City of Green Bay

Neighborhood Traffic Calming

ADOPTED: Tuesday, October 22, 2007 by the City of Green Bay Common Council
REVISED: Tuesday, March 18, 2008 by the City of Green Bay Common Council

Department of Public Works | Traffic Division
100 N. Jefferson Street, Room 300
Green Bay, WI 54301
(920) 448-3100

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What is Traffic Calming?

City of Green Bay residents have expressed concern about speeding and cut-through traffic in residential neighborhoods. In response to public interest the City has developed a Neighborhood Traffic Calming Policy.

The Institute of Transportation Engineers defines “traffic calming” as “the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users.”

The City of Green Bay also expands this definition to include non-physical measures such as educational programs and enhanced enforcement

What are Traffic Calming Measures?

Neighborhood traffic calming measures are an attempt to enhance traffic and pedestrian safety and preserve neighborhood character and livability. There are a number of traffic calming devices that are available to achieve this effect. The specific measures are described in more detail below, but can generally be used to address problems with speeding, cut-through traffic, increased volume, and safety. When a traffic calming measure is implemented successfully, it is effective and self enforcing.

The Neighborhood Traffic Calming Process?

This section describes the process, regulations, and requirements of the Green Bay Neighborhood Traffic Calming Policy. For a brief overview of the process, see the Traffic Calming flow chart (Appendix 1).

STEP 1 — Report the Problem

If you feel as though you have a speeding or traffic problem on your residential street, the first step is to report the problem to City of Green Bay Traffic staff at (920) 448-3100 or dpwmail@ci.Green-Bay.wi.us. City staff will note your complaint and provide a Traffic Calming Request Form. This form will also be available at http://www.ci.green-bay.wi.us/publicworks/forms/TrafficCalming/TrafficCalmingRequest.pdf. When the form is submitted City staff will evaluate the complaint to determine the nature of the problem, and make sure that the location meets the first traffic calming criteria:

The street must be classified as "Residential."

The City will not implement traffic calming measures, or conduct traffic calming studies on "arterial", "collector" streets, and Green Bay Metro bus routes. For the City's Roadway Classification Map, please refer to the map available at http://www.ci.green-bay.wi.us/publicworks/forms/TrafficCalming/FuncClassification.pdf. Staff can work with you to identify other actions if your street does not meet this basic criterion.

STEP 2 — Neighborhood Consensus

After the initial report, City staff will request a petition from a representative number of residents in the neighborhood (at least 20%, or 10 residents, whichever is less) to verify that there is a widespread concern for the speeding or traffic issue. After the petition is received, City staff will review it. The petition form is available at http://www.ci.green-bay.wi.us/publicworks/forms/TrafficCalming/TrafficCalmingPetition.pdf

STEP 3 — Data Collection

When it is determined that a representative number of residents perceive the problem, City staff will collect traffic volume and speed data for the street and observe traffic patterns.

Speeding Problem Thresholds:

- If 15% of the vehicles driving on the roadway are traveling at speeds above 32 miles per hour (20 mph for alleyways), or

- If 5% of the vehicles driving on the roadway are traveling at speeds above 35 miles per hour (25 mph for alleyways), then the street would be eligible for Traffic Calming. This last condition applies to situations where the residents' concern is for the few drivers considerably exceeding the speed limit.

Cut-through Problem Threshold:

- In some cases, the reported problem is related to the volume of traffic on the residential street instead of the speed. If the street carries more than 1000 vehicles per day, then the street would be eligible for Traffic Calming.

Other Issues:

- Some traffic problems do not fit neatly into the speeding or cut-through "boxes". City staff will evaluate on a case-by-case basis if a unique issue warrants traffic calming.

STEP 4 — Stage 1 Traffic Calming

If the trouble location exceeds the thresholds identified above, City staff will first suggest possible solutions that do not involve the use of physical controls or impediments on the roadway system. These are primarily education and enforcement based measures called Stage 1 traffic calming. These include:

- **Radar Speed Trailer Deployment** — This is a temporary device that is primarily used to educate motorists regarding the fact that they may be significantly exceeding the posted speed limit. Speed data can and may be collected.

