CS341 DESIGN PROJECT REPORT

ON

SSB: Smart Speed Breaker

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INTRODUCTION

The rapid increase in traffic, irregular standards of speed breaker, work load on traffic police, problems of ground clearance and unease to people driving has inspired to conceive the idea of SSB. The above factors have made the traffic system in India unmanageable. The speed breaker should not only help in reducing speed, but also control the traffic and provide smoother drive to people. It should make people follow the traffic rules subconsciously. The design should be simple and easy to maintain.

SPEED BUMB

**Speed bumps** (or **speed** breakers) are the common name for a family of traffic calming devices that **use** vertical deflection to slow motor-vehicle traffic in order to improve safety conditions. The use of vertical deflection devices is widespread around the world, and they are most commonly found to enforce a low speed limit, under 40 km/h (25 mph) or lower.

PROS

* Reduces speed.
* Diverts traffic to another streets, which is positive if the traffic is diverted from a local to a collector arterial street.
* Speed and volume changes tend to remain over time.
* Residents usually report that they are effective and generally support them.
* Emergency vehicles usually have no problem with them.
* Have advantage of being largely self enforcing and of creating a visual impression, real or imagined, that a street is not intended for speeding or “through” traffic.
* Potential to reduce accident rates. Fewer citizen complaints.
* Increased safety.
* Potential noise reduction due to reduced volumes.
* Less public controversy than other concepts.
* Another tool or option in the traffic calming toolbox

CONS

* Humps are a gentle design and thus cannot reduce speeds as much as some residents want.
* May divert traffic to other local streets thus moving the problem.
* Large trucks, buses and emergency vehicles must pass over the humps at a low speed or risk possible loss of control.
* Humps require signing and striping; some residents object to these signs and markings as unattractive.
* Noise levels increase at the hump due to deceleration/acceleration and the noise of a vehicle going over the humps.
* Initial construction and continuing maintenance costs.
* Gutter running (swerving off road into gutter or sidewalk to avoid hump with some tires.)
* More potential for neighborhood conflicts since there may not be 100 percent support for the speed hump installation.
* Potential vehicle damage if traversed at high speeds.
* Longer emergency vehicle response times possible.
* Speed variance acceleration/deceleration).
* Additional program to administer.

SPEED TABLE

A **speed table** (or **flat top hump** or **raised pedestrian crossing**) is designed as a long speed hump with a flat section in the middle. Speed tables are generally long enough for the entire [wheelbase](https://en.wikipedia.org/wiki/Wheelbase) of a passenger car to rest on top.[[23]](https://en.wikipedia.org/wiki/Speed_bump#cite_note-ite.org-23) The long, flat design allows cars to pass without slowing as significantly as with speed humps or cushions.[[24]](https://en.wikipedia.org/wiki/Speed_bump#cite_note-trafficcalming.org-24) Because they slow cars less than similar devices, speed tables are often used on roads with typical residential speed limits.

Speed tables can also be signed as [pedestrian crossings](https://en.wikipedia.org/wiki/Pedestrian_crossing), namely [zebra crossings](https://en.wikipedia.org/wiki/Zebra_crossing). Other road features may be included, such as [junctions](https://en.wikipedia.org/wiki/Junctions), or even [mini-roundabouts](https://en.wikipedia.org/wiki/Roundabout). Speed tables are used with zebra crossings repeatedly in [Leighton Buzzard](https://en.wikipedia.org/wiki/Leighton_Buzzard).

PRO

* Improved safety for pedestrians and vehicles
* Effective at slowing travel speed, but not to the extent of speed humps
* Possible traffic volume decreases at locations where cut-through traffic is a problem
* Typically preferred by EMS compared with speed humps

CON

* Drainage impacts need to be considered in the design
* May increase noise and air pollution
* Textured materials are expensive, if used
* May inadvertently divert local trips to another route to avoid the calming measure

SPEED CUSHION

A speed cushion is a short, raised, rounded device, normally in the centre of a road lane. Speed cushions are designed to be slightly wider than a car, so car drivers need to slow down and drive over the centre of the speed cushion to reduce discomfort. Buses are wider than cars, so they can drive over speed cushions without passengers feeling anything. In Bristol, speed cushions are normally 1.6m wide.

PRO

* Buses don't need to slow down
* More effective than horizontal treatments at reducing speed
* Emergency vehicles can travel drive more quickly over cushions than speed humps or tables
* Can be avoided by cyclists
* Drainage should not be affected

CON

* Cars drive considerably faster over speed cushions than speed humps or speed tables
* Bus companies and emergency services may oppose wider speed cushions (e.g. 1.7m wide) which are proven to be more effective at slowing down cars
* Some traffic is likely to transfer onto alternative routes, potentially causing a problem somewhere else

ACTIBUMP

**Actibump** is a traffic safety system where speeding vehicles activate an inverted [speed bump](https://en.wikipedia.org/wiki/Speed_bump) integrated into the road surface. It gives a physical reminder to speeding drivers. This is done by lowering a hatch a few centimeters into the road, creating a speed hump only for speeding vehicles. Actibump is a robust system that increases road safety and accessibility while lowering emissions and noise.[[1]](https://en.wikipedia.org/wiki/Actibump#cite_note-1) Actibump leaves the road level for vehicles driving at, or under, the legal speed limit.

PRO