

APPENDICES

APPENDIX A:

Traffic Calming Project Ranking System

It may be desirable to establish a ranking system to prioritize projects or to evaluate their needs. Sufficient funding may not be available to complete all of the traffic calming projects in a town or in a region. Therefore, the ranking system will help establish the order in which projects may be completed. Figure 1 is an example of a “Project Ranking or Need Evaluation System”. Local municipalities and the Regional Planning Commissions may amend this system to address particular needs of the region.

Figure 1

PROJECT RANKING SYSTEM

Criteria	Points	Basis for Point Assignment
Speed	0 to 30	Extent by which 85 percentile speeds exceed posted speed limit; 2 points assigned for every 1 mph.
Volume	0 to 20	Average daily traffic volumes (1 point assigned for every 250 vehicles.
Crashes	0 to 20	1 point for every crash reported within past 3 years, 5 points for every injury.
Elementary or Middle Schools	0 to 10	5 points assigned for each school in the study area
Pedestrian or Bicycle Generators	0 to 10	5 points assigned for each facility (such as parks, community centers, high schools, shared paths or bike lanes) or commercial use that generates a significant number of pedestrians or bicycles.
Pedestrian Facility	0 to 10	5 points assigned if there is no continuous sidewalk on one side of the street; 10 points if missing on both sides.

There may be existing conditions, other than those included on the project ranking system, that warrant the need for traffic calming. Establishing the ranking for these traffic calming projects will require the use of engineering judgment.

Source: Pennsylvania’s Traffic Calming Handbook, adjusted for Vermont State Highways

APPENDIX B EVALUATION FOR TRAFFIC CALMING DEVICES

TRAFFIC CALMING DEVICE	ADVANTAGES	DISADVANTAGES
Speed Hump (TC-1) Speed Table (TC-2)	<ul style="list-style-type: none"> • Appropriate for low-traffic local, streets. • Relatively inexpensive to install and maintain. 	<ul style="list-style-type: none"> • Local, residential streets only. • May increase noise and pollution from vehicles accelerating and decelerating for hump. • Requires special plow settings or slower operations. • May be unpopular. These require strong local support to succeed. • Special design needed for cyclists, disabled and for storm drainage. • Should not be used on critical emergency response routes or bus routes. May affect emergency service response times.
Chicane (TC-3)	<ul style="list-style-type: none"> • May reduce traffic volumes • Traffic noise may be reduced due to lower speeds and volume. • Landscaped chicanes may improve street appearance. • May be effective in reducing the number of collisions.¹ 	<ul style="list-style-type: none"> • With two-lane chicanes, motorists may attempt to increase travel speeds by crossing the centerline to maintain a straight line of travel. • Will require loss of on-street parking spaces. • Useful only for low volume, neighborhood streets.
Neckdown (TC-4)	<ul style="list-style-type: none"> • Improves visibility of pedestrians. • Shortens the crossing distance for pedestrians. • May reduce vehicle-pedestrian conflicts. • Landscaping and special pavement may enhance village area. 	<ul style="list-style-type: none"> • May lose on-street parking spaces. • May make it difficult to accommodate full bicycle lanes. • May impact drainage. • Requires provisions for maintenance and snow removal.
Mini-Roundabout (TC-9B) Traffic Circle (TC-5M)	<ul style="list-style-type: none"> • See Roundabout comments below. • May act as gateways on neighborhood streets with low speeds and low volume. • May be enhanced with landscaping. 	<ul style="list-style-type: none"> • See Roundabout comments below. • For local, neighborhood streets only. • Not be used on critical emergency response routes.
Raised Intersection (TC-6)	<ul style="list-style-type: none"> • May reduce travel speed. • May slow right-turning vehicles. • Prevents illegal parking close to intersection. • May improve appearance with landscaping and/or textured treatments. 	<ul style="list-style-type: none"> • Expensive to construct and maintain. • May create a minor increase in delay for emergency vehicles. • For use in special situations with high levels of pedestrian activity. • Recommended only with very low percentage of long wheel-base vehicles.

¹ Insurance Corporation of British Columbia, summarizing 43 international studies concluded that chicanes were effective in reducing the number of collisions.

