



CITY OF
BAINBRIDGE ISLAND

TRAFFIC OPERATIONS COMMITTEE
WEDNESDAY, SEPTEMBER 21, 2022
2:00 – 3:00 PM
ZOOM WEBINAR

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AGENDA

1. PRESENTATION AND DISCUSSION OF DRAFT SPEED HUMP POLICY – 20 TO 25 MINUTES

City of Bainbridge Island Speed Hump Selection and Installation Guidelines

The City of Bainbridge Island has established these guidelines to determine if speed humps are a suitable traffic calming measure at a proposed location based on existing facility type, traffic conditions, neighborhood support, and available construction programs. These guidelines draw from engineering research groups like the Institute of Transportation Engineers (ITE) and the National Association of City Transportation Officials (NACTO) as well as other municipalities' established guidelines to determine when and where speed humps should be used on the Island.

Research from National Guidelines

Speed humps are a commonly requested traffic calming measure in residential areas worldwide. They are raised traffic calming devices installed in the roadway and intended to slow traffic speeds on low volume, low speed roads. Speed humps typically are 3–4 inches high and 12–14 feet wide, with a ramp length of 3–6 feet, depending on target speed. Speed humps are appropriate for residential local streets and are not typically deployed on major roads, bus routes, or primary emergency response routes.

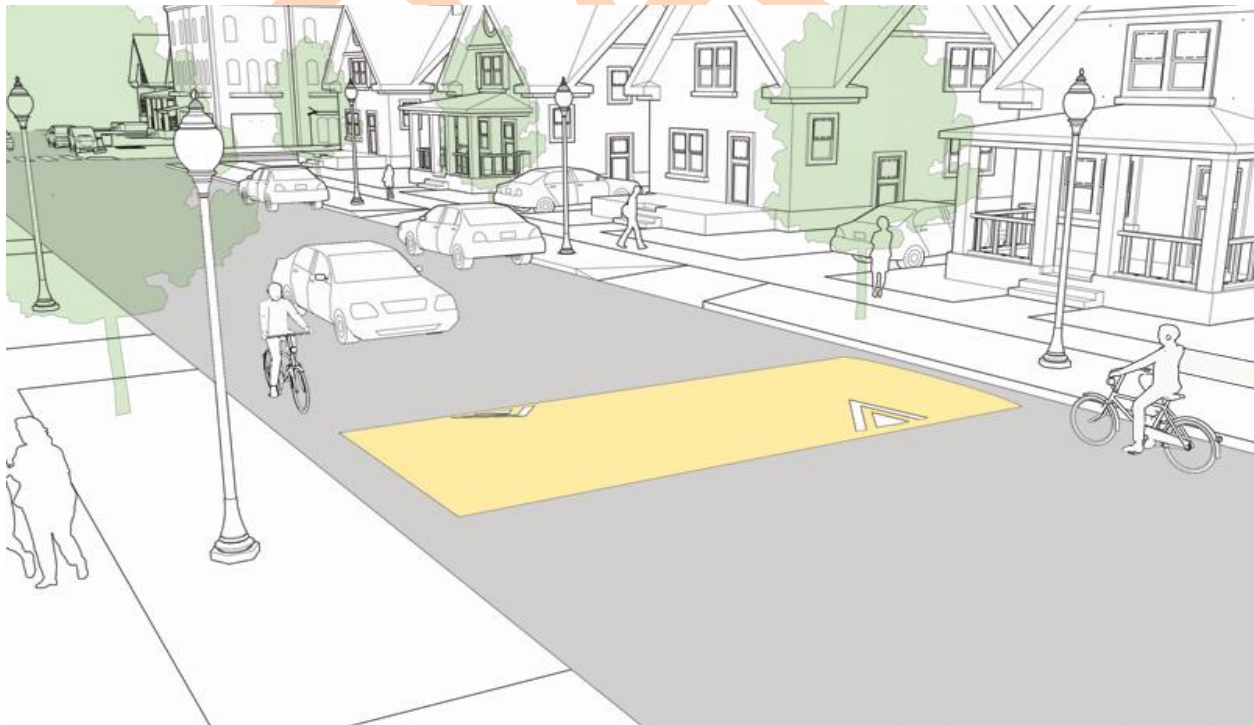


Image from NACTO.org.

