

City of Hoboken Traffic Calming Toolkit



Mayor Dawn Zimmer
Department of Transportation and Parking
John Morgan, Director

Table of Contents

Purpose2

What is Traffic Calming?2

Section 1: Can't We Just Install Speed Humps?3

Section 2: Traffic Calming Decision Making Process4

Section 3: Traffic Calming Tools - Preliminary Measures6

Section 4: Traffic Calming Tools - Primary Measures 8

Section 5: Traffic Calming Tools - Secondary Measures10

Section 6: Traffic Calming Tools - Tertiary Measures12

Appendix A: Traffic Calming Request Form.....14

Appendix B: Methods of Traffic Volume/Speed Data Collection.....16

Appendix C: How Traffic Calming Requests are Prioritized.....17

Appendix D: Warrant Analysis for Speed Humps.....18

Appendix E: Education Outreach.....19

Appendix F: Pedestrian Data, Facts, and Accomplishments.....20

Appendix G: Glossary of Terms.....21

Sources.....22

Purpose

The purpose of the *Traffic Calming Toolkit* is to provide residents and community leaders with information about the City of Hoboken's Traffic Calming Policy. The toolkit is designed to highlight common traffic calming measures and explain the protocol used in selecting the most appropriate measure for each instance. It is also important to note that, according to statistics compiled by NJDOT, the current state of pedestrian safety in Hoboken is excellent. The number of Hoboken pedestrians who have been seriously injured in motor vehicle collisions has been very low in recent years, dropping 30% from 55 to 39 between 2009 and 2010, respectively. Nonetheless, it is critical to combine continued vigilance and improvements along with judicious spending and precedent. All of these were the inspiration for this Toolkit.

What is Traffic Calming?

Traffic calming is the practice of managing vehicular speeds and/or volumes of traffic on city streets using one or more approaches: increased police enforcement, education, or physical changes to the roadway. When it comes to traffic calming, it is important to understand that there are no "one size fits all" solutions. Each of these approaches has its appropriate application, and combined they can help reduce speeding and unsafe driving practices.

Traffic Calming vs. Traffic Control

'Traffic control' is often confused with "traffic calming", but it is important to understand that these two terms have very different roles for transportation planning and engineering. Unlike traffic calming, which emphasizes speed control, traffic control primarily is concerned with managing traffic flow. Stop signs are a good example of a traffic control device that is often confused as a traffic calming measure. The FHWA Manual on Uniform Traffic Control Devices states that "Stop signs should not be used for speed control." Stop signs are intended to assign the right-of-way among motorists, pedestrians, and cyclists at an intersection. Although many citizens believe that stop signs help reduce speeds on their street, numerous studies have shown that speeds are as high or higher at mid-block than those locations without stop signs. For the purposes of this Traffic Calming Toolkit, traffic control devices will generally not be included except for the purposes of prioritizing pedestrian crossings at intersections where high volumes exist.

Section 1: Can't we just install speed humps?

In recent years, the “speed hump” has gained a reputation in the general public’s mind as a panacea for traffic calming. On first consideration, the suggestion of installing speed humps appears, ostensibly, to be an appropriate reaction to the concerns voiced by residents. However, speed humps are a more advanced traffic calming measure and as such come with side effects that may not be desirable. At most, speed humps can contribute somewhat to the reduction of vehicle speeds immediately before the appurtenance, but does nothing for the rest of the block, and certainly not for the corridor. Speed humps are also one of the most expensive ways to address speeding concerns, costing between \$6,000-\$9,000 per hump.

Before considering speed humps, one should ask, “What are the pedestrian volumes? What are the vehicle volumes? What are the vehicle speeds? How frequent are vehicles ignoring ‘Stop for Pedestrian’ regulations? Have we attempted education and enforcement campaigns in this area?” The transportation engineering community is in consensus that without this information, installing speed humps is premature and potentially unwarranted, leading to greater costs than benefits.



Section 2: Traffic Calming Decision Making Process

Step 1

Department of Transportation and Parking reviews traffic calming requests and conducts data collection and evaluation.

Step 2

If poor conditions are found, the Department of Transportation and Parking will consider implementation of “preliminary” or “primary” traffic calming measures.

Step 3

If after further evaluation poor conditions continue to persist, the Department of Transportation and Parking will conduct an expanded study of traffic and speed conditions, including community participation events, to present and solicit feedback and develop recommendations for “Secondary” Traffic Calming measures. If funding exists, then “Tertiary” Traffic Calming measures may be included as part of a currently available grant, developer, or other external funding sources in the study area. Budgeting as capital improvement or securing grant funding for the project area is necessary for implementation of “Secondary” measures.