TRAFFIC CALMING DEVICE	ADVANTAGES	DISADVANTAGES
Curb Extension (TC-7)	<ul style="list-style-type: none"> • May reduce vehicle-pedestrian conflicts. • May visually enhance the street, especially if landscaped. • Vehicle speeds may decrease. • Shortens the crossing distance for pedestrians. • Improve visibility of pedestrians. 	<ul style="list-style-type: none"> • May make it difficult to accommodate full bicycle lanes. • May impact drainage. • Requires provisions for maintenance and snow removal.
Raised Median Island (TC-8)	<ul style="list-style-type: none"> • May help to form a visual “gateway” at the edge of community. • Separate opposing vehicle travel lanes and prevent passing movements. • Can be designed with breaks for pedestrian refuges to allow pedestrians to cross half of the street at a time. • May reduce vehicle-pedestrian conflicts. • May visually enhance the street through landscaping. 	<ul style="list-style-type: none"> • May require removal of on-street parking to create room for median. • May need to restrict access to driveways from one direction. • Requires provisions for maintenance and snow removal. • May make it difficult to accommodate full bicycle lanes. • May impact drainage.
Roundabout (TC-9A)	<ul style="list-style-type: none"> • Reduce more serious motor vehicle collisions, particularly right angle conflicts. • Reduces the number of potential conflict points at an intersection. • Enhances intersection appearance when properly landscaped. • Allows for easy u-turns and access control. • Deflection reduces vehicle speed on approach. 	<ul style="list-style-type: none"> • Adequate turning radii must be provided to insure access for emergency vehicles, buses and trucks to turn left. • May be inappropriate on major emergency response routes. • May require removal of some on-street parking at approaches. • Requires provisions for snow and ice removal. • May require additional ROW at intersection. • Requires attention for pedestrians and bicycles including pedestrian crossings since no signal is provided. • Requires attention to assist vision impaired pedestrians w/ detectable warnings and clearly defined edges.
Gateway Sign	<ul style="list-style-type: none"> • Identifies change in character to more densely settled area. • Helps to orient the driver. • May help to reduce travel speeds. 	<ul style="list-style-type: none"> • Amount of speed reduction uncertain. • Must comply with MUTCD if located within the State Highway right-of-way. Currently not allowed within the State Highway right-of-way under State law.
Pavement Marking	<ul style="list-style-type: none"> • Inexpensive 	<ul style="list-style-type: none"> • Effectiveness not yet measured. • Needs maintenance and not highly visible in winter months.

TRAFFIC CALMING DEVICE	ADVANTAGES	DISADVANTAGES
Delineation	<ul style="list-style-type: none"> • Inexpensive 	<ul style="list-style-type: none"> • Effectiveness not yet measured. • If paint, it may be expensive.
On-Street Parking	<ul style="list-style-type: none"> • May reduce travel speeds depending on extent of use. • Parked vehicles provide a buffer between traffic and pedestrians on sidewalks. This provides a comfort level for pedestrians that can be particularly important in commercial or village areas. 	<ul style="list-style-type: none"> • On-street parking can reduce the visibility of pedestrians and vehicles to each other. • Increased risk of suddenly opened doors hitting cyclists or vehicles where the adjacent travel lane is narrow. • May require parking ban during snow periods.
Speed Reader (Permanent)	<ul style="list-style-type: none"> • Raises awareness of speeding problem. • Encourages driver to slow to speed limit. 	<ul style="list-style-type: none"> • Only reduce speeds temporarily.

Source: Pennsylvania's Traffic Calming Handbook with changes and additions.

Source: Chicanes- Insurance Corporation of British Columbia summarized 43 international reports: chicanes may be effective in reducing the number of collisions.

APPENDIX C: TRAFFIC CALMING RESOURCES

Institute of Transportation Engineers, Traffic Calming State-of-the-Art, and Transportation:
www.ite.org/traffic/index.html

Association of Canada/Canadian ITE's Canadian Guide to Neighbourhood Traffic Calming:
www.tac-atc.ca

Bucknell University Students Traffic Calming Project.:
www.students.bucknell.edu/projects/trafficalming/index.html

Public Technology, Inc, Slow Down, You're Going To Fast, The Community Guide To Traffic Calming. http://pti.nw.dc.us/task_forces/transportation/docs/trafcalm/TRAFCAGL.HTM

