Risk Management Considerations for Traffic Calming Strategies – Speed Humps

Speeding is a problem on urban streets, rural roads, county/regional roads and provincial highways. According to the World Health Organization, "excessive and inappropriate speed are responsible for a high proportion of the mortality and morbidity that result from road crashes, where excessive speed is defined as exceeding the speed limit and inappropriate speed means driving at a speed unsuitable for the prevailing road and traffic conditions".

Traffic calming is a term used to describe a full range of methods used to slow vehicles down. Traffic calming measures include but are not limited to speed humps, speed tables, raised crosswalks, chicanes, corner extensions/ bulb out, median islands, raised intersections, transverse rumble strips. The benefit of traffic calming is improved safety for pedestrians and cyclists as cars are travelling at slower speeds. Traffic calming is a point speed control that slows traffic where the traffic calming measure has been implemented but may be ineffective for slowing vehicles over a larger area requiring a combination of other methods to control speed. The implementation of traffic calming can be controversial and sometimes contentious with many points of view, both positive and negative, on the value of traffic calming measures.

Speed humps are an economical, easy to implement method of speed control. There is however field work that should be done plus the pros and cons should be considered before implementation.

Definitions

The terms speed humps and speed bumps have been used interchangeably but they have two different applications where:

Speed Bumps are traffic calming devices up to 150mm in height, which provide an aggressive jolt to the vehicle. To be used in areas with very low speed limits >30km/h where pedestrians and vehicles are in close proximity. Speed bumps are often temporary devices anchored to the pavement best used in parking lots.

Speed Humps are permanent installations with a more gradual slope and an approximate height of 75mm. At higher speeds they do have less of a jolt than a speed bump and can be driven over at lower speeds without significant discomfort to the vehicle's occupants. Used on local residential subdivision streets with a 50km/h (statutory) or less speed limit.

Preliminary Work

To determine the need for traffic calming/speed humps, preliminary work is required. A municipality should consider requesting a petition of the majority of people living on a street before initiating any work. Once council has reviewed the petition and granted permission to proceed, staff should consider undertaking the following preliminary work:

1. Who uses the road being considered?
   a. Determine the traffic volume and posted speed on the road being considered for speed humps

NOTE: Speed humps should only be placed on local residential roads with lower speed limits. High traffic volume, high speed roads such as arterial and collector roads should be avoided.

   b. If possible, determine if drivers are from the neighbourhood or using the road as a shortcut.
   c. Determine the type of vehicles using the road i.e., percent trucks.
   d. Determine the number of drivers exceeding the speed limit and by how much.

NOTE: If the results of the survey show the incidence of speeding is very low and/or only slightly higher than the statutory or posted speed (e.g., <10km/h over the speed limit), the question to consider is: Do you want to punish those who are obeying the law by placing speed humps?

2. Speed hump installation is an application that will slow traffic at that location.

NOTE: If speed humps are implemented on one street to resolve a speeding issue on that street, drivers may decide to use other streets in the subdivision as an alternate, thereby transferring the speeding issue from one street to another. In this instance an area wide solution may be required.

3. Determine the length of the road being considered for speed humps. If the road has a stop condition at intersections, determine the length of road between stops.

NOTE: Roads with short distances between stop controlled intersections, may not be candidates for speed humps as this may infuriate drivers due to the frequency of slowing down for speed humps and then stopping at a nearby intersection, which may result in drivers speeding between the speed humps to make up time.

4. Consider emergency response (police, fire, ambulance) times. Studies have shown an additional 10 to 15 seconds per speed hump must be added to response times. Work with first responders to determine their issues with speed hump installation.

NOTE: To improve emergency response, some jurisdictions chose to stagger the placement of speed humps placing a speed hump across one lane of traffic and offsetting the next speed hump on the opposing lane to improve emergency response time. Emergency responders would then swerve into the opposite traffic lane and slalom around the speed humps. Caution, other drivers will also use this ability to avoid slowing down.

5. Consider the comfort of transit riders, will they be annoyed by the speed humps and choose other transportation options.

When the preliminary work is completed, the results of the findings and if required, a plan prepared outlining where speed humps will be placed to address speeding should be distributed to all properties on the road or in the area that will be affected by the installation. Advise property owners or tenants that a majority vote in favour of the installation of speed humps is required before council would consider proceeding.

Location Selection

1. Speed humps should not be placed so they impede access to or egress from driveways.

2. If possible, place speed humps under streetlights to improve visibility at night.

3. Avoid placing speed humps in locations where the forward visibility of the speed hump is obscured which includes but is not limited to sharp curves or immediately over the crest of a hill. Drivers may not see the speed hump in time to slow down. Warning signs must be placed at the speed hump as per the Ontario Traffic Manual Book 6. The placement of the Wa-74 warning signs at the speed hump ensures, when the speed hump is covered with snow, that drivers are aware of the speed hump at that location.

4. Avoid placing speed humps on long steep downgrades e.g., >8%.

5. Speed humps should not be placed on through roads at intersections with a stop controlled road. Drivers stopped on the intersecting road at a stop sign or pedestrians waiting to cross may believe they have sufficient time to proceed due to the driver on the through road slowing their vehicle for the speed hump.

6. Speed humps should not obstruct bike lanes. To prevent drivers from using the bike lane to drive around the speed hump (at least the passenger side wheels) flexible bollards may be required to eliminate this problem.

NOTE: Bollards may need to be removed in winter for snow removal operations and re-installed in the spring.

7. Speed humps must not obstruct roadway drainage.

8. On streets without curbs, other measures may be required to prevent drivers from leaving the road surface to drive around the speed hump.

9. Speed humps should not be installed at transit stops, where buses must transition between the travel lane and curbside transit stop. Speed humps should be located where buses can traverse the speed hump perpendicularly.

10. Speed humps are a point speed control measure. On long road sections more than one speed hump may be required to reduce speed over the entire road length. In this scenario, the first speed hump in the series should be placed approximately 60m from a stop controlled intersection, doing so will allow drivers approaching the stop sign to bring their vehicle to a stop without being impacted by the speed hump. Studies have shown a spacing of 90m to 180m can produce favourable results.

Liability and Risk

A level of service policy should be developed for the inspection and maintenance of speed humps which includes a timeframe for addressing any defects found. The frequency of inspection and the timeframe for a response could mirror the Minimum Maintenance Standard for Municipal Highways for the class of road.

Pros

1. Low cost easy to install.
2. Provides speed reduction.

Cons

1. May cause drivers to choose other streets, transferring the speeding issue to the new route.
2. May cause drivers to speed between successive speed humps wanting to make up for time lost.
3. Speed humps do create issues in winter. They cannot be seen by drivers when covered with snow (therefore the importance of placing the Speed Hump Wa-74 sign). Snowplows cannot remove all snow around a speed hump, potentially leaving bike lanes covered with snow around the speed hump.
4. Cars with low ground clearance e.g., Corvette, may scrape their undercarriage if the speed hump is not properly installed or maintained.
5. May increase emergency response times.
6. May be an annoyance to passengers on transit buses, who may then use other transportation options.
7. May increase roadway noise e.g., drivers accelerating after going over a speed hump.
8. May increase wear on vehicle suspension.

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