Step 4

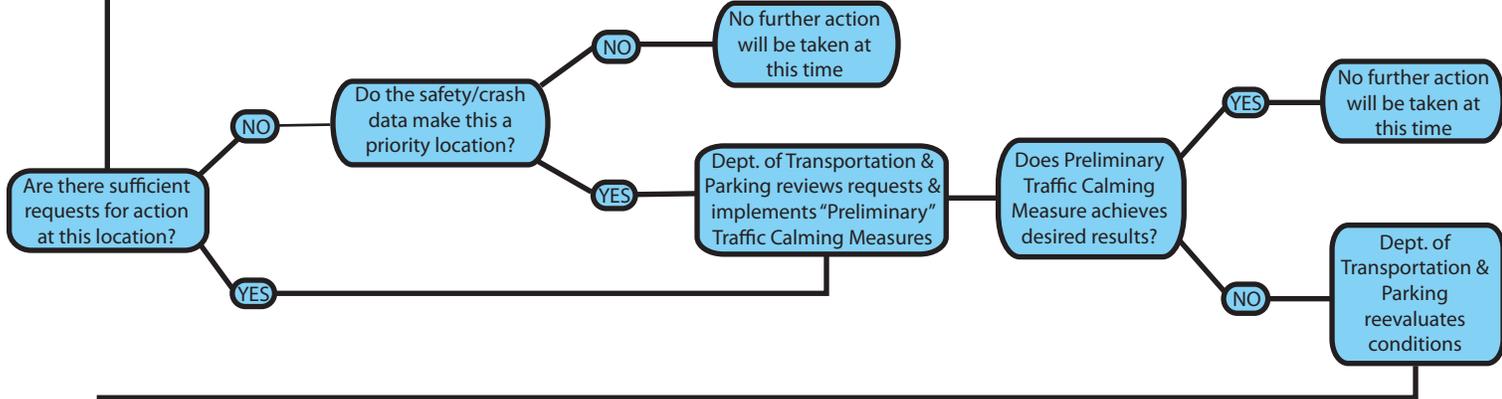
If the above efforts do not result in desirable results, the Department of Transportation and Parking will pursue grants or other funding sources to design and implement “Tertiary” Traffic Calming measures for the project area.