Pennsylvania's Traffic Calming Handbook, Pennsylvania Department of Transportation, Bureau of Highway Safety and Traffic Engineering. Publication No. 383. PA Traffic Calming Handbook on the Web: <http://www.dot.state.pa.us>

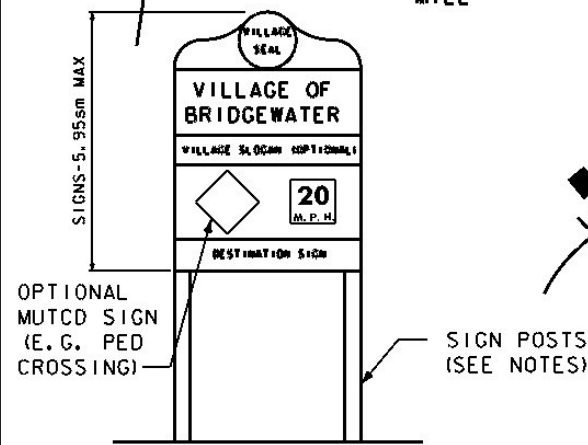
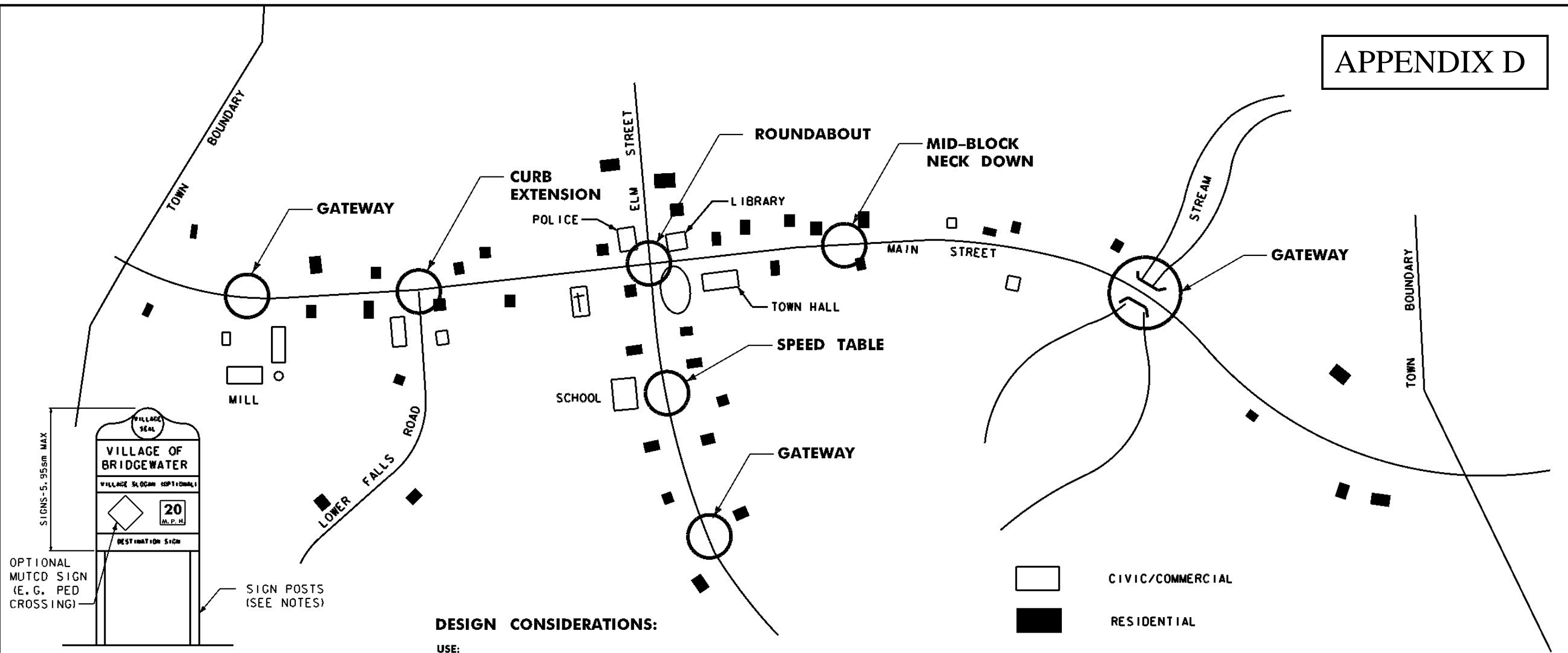
City of Portland, Oregon - Office of Transportation:
<http://www.trans.ci.portland.or.us/trafficalming/default.htm>

