportation Programming Guide

## Summary of Proposed Changes

- **Minor Change to “Alternate Modes” Scoring Criteria in Major Street Improvements and Streetscape Enhancements Sections**
- **Alternate Modes Section name change to Bicycle Section**
- **Changes to Speed Hump Section Guidelines**

# Transportation Programming Guide

## Summary of Proposed Changes (Continued)

- **New Pedestrian Improvements Section**
- **Changes to Traffic Signal Section project list development methodology**

# Transportation Programming Guide

## Changes to Speed Hump Guidelines

- **Adds street eligibility requirements**
- **Adds “speed tables” to Traffic Engineering Toolbox**
- **Establishes when speed humps may be added and relocated**
- **At the Fire Department’s request, allows conversion of speed humps to speed lumps**

# Transportation Programming Guide

## New Pedestrian Improvements Section

- **Consolidates and ranks feasible and highest priority projects from the current Sidewalks to Schools Section and Pedestrian Master Plan**
- **Places all pedestrian improvement projects on one list to reduce redundancy and confusion.**

# Transportation Programming Guide

## New Pedestrian Improvements Section

- **Replaces Sidewalks to Schools Section**
  - ✓ **Existing projects will be scored and ranked based on new criteria**
  - ✓ **New criteria is similar to previous Sidewalks to Schools criteria**
  - ✓ **School projects will be highlighted for the purposes of Safe Routes to Schools funding opportunities**

# Transportation Programming Guide

## New Pedestrian Improvements Section

### Criteria for scoring projects

#### Safety oriented criteria

<u>Points</u>	<u>Description</u>
15	Barrier Elimination
15	Infrastructure Completeness (new)
10	Vehicle/Pedestrian Collisions
10	Speed
10	Volume

# Transportation Programming Guide

## New Pedestrian Improvements Section

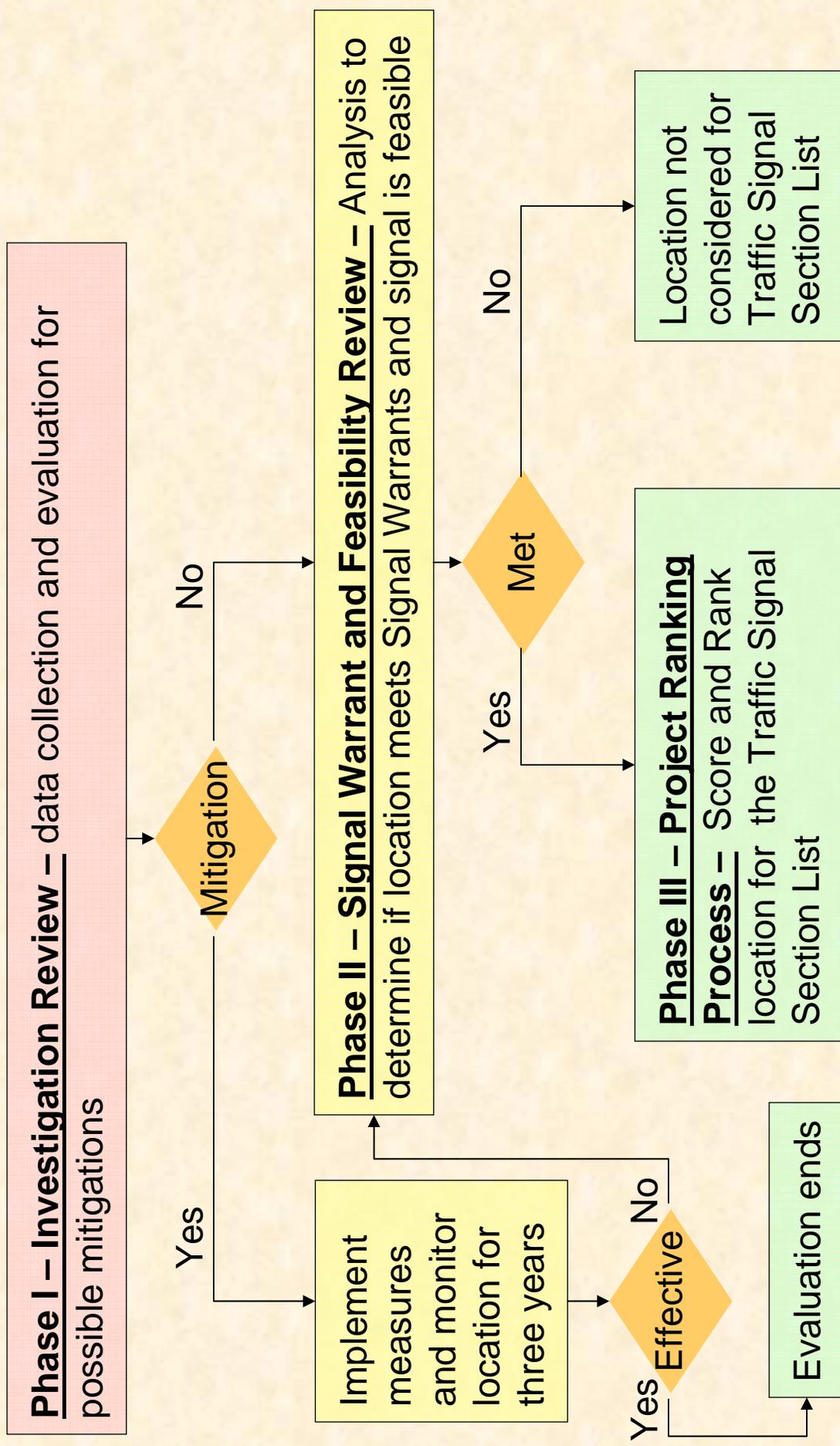
### Criteria for scoring projects

#### Project Setting Criteria

<u>Points</u>	<u>Description</u>
5	Transit Access
5	Economic Development
5	Infill Development
5	Adjoining Property (new)
10	Land Use (new)
10	Activity Centers

# Transportation Programming Guide

## Proposed Traffic Signal Section Process



# Transportation Programming Guide

## Next Steps

- **Staff applies approved criteria to project lists**
- **Scored and Ranked Project lists presented to City Council for approval on April 1, 2008**
- **2008 Transportation Programming Guide to be posted on web and published and distributed in April, 2008.**