Traffic Calming Protocol

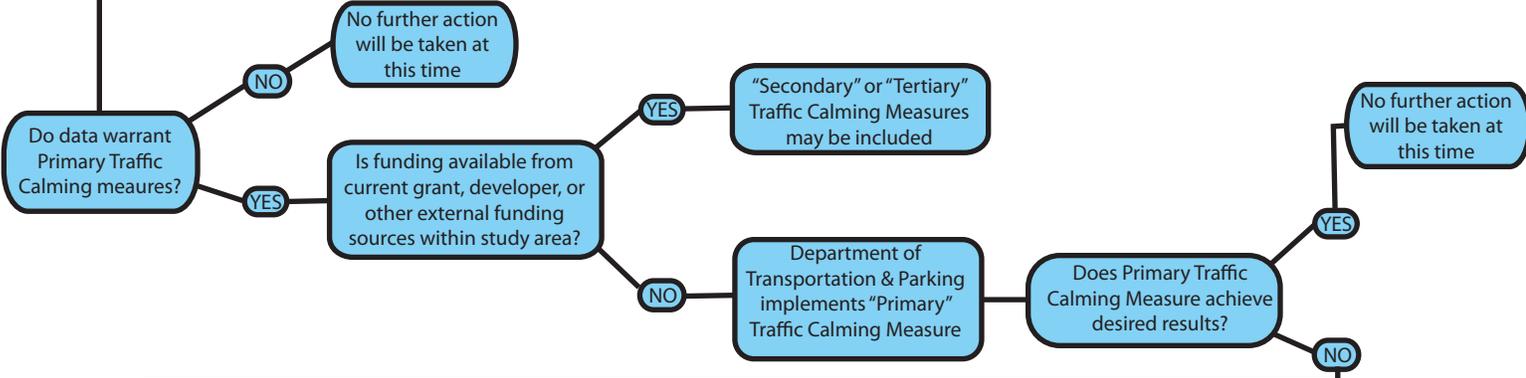
Process Begins

Traffic Calming Request

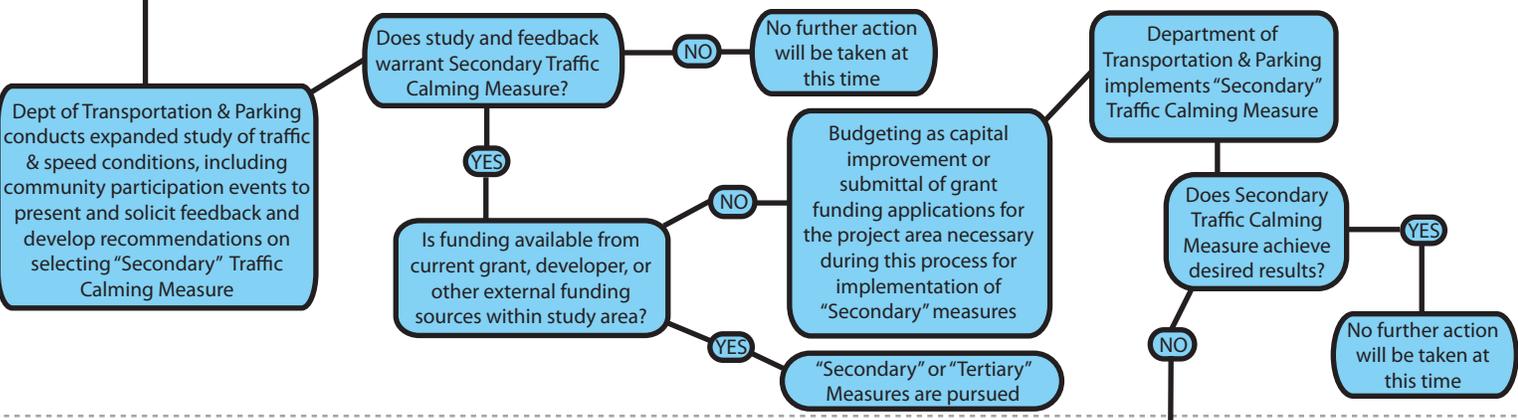
Preliminary



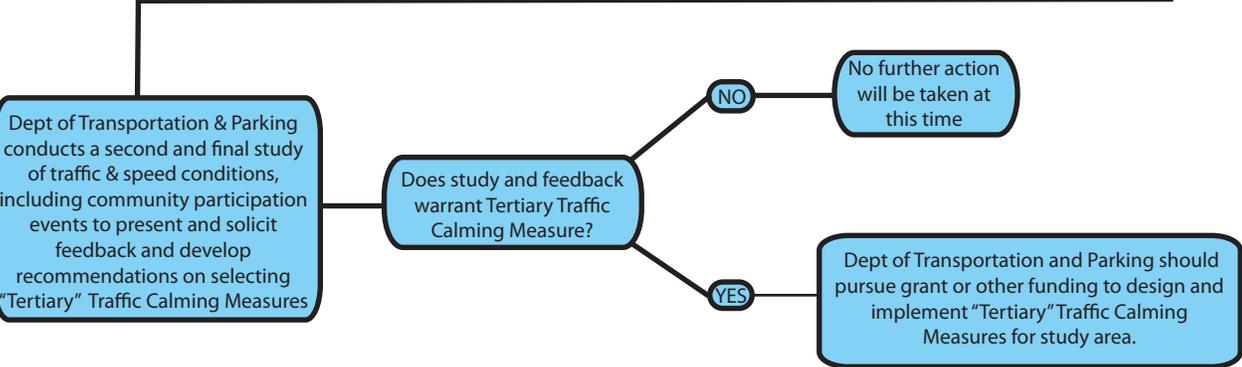
Primary



Secondary



Tertiary



Section 3: Preliminary Traffic Calming Tools

“Preliminary” traffic calming measures should usually be considered before more elaborate, physically-intensive alternatives. Preliminary measures can be very effective traffic calming tools and since they do not require legislative action and extensive engineering they can be implemented quickly. Below is a set of common tools used during the preliminary phase of traffic calming (see Appendix for more details about data collection and enforcement operations).

General Enforcement Operations

Police enforcement entails the presence of police to monitor speeds and other inappropriate driving behavior and issue citations when necessary. This method is used as an initial attempt to increase driver compliance on streets. It is most applicable on streets with documented speeding problems or notable stop sign/red light violations that need quick mitigation. It can also be used during the learning period when new devices or restrictions are first implemented.



General Educational Campaigns

Public education can be an effective tool to help change the attitude and behavior of drivers. Educational efforts aimed at addressing the possibility that residents of the affected neighborhood are not attentive to the speeds that they are driving at and that modifications to their own driving behavior may solve the problem.