Research from National Guidelines: CRITICAL CONSIDERATIONS

Speed humps are not appropriate for roads with 85th-percentile speeds of 45 mph or more.

They should be placed in midblock locations, not within intersections unless specifically designed for this purpose (see Raised Pedestrian Crossings, below.)

Speed humps shall not be placed in front of driveways or other significant access areas. Where frequent driveways make the application of a speed hump difficult, engineers may reduce the overall size of the speed hump, or work with local residents to find an alternate solution.

Vertical speed control elements shall be accompanied by a sign warning drivers of the upcoming device (MUTCD W17-1).

Research from National Guidelines: RECOMMENDED CONSIDERATIONS

Speed Humps are not recommended on grades greater than 8 percent.

Speed humps should be designed to the following criteria:

- Slopes should not exceed 1:10 or be less steep than 1:25.
- Side slopes on tapers should be no greater than 1:6.
- The vertical lip should be no more than a quarter-inch high.
- Locate vertical speed control elements where there is sufficient visibility and available lighting.
- Speed humps within a jurisdiction should be of uniform shape to allow drivers to negotiate them safely.

Spacing for multiple vertical speed controls should be determined based on the target speed of the roadway. Speed humps should be spaced no more than a maximum of 500 feet apart to achieve an 85th percentile speed of 25–35 mph. To achieve greater speed reductions, space speed humps close together.

Speed humps may be applied on 1-way or 2-way roads.

In general, bicyclists do not require extensive special provisions for traversing speed humps. Bicyclists may, however, be concerned that the vertical deflection of the speed hump will be uncomfortable and inconvenient, and that abrupt slopes could even throw a bicyclist from their bicycle. Additional elements that may be considered to accommodate bicyclists include:

- Using a tapered edge adjacent to the shoulder or curb to reduce the likelihood of pedal impact on hump. However if this gap is too wide, it may promote gutter running by motor vehicles.
- Using speed humps that are less than 4" high. However, these lower speed humps may have a reduced effectiveness on motor vehicle compliance.
- Providing additional warning signs and markings.

- Ensuring that speed humps are far enough from intersections so that bicyclists do not have to negotiate humps while turning.
- Ensuring that speed humps are not installed on streets with a vertical grade greater than 5 percent (NACTO, Parkhill).

City of Bainbridge Island Speed Hump Guidelines

A. Roadway Characteristics

The City of Bainbridge will consider installing speed humps on residential, local access roads when *all of the following conditions are met*:

- The street is not identified as a collector or arterial in the City Code or Island-Wide Transportation Plan. Speed humps may only be installed on residential, local access roads.
- The street is not a primary bus route or emergency vehicle route.
- The posted speed of the roadway is not above 25 mph.
- Streets must have an average annual daily traffic volume (AADT) of at least 150 vehicles per day.
- There must be ten driveways that would benefit from the desired traffic calming effect within 500 feet of the proposed speed hump location.
- The location is not in front of a public or private driveway, within an intersection, or blocking a marked or unmarked crosswalk except when designed and constructed as a Raised Pedestrian Crossing.
 - Raised Pedestrian Crossings: Speed humps can accommodate pedestrian crossings when constructed as speed tables or raised pedestrian crosswalks. The application of speed tables or raised crosswalks follows additional design requirements and must follow the City's pedestrian improvement plans.
- The grade of the roadway does not exceed 8%.
- The proposed location is not within a tight horizontal curve.
- Adequate visibility to the speed hump and warning signage are available.
- Speed humps shall be marked with current MUTCD speed hump warning signs and pavement markings.
- Adequate shoulder room exists for warning sign supports.
- The speed hump will not adversely impact the drainage characteristics of the roadway.
- The speed hump will not adversely impact accessibility of underground utilities or pavement-grade vaults.
- Speed humps should not be installed within 150 feet of a stop sign, yield sign, or uncontrolled intersection. Speed humps should not be installed within 250 feet of a signalized or flasher-controlled intersection. Raised Pedestrian Crossings may be exempt from these limitations.
- The installation and location of all speed humps must be approved by the City of Bainbridge Island Public Works Director and the Bainbridge Island Fire Department.