- **Traffic Enforcement Actions** — This is traditional enforcement activity on the part of Green Bay Police Department's traffic enforcement officers. The intent is to modify behavior to result in a safer situation for all drivers and neighbors.

- **Traffic Signing and Pavement Markings** — Traffic Engineering staff will review all of the traffic signing and pavement markings in the area. If necessary, staff will install additional signing or striping. When appropriate, changes and additions will be reviewed with interested neighbors.

STEP 5 — Follow-up Data Collection

If one or more of the Stage 1 Traffic Calming measures is implemented City staff will wait approximately three to six months and conduct another speed and/or volume data collection. The data will then be analyzed to determine if the Traffic Calming measure was successful. If the measure was successful, and the thresholds identified in Step 3 are not exceeded then the traffic calming process will end at this point.

If the location continues to exceed the thresholds for speed and/or volume on a residential street, City staff will move on to analyze possible Stage 2 Traffic Calming methods.

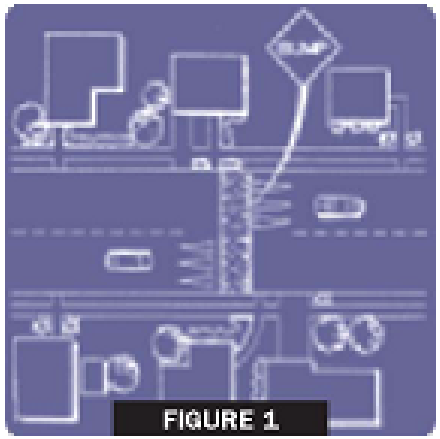
STEP 6 — Stage 2 Traffic Calming Study

City staff will conduct a formal Traffic Calming Study to suggest possible solutions to the problem. The solutions could involve physical modifications of the street intended to control traffic speeds and/or volumes. These are called Stage 2 traffic calming methods. Neighborhood involvement will be a large part of the Traffic Calming Study process.

Possible Stage 2 methods include:

- **Speed Humps**
  Speed humps are approximately 12 feet in width and vary from 2.5 to 4 inches in height. This raised pavement serves to physically force motorists to reduce their speed. In order to be effective, speed humps should be placed no further than 300 feet apart.

  See Figure 1.



- **Speed Tables**
  These are speed humps with a long flat section that are generally used at crosswalk locations. Both speed humps and speed tables require signing and roadway markings to make their presence known to motorists and other roadway users.

  See Figure 2.

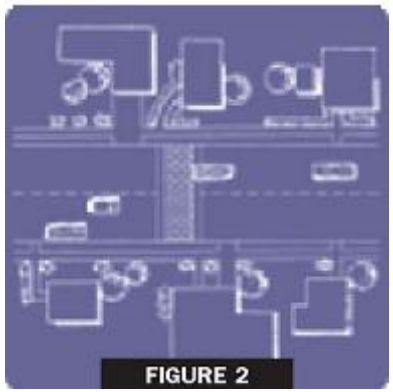


FIGURE 2

- **Traffic Circles**
  This device is a raised circular island in the middle of a residential neighborhood intersection. Direct straight through movements are obstructed by the raised island causing traffic to move to the right and around the circle.

  See Figure 3.


FIGURE 3

- **Curb Extensions, Chokers, Chicanes**
  These are various methods of narrowing the roadway by extending raised curbs into the street. These can be done at street entries and exits as well as mid-block locations. The narrower street generally results in reduced traffic speeds and provides pedestrians with shorter crossing distances.

  See Figure 4.

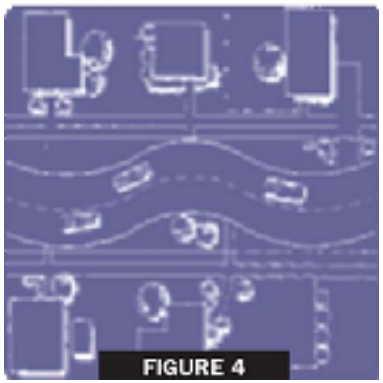


FIGURE 4

- **Median Entry/Exit Islands**
  These are traffic islands used to create narrower roadway passages at entry and exit points. Median Barriers These can be a barrier or raised island along the center of a roadway to prohibit left turns or crossing traffic.