Repaint Crosswalks, Stopbars, and Other Pavement Markings

Over time natural wear and tear of roadways can hide important safety pavement markings such as crosswalks, stopbars, and bike lanes, which can have the effect of marginalizing pedestrian and cyclist safety zones. Often times it just takes a fresh, bright new coat of paint to increase driver alertness that pedestrians, cyclists, and other users also have a right to safely move through and across local streets just like drivers do.



Lane Narrowing Striping

The wider the roadway, the less “perceived risk” drivers feel, which increases the likelihood of speeding. This often occurs even when posted speed limits are far lower than what the roadway was engineered to safely accommodate.

By simply striping lanes to be narrower, it effectively “squeezes” drivers into feeling more “perceived risk”, which often reduces speeding. Lane narrowing striping can be implemented quickly and affordably, making it a good first step to reducing speeding on overly wide streets without using costly engineering solutions. Lane narrowing striping efforts can be especially effective when combined with enforcement campaigns.



Hoboken Daylighting at Intersections

Historically, nearly half of pedestrian-motor vehicle collisions in Hoboken have occurred at intersections. One reason for this is because visibility at intersections is poor due to motor vehicles being parked illegally within 25 feet of crosswalks, which reduces reaction time that pedestrians, cyclists, and motor vehicles have when converging. The City of Hoboken aggressively enforces illegal parking at crosswalks, but it is nearly impossible to enforce every intersection in town all of the time. Engineering solutions such as neckdowns can permanently achieve the desired goal of keeping cars back from crosswalks, but they are very costly and time consuming to install, which makes such a solution prohibitive as a citywide fix. Daylighting, on the other hand, is a low-cost, quick installation tool that can be used citywide to improve visibility at crosswalks for all roads users. To “daylight” an intersection, two vertical delineator poles are bolted into the asphalt four feet offset from the curb - the first pole 10 feet from the crosswalk line and the second pole 10 feet from the first pole.



“Stop for Pedestrians in Crosswalk” Signage at Intersections

In April 2010, it became NJ State Law for drivers to stop for pedestrians in crosswalks. However, this law has not stopped many aggressive drivers from continuing to overtake pedestrians in crosswalks in Hoboken. “Stop for Pedestrians in Crosswalk” signs can be placed in crosswalks to help increase driver awareness of the NJ State Law and to be extra alert for pedestrians. These signs are low-cost, can be installed quickly, and work well in conjunction with targeted police enforcement.

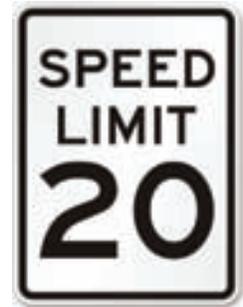


Section 4: Primary Traffic Calming Tools

“Primary” traffic calming tools tend to be slightly more elaborate than “Preliminary” traffic calming measures. These tools continue to emphasize education and enforcement along with low-cost engineering. Below is a set of common tools used during the primary traffic calming phase.

Changes to Corridor Speed Limit

When general education campaigns to reduce speeding do not achieve desirable results, one option is to reduce the speed limit on the problem corridor. However, reduced speed limits are not a panacea for solving speeding, especially when roads are engineered for speeds much higher than the posted limit. Therefore, reduced corridor speed limits work best when combined with targeted enforcement and engineering tools.



Informational Signage

Informational signage is designed to educate and inform drivers. LED signs can display safety-oriented messages that can make drivers think twice about speeding or reckless driving behavior.



Radar speed signs display the speed of oncoming vehicles using highly visible LEDs to make motorists aware when they are driving at unsafe speeds. These signs have been proven to slow traffic down and are ideal for use on local roads or in school zones.

Bike Lanes (by class, where appropriate)

Bike lanes are a proven, cost-effective traffic calming tool. NYCDOT released a study in 2010 showing that streets with bike lanes reduced KSI (killed or seriously injured) pedestrian/motor vehicle accidents by more than 40%. In Hoboken, bike lanes have reduced vehicle speeds on Madison Avenue and Grand Street by increasing the “perceived risk” of drivers in a narrower lane. Bike lanes are an ideal primary traffic calming tool because they are low-cost, easy to install, and have the double benefit of encouraging bicycling as a means of reducing overall traffic volumes and further improving quality of life in Hoboken.



Targeted Enforcement Operations

Targeted enforcement can be an effective traffic calming tool to handle specific problems, such as increased parking enforcement at critical approaches to intersections, drunk driving, and texting while driving. Targeted enforcement operations, such as DWI checkpoints, are often employed during holiday weekends. Pedestrian decoy operations have proven to be useful to enforce the NJ State law that requires drivers to stop for pedestrians in crosswalks. During these operations, plainclothes police officers will attempt to cross a particular street at a crosswalk and will issue citations to drivers who fail to stop for the officer.