City of Houston, Texas - Department of Public Works and Engineering:
www.ci.houston.tx.us/departme/works/humps.htm

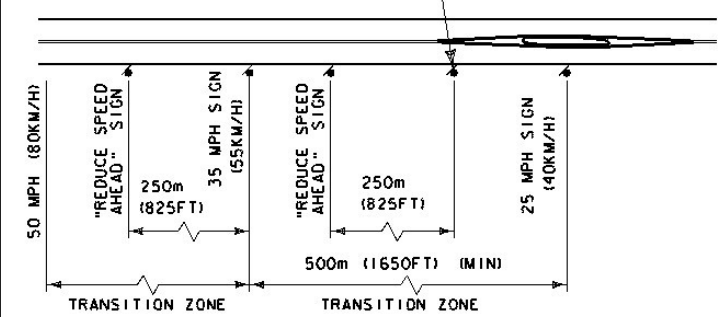
City of Berkeley, California - Department of Public Works:
www.ci.berkeley.ca.us/transportation/TrafficCalming/TrafficCalming.html

Collier County, Florida: www.co.collier.fl.us/transportation

City of Seattle, Washington <http://www.seattle.gov/transportation/trafficcircles.htm>



EXAMPLE GATEWAY VILLAGE SIGN



EXAMPLE GATEWAY (MEDIAN NOT REQUIRED)

DESIGN CONSIDERATIONS:

- USE:**
-ENTERING AND WITHIN VILLAGE OR TOWN CENTER
- GOAL:**
-WELCOMING, VISUAL ENHANCEMENT, AESTHETICS AND SPEED CONTROL
- DESIGN PHILOSOPHY:**
-TRAFFIC CALMING IS A COORDINATED SERIES OF DEVICES IMPLEMENTED TO CHANGE DRIVER BEHAVIOR AND IMPROVE SAFETY
-TRAFFIC CALMING WITHIN VILLAGE WILL BE DESIGNED TO ACHIEVE THE PROJECT GOAL:
- SPEED REDUCTION
 - PEDESTRIAN AND MOTORIST SAFETY
- GATEWAYS MAY OR MAY NOT BEGIN AT TOWN BOUNDARIES
-GATEWAYS SHOULD BE LOCATED 150m (500 FT) IN ADVANCE OF VILLAGE
-GATEWAYS MAY BEGIN AT AN EXISTING STRUCTURE, BRIDGE, HISTORIC BUILDING AS WELL AS A CREATED LOCATION.
-SEE STANDARDS FOR TRANSITION SPEED ZONES
-FORM FOR MATERIAL SELECTION AND OVERALL SITE DESIGN TAKE CUES FROM SURROUNDING ARCHITECTURE AS WELL AS THE HISTORICAL AND SOCIAL CONTEXT OF THE AREA

- CIVIC/COMMERCIAL
- RESIDENTIAL

- ELEMENTS:**
-POTENTIAL ELEMENTS INCLUDE:
- INFORMATION; VEHICULAR AND PEDESTRIAN
 - LIGHTING; VEHICULAR, PEDESTRIAN AND FEATURE/DECORATIVE
 - TRAFFIC CONTROL & PROTECTION; BOLLARDS, CURBS AND RAMPS, RAILINGS AND FENCING AND PLANTS
 - SPECIAL FEATURES; HISTORIC ELEMENTS, FOUNTAINS AND SCULPTURE
- OTHER:**
-POSTS FOR GATEWAY VILLAGE SIGN SHOULD BE BREAKAWAY IF SIGN IS WITHIN CLEAR ZONE OF ROAD. WOOD POSTS MAY BE USED IF SIGN IS OUTSIDE THE CLEAR ZONE OR IS PROTECTED BY GUARDRAIL WITHIN THE CLEAR ZONE.

NOTE:
SEE INDIVIDUAL TRAFFIC CALMING DEVICE SHEETS FOR DIMENSIONS AND SIGNAGE.

OTHER STDS.
REQUIRED: NONE
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.



Metric
DETAIL
TC-13M

VILLAGE CONCEPT WITH GATEWAYS