  See Figure 5.

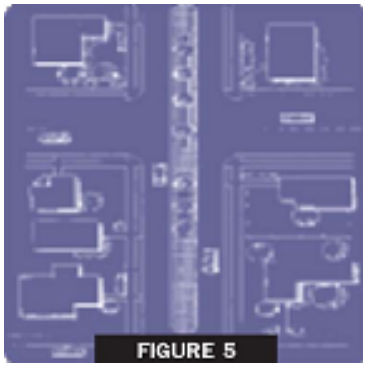


FIGURE 5

- **Mid-Block Raised Medians**
  This is a median placed in the center of a roadway to create a narrower travel way and also reduce pedestrian crossing distances.

  See Figure 6.

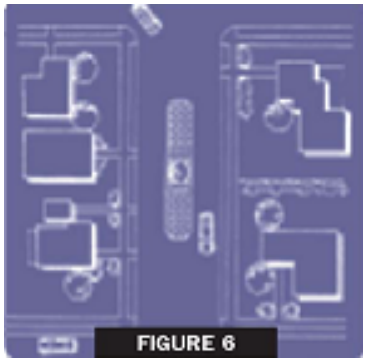


FIGURE 6

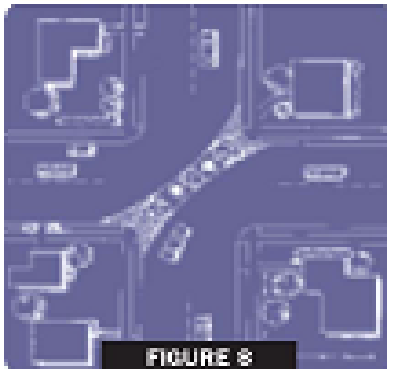
- **Forced Turn Islands, Barriers, Channelization**
  These are traffic islands or curbs specifically designed to prevent traffic from making specific movements at an intersection.

  See Figure 7.


FIGURE 7

- **Diagonal Diverters**
  These are barriers placed diagonally across an intersection to force drivers to make a particular turn but not allow other movements.

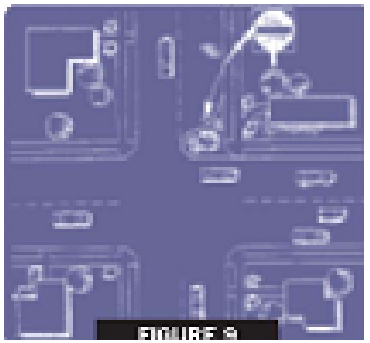
  See Figure 8



- **One-Way Streets**
  This is when traffic on a street is regulated to only allow traffic to flow in one direction. Usually this is accomplished through sign placement.

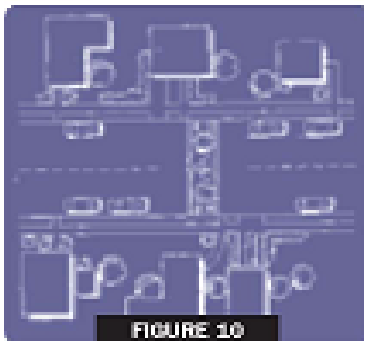
- **One-Way Chokers, Half-Closures or Semi-Diverters**
  These are barriers to traffic in one direction that permit traffic in the opposite direction to proceed.

  See Figure 9.



- **Street Closures and Cul-de-sacs**
  This is the complete barricade or termination of a street.

  See Figure 10.



The following general criteria must be met to consider the installation of any Stage 2 traffic calming measure:

1. Installation must not result in traffic diversion to other neighborhood streets.

2. Through a postcard survey, at least 60% of the impacted residents (defined as those residents or owners within 1 contiguous block of the proposed traffic calming improvement(s)) and 75% of the residents within 100 feet of the proposed device shall support the installation.