Targeted Educational Campaigns

Targeted educational campaigns typically focus on educating the public about a specific traffic safety concern. Such campaigns could focus on concerns such as sharing the road with cyclists, stopping for pedestrians in crosswalks, not drinking and driving, or several other traffic safety concerns. Targeted educational campaigns, just like general educational campaigns, work best when combined with targeted enforcement and/or engineering.

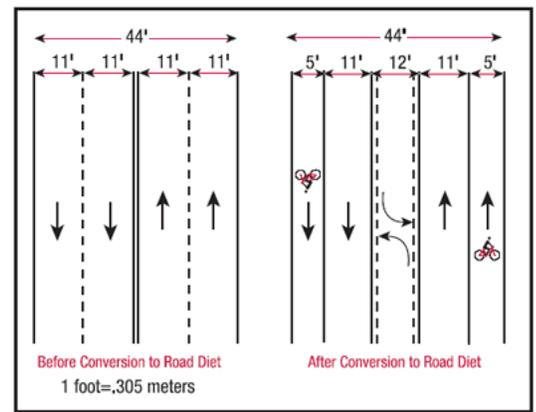


Section 5: Secondary Traffic Calming Tools

“Secondary” traffic calming tools typically involve engineering solutions, such as physical changes to roadways. As a result, secondary tools are usually much more expensive and time-consuming to implement and budgeting as capital improvement or submittal of grant funding applications for the project area are necessary. As a result, secondary measures should usually be considered only after preliminary and primary tools have been considered. Below is a set of common tools used during the secondary traffic calming phase.

Changes to Lane Configuration

Changes in lane configuration during scheduled resurfacing projects can have the benefit of giving the offending stretch of street a “road diet”. Instead of just adding new asphalt and restriping streets known for speeding or reckless driving, scheduled resurfacing projects present a golden opportunity to reconfigure the road’s lanes to slow traffic down and safely accommodate other road users, such as cyclists and pedestrians.



Changes to Parking Configuration

Adding parallel parking on streets previously without it effectively “squeezes” drivers by increasing the “perceived risk” of speeding. Drivers now have to account for vehicles entering and leaving parking spaces next to thru-traffic lanes and also be cognizant of the possibility of car doors opening suddenly and/or people getting into and out of their parked vehicles. The cumulative effect of an on-street parking presence is typically reduced vehicular speeds in adjacent thru-lanes. This tool also presents a natural, cost-effective way to increase Hoboken’s overall parking capacity.



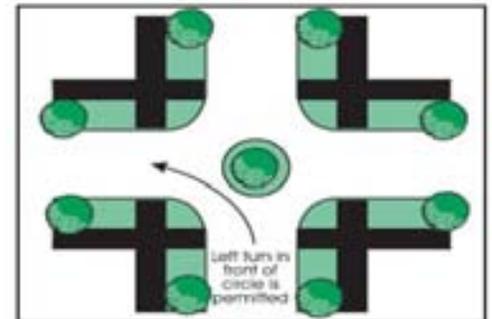
Installation of “Hard” Measures

“Hard” traffic calming measures such as speed humps and mini-roundabouts are full-scale engineering tools that require physical manipulation of roadways. Hard measures also require a majority of residents on each block where such measure is considered to petition in favor of. Examples of “hard” measures include speed humps and mini roundabouts.

Speed humps are raised devices, parabolic in shape, placed across the road with the primary intention of reducing vehicular speeds. A series of humps are often required along a roadway segment to keep drivers from speeding before and after the humps. The only speed humps approved by NJDOT (and required by Hoboken’s municipal code) involve survey, engineering drawings, bid specifications, awarding of contract, and cost approximately \$6,000-\$9,000 per hump.



Mini roundabouts are small traffic circles (10-25 feet in diameter) placed in low-volume intersections. They are meant to reduce traffic speeds by requiring thru-vehicles to navigate around the circle.



Mini traffic circle

Section 6: Tertiary Traffic Calming Tools

“Slow-Flow” Streets

The “Slow Flow” Streets concept involves the resurrecting of Hoboken’s historic Belgian block from beneath the asphalt at high-speed and/or high volume intersections. The Belgian block will reduce vehicular speeds and improve the permeability (natural flood management) of the roadway. This measure requires a majority of residents in the block to petition in favor of returning from asphalt to Belgian block in order to proceed.