B. Traffic Operations

At least one of the following traffic conditions must be found in the immediate area of the proposed speed hump:

- The 85th percentile speed of traffic must be 5 mph or more above the posted or statutory speed limit.
- There has been one or more collision in the last three years of recorded crash data attributable to speeding.
- The sight distance from driveways and side streets near the proposed location are limited in a way that cannot be fixed with tree-trimming, property maintenance, or simple signing and marking.

C. Neighborhood Support

In order to make sure that this traffic calming measure is supported by the neighborhood residents that will use the facility on a daily basis, the City may survey the surrounding neighborhood residents or contact an applicable neighborhood association to determine if a majority of residents support the measure.

If the speed hump is requested by a Bainbridge Island resident, the City may ask the requestor to produce a signature document showing that an applicable neighborhood association or 67% of the neighborhood residents support the measure.

- The City will determine the residences that fall within the area of concern and communicate the list to the requestor. The requestor may contact any or all of them in order to obtain written signatures.
- If there is an entire neighborhood association boundary determined by the City to be within the applicable area to be surveyed, the neighborhood association must be contacted and approve the speed hump based on their established bylaws. This will count toward the total 67% majority needed in the survey area. If only a portion of the neighborhood association is determined by the city to be within the survey area, the residents within the survey area should be contacted individually.

The requestor must provide the residents with a written or electronic notice of these guidelines. Residents must be made aware that a speed hump may be installed in front of their residence, though not directly in front of their driveway. These locations may be necessary to achieve the appropriate design distance between humps. The signatures must be handwritten and include a date, physical address, and working email address or phone number.

D. Available Construction Programs

Speed humps, like other traffic calming measures, must be constructed with an available, current, and funded City program which can perform the work. The City will determine if such a program exists and is in place to accept new work.

The cost for speed hump installation or removal (including humps, signs, pavement markings, and special features) may also be shared between the City and the residents if adequate funding is not immediately available. After meeting with City staff, a neighborhood association or one or more residents may decide to pay a share of the design and construction costs if the City agrees. Residents may be able to expedite hump installation by voluntarily contributing to the installation cost, but this is not guaranteed.

E. Schedule

The final construction schedule of a speed hump may be dependent on:

- Funding to become available or budget measures to be passed,
- The season, as asphalt is typically only installed during summer months and cannot be installed in cold temperatures,
- Availability of Public Works and O+M staff to manage the construction,
- A contractor or City staff and equipment to construct the improvement.

Consideration of Traffic Control Devices for Special Needs Individuals

Traffic control devices targeting specific special needs and disabilities of individuals are not to be deployed in the public road landscape beyond the measures provided in the Americans with Disabilities Act (ADA) guidelines and the MUTCD. Some municipalities have installed signage for special needs individuals upon request, such as "Blind Person Area," "Deaf Person," or "Autistic Person;" however such signs are not recognized by Washington State or the Federal Highway Administration as official traffic control devices.

There is no documented evidence that the signs provide a benefit to the safety of individuals. There is no evidence that the signs result in measurable behavioral changes by drivers. Reports from the National Cooperative Highway Research Program have indicated that "Non-uniform signs...should not be permitted at any time... and the removal of any non-standard signs should carry a high priority." Unnecessary signs confuse drivers and foster a disrespect for all signs. The same can be said of other unsanctioned traffic control devices and practices.