3. Devices shall be installed only where a minimum safe stopping distance can be provided.

4. The Green Bay Fire Department must approve the plan to assure that emergency response times or access are not negatively affected.

STEP 7 — City Council Approval

Once City staff and the neighborhood have reviewed an appropriate Traffic Calming solution, the proposal will be brought through the Improvement and Services Committee to the City Council for final approval and funding allocation.

Prioritization

Staff will complete Traffic Calming Studies on a "priority rank" basis. Using data collected in Stages 1 and 2, the individual project(s) will be assigned points, as detailed in Appendix 2 "Point Assignment for Ranking Requests." A minimum of 30 points is required for a project to be considered eligible to compete with other Traffic Calming requests for funding.

Projects will be ranked citywide, based on point score. The highest ranking projects will usually be undertaken first. The number of projects initiated each year will depend on City resources. However, the City may consider other compelling issues to determine project scheduling.

The City will notify the project requestors of the status of their request after this step via the City's website by posting the summary report.

Once ranked, a project is considered in the annual priority ranking step for up to three years. If, after three years, a project has not received a high enough priority to proceed, the project requestor will be notified it will no longer be eligible for consideration, unless a

current petition to participate is provided. This time limitation ensures that the project requests continue to remain a neighborhood priority and avoids needless waste of time and resources due to changes in local interest in the project.

The project requestor will be notified when the three-year limit expires. At that time, a new request may be made to re-enter the project in the program. If needed, current data may then be collected to recalculate the assignment of points.

The Pros and Cons of Stage 2 Traffic Calming

Before the City decides to consider pursuing Stage 2 traffic calming actions, it is important that the benefits and disadvantages be carefully considered. While Stage 2 actions can be successful, they can also result in problems more significant than the original concern. This section will describe the pros and cons of the Stage 2 traffic calming tools described previously. In most cases, the benefits are predictable, while the disadvantages can be much more unexpected. Consequently, a greater emphasis has been placed on the potential problems so that decisions can be made in a fully informed manner.

Pros

- Traffic Calming Measures Often Achieve the Desired Result

  Physical actions such as the installation of speed humps, traffic circles, street closures, etc. are almost always successful in forcing traffic to behave in an intended fashion. In certain situations, they can achieve the desired result by utilizing a one time capital expenditure and generally low ongoing maintenance costs.

- Permanence

  Stage 2 traffic calming actions are generally viewed as much more permanent solutions than Stage 1 actions. In most instances the alternative approach to the desired result involves repetitive and costly ongoing Stage 1 traffic calming actions. There are significant potential benefits to utilizing State 2 traffic calming actions which is why some communities have implemented Stage 2 actions and many other communities are exploring their possible use.

- Accident and Crash Reduction

  One of the most important impacts of traffic calming is the potential reduction in the severity and number of crashes on traffic-calmed streets. Safety is enhanced through increased driver awareness of other street users and reductions in volumes, speeds and conflicts. In the United States, reduction of crashes due to traffic calming measures has been reported to be an overall average of 50 percent. Traffic circles appear to offer the greatest reduction in collisions. Speed reduction is especially important for pedestrian safety, as the severity of injury to a pedestrian when hit by an automobile is dramatically reduced by lowering vehicle speeds from 35 mph (usually fatal) to fewer than 20 mph (usually just minor injuries).

Cons

- Delays in Emergency Response Vehicles

  This is especially true for fire apparatus and ambulance. Because of the heavy weight of fire engines, and delicate instruments and patients within ambulances, these vehicles must almost come to a complete stop when they encounter a bump, dip or sharp curve. Creating bumps, dips, and sharp curves is often precisely the result of many of the traffic calming tools. While these maneuvers will cause moderate discomfort and delay for normal passenger vehicles, they cause a much greater problem for emergency vehicles.