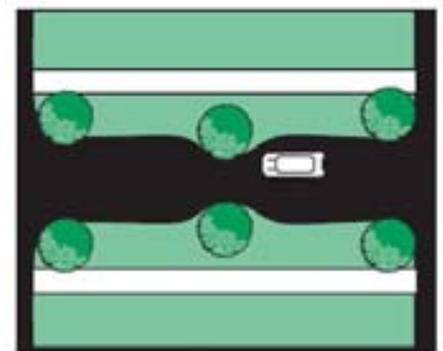
Raised Crosswalks

Raised crosswalks are speed tables outfitted with crosswalk markings and signage to channelize pedestrian crossings, providing pedestrians with a level street crossing. Also, by raising the level of the crossing, pedestrians are more visible to approaching motorists. Raised crosswalks are ideal for locations where pedestrian crossings occur at haphazard locations and vehicle speeds are excessive. It is estimated to cost \$4,000 and up per raised crosswalk depending on site conditions.



Chokers

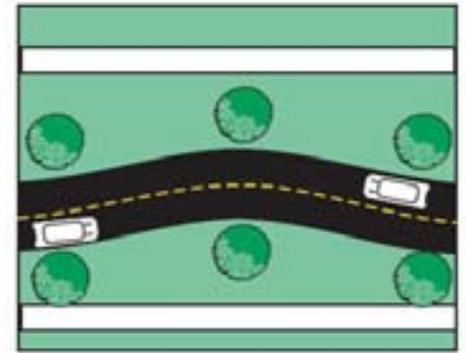
Chokers are curb extensions at midblock locations that narrow a street by widening the sidewalk or planting strip. If marked as crosswalks, they are also known as safe crosses. Two-lane chokers leave the street cross section with two lanes that are narrower than the normal cross section. One-lane chokers narrow the width to allow travel in only one direction at a time, operating similarly to one-lane bridges. They are good for areas with substantial speed problems and no on-street parking shortage. Chokers are estimated to cost between \$5,000 and \$20,000 depending on site conditions and landscaping, and drainage engineering may add additional thousands of dollars.



Choker

Chicanes

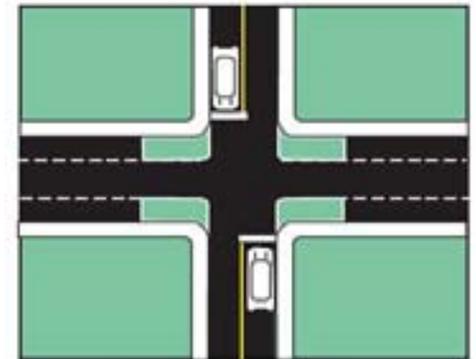
Chicanes are curb extensions that alternate from one side of the street to the other, forming S-shaped curves. Chicanes can also be created by alternating on-street parking, either diagonal or parallel, between one side of the street and the other. Each parking bay can be created either by restriping the roadway or by installing raised, landscaping islands at the ends of each parking bay. Chicanes are ideal for locations where speeds are a problem but noise associated with Speed Humps and related measures would be unacceptable. A set of three Chicanes on an asphalt street costs an estimated \$10,000-\$15,000.



Chicane

Neckdowns (bulb-outs)

Neckdowns are curb extensions at intersections that reduce the roadway width from curb to curb. They "pedestrianize" intersections by shortening crossing distances for pedestrians and drawing attention to pedestrians via raised peninsulas. They also tighten the curb radii at the corners, reducing the speeds of turning vehicles. Neckdowns are ideal for intersections with substantial pedestrian activity and areas where vertical traffic calming measures would be unacceptable because of noise considerations. Neckdowns can be very expensive, costing \$40,000-\$80,000 for four corners.



Bulb-out intersection

Corridor Redesign

Corridor redesign is very costly and will require a substantial grant award, developer investment, or other external funding source in order to be financially feasible. However, by redesigning a corridor the City of Hoboken has the opportunity to incorporate a comprehensive set of engineering measures to calm traffic on that corridor. The corridor redesign process can cost anywhere from hundreds of thousands of dollars to millions of dollars depending on the size and amount of construction on the corridor.



Appendix A : Traffic Calming Request Form

City of Hoboken Traffic Calming Request Form

Name: _____ Phone: _____

Address: _____ Zip: _____

Email: _____

- In general, what are your concerns about the traffic in your area? (please check all that apply)
 - Speeding Cut-through traffic Frequent crashes Unsafe pedestrian crossings
 - Other (please explain) _____

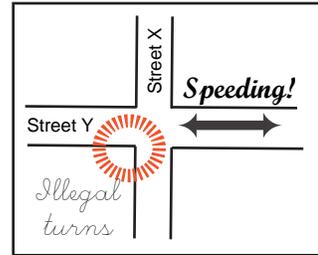
- Are there specific streets or intersections that you would like to make safer? If so, please list them.