In addition, nearly 80 percent of the crashes involving special needs individuals resulted from an illegal or unsafe act by the individual. In reality, no traffic control device could be expected to protect a individual with special needs. (Municipality of Anchorage)

Similar to signs, traffic control devices such as speed humps do not offer protection for special needs individuals. They are a measure used to calm traffic where speeding, collisions, or sight distance have been a documented issue on applicable roadways. Traffic calming measures are not to be used outside of their designed and researched applications. The presence of a special needs individual in a neighborhood should not be considered as justification to install speed humps where the conditions noted above in *City of Bainbridge Island Speed Hump Guidelines A. Roadway Characteristics, and B. Traffic Operations*, are not met.

Bainbridge Island Resident Speed Hump Request Procedure

The City may consider installing speed humps in locations that meet the City Guidelines based on internal staff recommendations or resident requests. If the speed hump is requested by a Bainbridge Island resident, the City may ask the resident to submit the request in writing to document the source of the request. The City may also establish an application fee for such requests to help cover the cost of the investigation.

Based on the availability of Public Works staff to investigate the proposed speed hump location, the roadway characteristics and traffic operations will be evaluated against the City Guidelines above. If the location is acceptable based on City of Bainbridge Island Speed Hump Guideline Sections A and B above, the City may ask the resident requestor to obtain signatures from 67% of the applicable neighborhood residents as defined by Public Works staff (City Speed Hump Guidelines Section C.)

If the required signatures are obtained, the City will then determine if there is adequate funding and construction capacity available (City Speed Hump Guideline Sections D and E.)

Removal Procedure

The City reserves the right to consider removing speed humps when their use is no longer needed to accomplish traffic calming objectives, if a 67% majority of applicable residents sign a petition to remove the facility, or if the speed hump cannot be reinstalled after weathering or new paving due to concerns with the City's budget or available construction programs. The factors involved in making a decision to remove an existing speed hump must be documented and approved by the Public Works Director.

References

Anchorage, Alaska Traffic Engineering Department – Sign Installation Policy, “Special Needs Children” Signs

https://www.muni.org/Departments/traffic/Documents/Special_Needs_Children_Policy_Template.pdf

District of Columbia - Speed Hump Policy and Guidelines

https://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/ddot_speed_hump_request_procedures_and_engineering_guidelines_0.pdf

Institute of Transportation Engineers (ITE) Traffic Calming Fact Sheets – May 2018 Update

<https://www.ite.org/pub/?id=2c815e39%2Dbb70%2D72a3%2D4e31%2D0356ae6af6b0>

Laguna Beach, California - Guidelines & Criteria for Installation of Speed Humps

<https://www.lagunabeachcity.net/home/showpublisheddocument/9232/637538661395270000>

League City, Texas - Road Hump Policy [https://tx-](https://tx-leaguecity4.civicplus.com/DocumentCenter/View/10774/Road-Hump-Policy-2019-PDF)

[leaguercity4.civicplus.com/DocumentCenter/View/10774/Road-Hump-Policy-2019-PDF](https://tx-leaguecity4.civicplus.com/DocumentCenter/View/10774/Road-Hump-Policy-2019-PDF)

Montgomery County, Maryland - Residential Speed Hump Program

https://atms.montgomerycountymd.gov/tmp_html/speedhumps.htm

National Association of City Transportation Officials (NACTO) Publications

<https://nacto.org/publication/urban-street-design-guide/street-design-elements/vertical-speed-control-elements/speed-hump/>

https://nacto.org/docs/usdg/updated_design_guidelines_for_the_design_and_application_of_speed_humps_parkhill.pdf

Pedestrian and Bicycle Information Center (PBIC) - Website accessed August 2006,

<http://www.walkinginfo.org/>

Richmond, Texas - Guidelines for Speed Hump Program

<https://www.richmondtx.gov/home/showpublisheddocument/14433>

Sacramento, California - Speed Lump Program <https://www.cityofsacramento.org/Public-Works/Transportation/Programs-and-Services/Traffic-Calming/Speed-Lumps>

Updated Guidelines for the Design and Application of Speed Humps – Parkhill, Sooklall, Bahar (ITE)

https://nacto.org/docs/usdg/updated_design_guidelines_for_the_design_and_application_of_speed_humps_parkhill.pdf