  The time required responding to medical emergencies or building fires by emergency personnel and apparatus has a significant influence on the outcome of the event. In cardiac arrest cases, literally seconds count in the patient's chance of survival. From the moment of collapse, the likelihood for recovery diminished by 10% for each minute which passes. Likewise, in their early stages, fires grow at a geometric rate. Minutes could mean the difference between a small fire easily contained and a fire causing major property loss and possible injury or death. For these reasons, the City's Fire Services Division is concerned with any physical action which would force delay upon responding emergency vehicles.

- Diverting the "Problem" Traffic to Another Neighborhood Street

  Another concern has been the realization that in many instances implementing traffic calming tools would be likely to move the problem rather than solve the problem. In virtually all instances, the traffic being controlled by physical traffic calming tools will not disappear or make major changes in its travel patterns. In most instances the placing of impediments on a particular neighborhood street will merely divert some or all of that traffic to other neighborhood streets.

- Everyone is Inconvenienced

  Enforcement and education efforts aimed at controlling speeds or influence driver behavior impact primarily the irresponsible drivers - usually a relatively small percentage of the driving population. On the other hand, physical traffic calming measures create delay and inconvenience for all drivers using the particular street.

- Benefits Sometimes Very Localized

  While speed humps are generally very effective in reducing speed in the immediate vicinity of the humps, they often result in higher speeds between the humps as drivers try to "make up" for the delay at the humps. Consequently, while using the speed humps to lower the average speed, it is likely that the top speeds on the street will increase. This result has been clearly documented in many studies regarding the use of speed humps or non-warranted stop signs for speed control.

  Other Stage 2 traffic calming actions can also result in benefits near the installation but disadvantages elsewhere within a neighborhood. In the case of neighborhood intersection traffic circles, the results are often similar to speed humps with drivers traveling at higher velocity between the circles to "make up" the lost time. Actions such as diverters, barriers, and medians can often improve the situation where the traffic movement has been prohibited but can significantly worsen the problems to the streets where the traffic has been diverted.

- Actions can be Significant for Certain Types of Vehicles

  Speed humps can significantly increase the cost of maintaining heavy vehicles. While not readily quantifiable, this is an important consideration related to the maintenance cost for fire engines, refuse trucks, etc. This is an especially serious concern for vehicles that will confront the traffic calming actions on a continual or repeated basis.

- Impacts on Parking and Other Road Users

  Bicyclists, pedestrians and any other road user can encounter problems with physical traffic calming measures. All measures are designed to be acceptably safe for all users, assuming that these users are attentive as they proceed down the street. Speed humps and traffic circles, for example, are two of the most popular traffic calming measures. Bicyclists can traverse speed humps at typical cycling speeds without slowing down. However, if the bicyclists is careless (e.g., riding with no hands, not watching the road, no lights at night, etc.), the bicyclist might unexpectedly encounter a hump and be caught off balance. Where lanes are narrowed, bicyclists and drivers usually must share the lane, possibly becoming a problem if traffic volumes

are moderate to high. Traffic circles force drivers to the right at intersections, toward (but not into) the crosswalks, and pedestrians sometimes feel that their safety is being compromised. Residents who are used to parking in front of their homes on the street may also be impacted, as some measures require the prohibition of on-street parking. These disadvantages for various user groups need to be considered along with the recognized benefits of overall traffic speed and volume reduction that result from a traffic calming project.

- Visual Impacts, Noise Impacts and Aesthetic Concerns

  While some traffic calming devices can have favorable aesthetic impacts, others can be, by their nature, unsightly. Actions such as speed humps and diverters most often pose no opportunity for the incorporation of aesthetics and can certainly have negative visual impacts. Additionally, virtually all Stage 2 traffic calming devices require reflective devices, signs and striping which negatively affect the aesthetics of a neighborhood.

  Since these devices are intended to pose obstacles to cars, they must be very well signed, marked and lit in order to minimize potential safety problems and potential liability exposure. While the signing, marking and lighting are clearly justified for those reasons, they certainly negatively impact neighborhood aesthetics.