- What concerns you about these locations?

- Check if the problem involves a local school? School name: _____

- Do you have suggestions on how to improve traffic safety in your area?

***Please attach a map of the problem area to the form**



SIGNATURES: If you know of other people in your community with similar traffic safety concerns, please have them sign their names below. The Department of Transportation & Parking will initiate action on a traffic calming request when at least five people have requested action on a similar traffic safety concern or if crash/safety data makes a case for immediate action.

PRINTED NAME	SIGNATURE	ADDRESS
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____

PLEASE RETURN TRAFFIC CALMING REQUEST FORMS TO:
Hoboken Parking Utility
94 Washington Street
Hoboken, NJ 07030



HOBOKEN PARKING UTILITY

IAN SACS, P.E.
 Director of Transportation & Parking

94 Washington Street • Hoboken, NJ 07030 • parking@hobokennj.org • 201.653.1919

Appendix B : Methods of Traffic Volume/Speed Data Collection

Below is a list of evaluation methods used to develop data that supports concerns about speeding, unsafe crossings, and other traffic safety concerns. The determination on what should be considered or collected, and how these data are used should be the responsibility of the Director of the Department of Transportation and Parking in coordination with the City Engineer. Data sources should include but are not limited to:

- ① Vehicle/pedestrian crash data statistics provided by NJDOT
- ② Corridor speed studies
- ③ Roadway segment speeding campaign data results (from “your speed” signs)
- ④ Intersection safety surveys (surveyor tallies illegal movements and operations)
- ⑤ Traffic (pedestrian and/or vehicle) volume data (segment and intersection)

Appendix C: How Traffic Calming Requests are Prioritized

The City of Hoboken receives requests for traffic calming throughout the city on a regular basis. In general, requests that involve Preliminary measures are implemented on a “first come first serve” basis with a queue developing at times due to limited resources and/or inclement weather. For other requests that involve more than Preliminary measures, the following criteria are considered when evaluating the priority of implementation:

- ① Severity of crash/safety data at the location
- ② Frequency of request from community
- ③ Availability of funds for most appropriate measure

Once this evaluation is complete, each request will be given a status and that status, such as “Under evaluation”, “Preliminary Measure Implemented”, “Data analysis in progress”, and “Awaiting Funding”, among other possible. The status will be made available to the public.

Appendix D: Warrant Analysis for Speed Humps

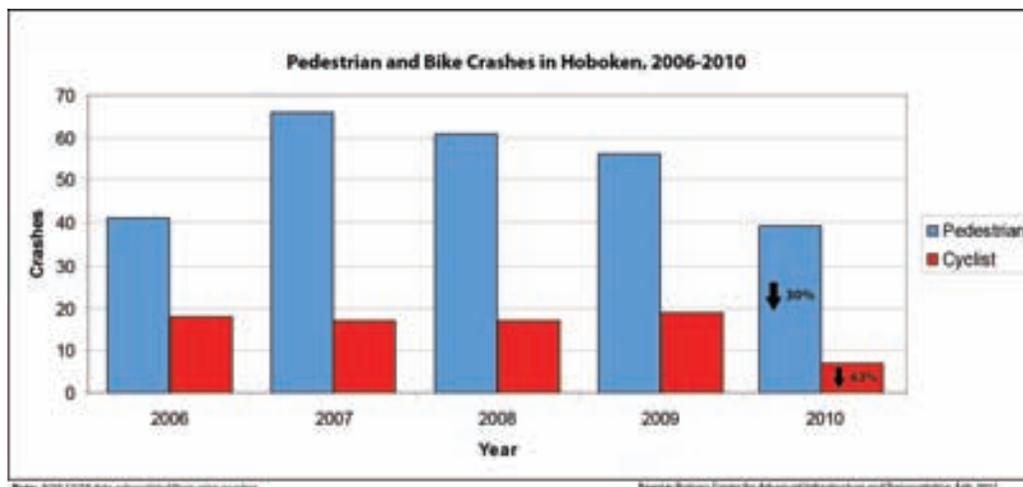
- ① The street or street segment shall be a residential street with no more than one lane in each direction.
- ② The street or street segment shall not be a part of a transit route.
- ③ The street or street segment shall not be a primary emergency route.
- ④ The installation of speed humps shall not unduly affect response times of emergency services. This shall be determined by staff in conjunction with the affected emergency services.
- ⑤ The street or street segment shall be improved with a gutter.
- ⑥ Posted speed limit on the street segment under consideration for the speed hump must be 30mph or less.
- ⑦ The average daily traffic (ADT) for the street shall be no less than 500 vehicles per day and no more than 3,000 vehicles per day.
- ⑧ The measured 85th percentile of the street or street segment shall be six miles per hour or greater than the posted speed limit.
- ⑨ At least 67% of households with frontages on the proposed street and within 100' of the outside limits of the proposed speed humps shall approve of speed hump installations.
- ⑩ Adequate visibility can be provided at all speed hump locations.
- ⑪ Speed humps shall not be installed on streets with a grade greater than 5 percent.
- ⑫ The street is a through street, at least 750' long, and uninterrupted by stop sign or traffic signal