  Noise in the area of traffic calming devices, such as speed humps, can increase due to the deceleration and acceleration of vehicles. There is also usually noise created by the vehicle traversing a speed hump.

  The City considers the balance of the Traffic Calming pros and cons and recognizes that there are situations where the benefits of traffic calming outweigh the disadvantages. With each individual Neighborhood Traffic Calming Study that is conducted, City staff and residents must carefully weigh these advantages and disadvantages of each traffic calming action.

Traffic Calming Request Form

This form is to enable neighborhoods to request the possible initiation of a traffic calming study in accordance with the Traffic Calming Policy. Please fill out the form (only 1 per request) and submit it to:

The City of Green Bay
The Department of Public Works | Traffic Division
100 N Jefferson Street, Room 300
Green Bay, WI 54301
Attn: Traffic Engineer

1. Contact Information

Name: _____
Address: _____
Phone Number: _____E-mail: _____

2. Please describe the location of the traffic concern. Attach a map or picture if necessary:

_____
_____
_____
_____
_____

3. Please list possible solutions to the problem that you would like the City of Green Bay to consider:

_____
_____
_____
_____
_____

Neighborhood Petition Form

Petition for Neighborhood Traffic Calming Measures

THE UNDERSIGNED AGREE TO THE FOLLOWING:

1. All persons signing this petition do hereby certify that they reside within the impacted area, which is hereby defined as the street segment of:

_____

_____

_____

2. All persons signing this petition do hereby agree of the following problem in the defined impacted area:

_____

_____

_____

3. All persons signing this petition do hereby agree that the following contact person(s) represent the neighborhood as facilitator(s) between the neighborhood residents and the City of Green Bay staff in matters pertaining to items 1 and 2 above:

_____

Name Address Phone #

_____

Name Address Phone #

_____

Name Address Phone #

Use next page or backside for additional signatures...