Appendix E: Outreach Methods for General and Targeted Educational Programs

- ① Advertisement in local newspapers
- ② Advertisements in online media outlets
- ③ Posters sent to schools and other community centers
- ④ Flyers and other collateral handed out at city hall and parking utility
- ⑤ Flyers handed out at high volume locations, such as Hoboken Terminal and supermarkets
- ⑥ PSAs on Channel 78 between airings of City Council meetings

Appendix F: Pedestrian Safety Data, Facts and Accomplishments Since 2009

- ① 39% reduction in pedestrian/bike collisions with motor vehicles (including 0 fatalities) since 2009
- ② Hudson Place Redesign (more than doubled width of sidewalk, reduced crossing distances with bumpouts, more space for bike parking)
- ③ “Twenty is Plenty” educational outreach campaign to slow down vehicular traffic
- ④ Bike and Pedestrian Master Plan (strong emphasis on pedestrian and bike safety)
- ⑤ Daylighting Program to improve visibility/reaction time at crosswalks (38 strategic locations around the city)
- ⑥ Pedestrian safety/redesign community outreach meetings (14th St Viaduct, Observer Hwy, Newark St, Hudson Pl, Sinatra Drive, and Bike/Pedestrian Master Plan)
- ⑦ Reduced pedestrian-motor vehicle conflicts around PATH/Hoboken Terminal (moved taxi stand, created shuttle loading zone, longer designated crosswalk times at River/Hudson)
- ⑧ Increased parking enforcement at crosswalks
- ⑨ Redesign of 14th Street Viaduct (included many pedestrian safety improvements)
- ⑩ “Don’t Block the Box” painting and signage at Monroe/Observer Hwy/Paterson Ave intersection (improves visibility, keeps crosswalks clear, and assists with enforcement)
- ⑪ 15th Street repainting (low-cost strategy to reduce speeding by 8% eastbound and 5% westbound)
- ⑫ Replacement of pedestrian ramps at intersection corners with better landings
- ⑬ Installation of “Stop for Pedestrian” signs at crosswalks throughout the city
- ⑭ Bike lanes and “sharrows” throughout the city are proven to reduce speeding and pedestrian injuries/fatalities by up to 40%
- ⑮ Bike Rules (improves pedestrian safety on sidewalks)



Appendix G: Glossary of Terms

- ① **Traffic Calming:** is the practice of managing vehicular speeds and/or volumes of traffic on city streets using one or more approaches: increased police enforcement, education, or physical changes to the roadway.
- ② **Traffic Control:** unlike traffic calming, traffic control is primarily concerned with the comprehensive management of traffic flow and the safe and efficient transportation of people and goods, not speed control. Examples of traffic control devices include stop signs and traffic signals.
- ③ **Perceived Risk:** in transportation engineering parlance, “perceived risk” refers to the increased perception of potential hazards when a transportation user is moving through space.
- ④ **Warrant:** a warrant refers to a transportation engineering condition that must be met in order for a project to be eligible to proceed.
- ⑤ **Corridor:** typically refers to the entire length of a street instead of just a segment. A corridor often does not just include the roadway section right-of-way, but also includes adjacent sidewalks, bikeways, bus lanes and other spaces within the public right-of-way.

Sources

City of Hoboken Department of Transportation and Parking

RBA Group

New York City Department of Transportation (NYCDOT)

New Jersey Department of Transportation (NJDOT)

Institute of Transportation Engineers (ITE)

Federal Highway Administration (FHWA)

Manual on Uniform Traffic Control Devices (MUTCD)

Victoria Transport Policy Institute (VTPI)

City of San Jose

City of Pittsburgh

City of Santa Ana

Walkinginfo.org

SafeRoutesInfo.org

Trafficcalming.org

Image Credits

NJ.com

Tupelolocalnews.com

Indiana University

University of California, Berkeley

WalkOaklandBikeOakland.org

Streetswiki.com

Trafficlogix.com

Peds.org