Only One Signature Per Address

1.	Name (print)	Address	Phone	Signature
2.	Name (print)	Address	Phone	Signature
3.	Name (print)	Address	Phone	Signature
4.	Name (print)	Address	Phone	Signature
5.	Name (print)	Address	Phone	Signature
6.	Name (print)	Address	Phone	Signature
7.	Name (print)	Address	Phone	Signature
8.	Name (print)	Address	Phone	Signature
9.	Name (print)	Address	Phone	Signature
10.	Name (print)	Address	Phone	Signature
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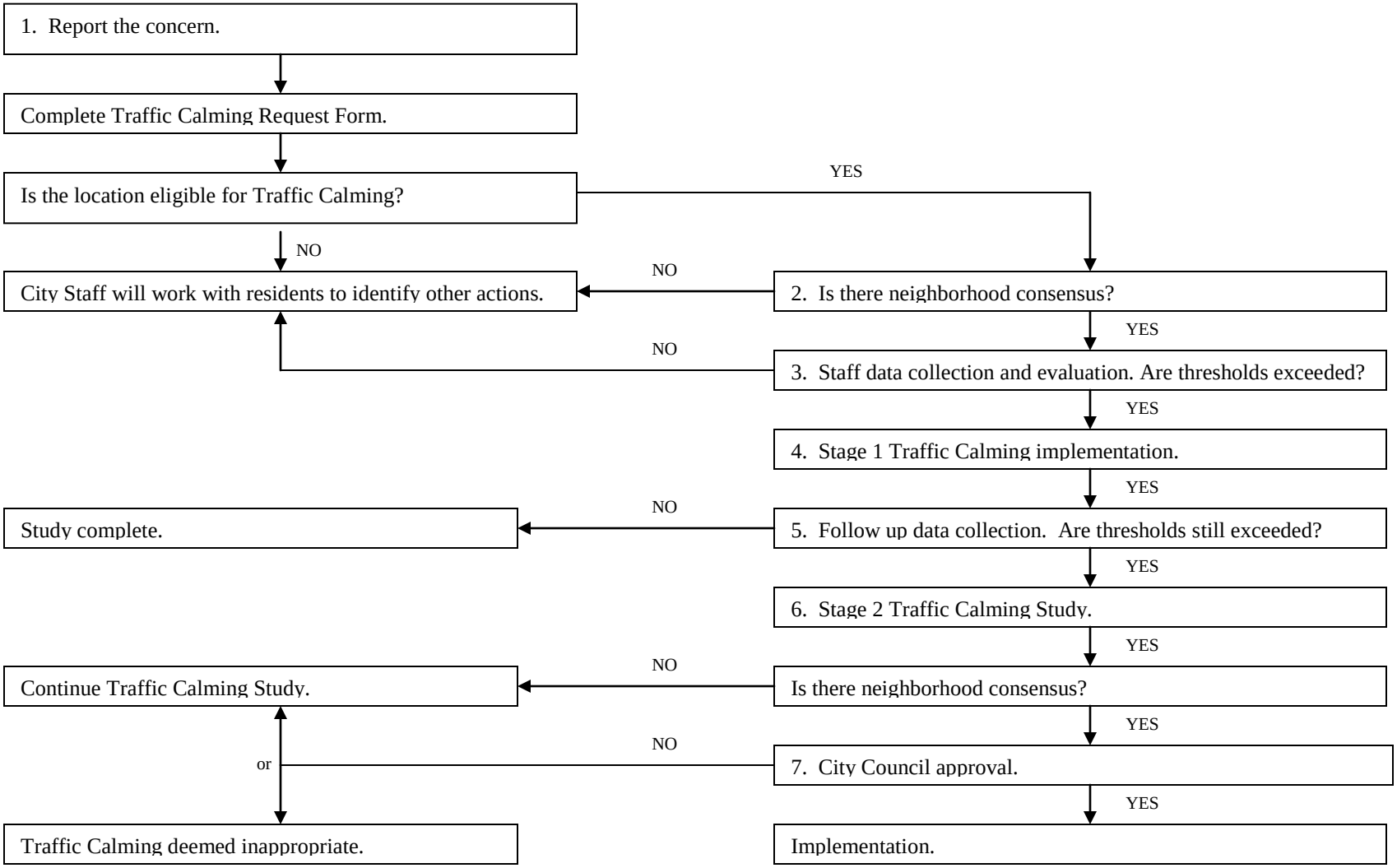
15.	Name (print)	Address	Phone	Signature
16.	Name (print)	Address	Phone	Signature

Appendix 1 – Traffic Calming Flow Chart



Appendix 2 – Point Assignment for Ranking Requests

POINT CRITERIA	DESCRIPTION	POINTS
1. Average Daily Traffic Volume (ADT)	(On the segment of the project street having the highest volume) divided by 100.	Max of 30
2. Speed	Percent of vehicles 5 mph over the posted or statutory speed limit (On the segment of the project street having the highest percentage over the limit), divided by 3.	Max of 30
3. Crash Record (Reportable Crashes Only)	Number of crashes per block segment multiplied by 5. Mid-block crashes count as 1. Intersection crashes counts as 1/2 cross street.	Max of 30
4. Elementary, Middle and High Schools	For a public or private elementary, middle or high school within one-quarter mile of the petition area	5
5. Other High Pedestrian Generating Areas	Up to 5 points for each pedestrian oriented facility, such as an ambulatory elderly housing development, library, or a City park on the street or within one-quarter mile of the petition area. For pedestrian oriented facilities grouped together on the subject street or within one-quarter mile of the petition area, up to 5 points for the group.	Max of 10
6. Designated School Walk Route	If the petition area includes one or more Recommended School Walk Routes as designated by the City. If the petition area includes one or more crossing guard locations	5 5
7. Designated Bicycle Routes	If the petition area includes one or more subject streets designated as a bicycle route on the Brown County Bicycle and Pedestrian Plan.	5
8. Time on Project List	Any project which has been on the Neigbhorhood Traffic Calming priority ranking list for the previous 2 or more years. This provides recognition for the length of time a neighborhood project has been on the ranking list.	2
9. Scheduled Road Reconstruction	To take advantage of a pending street reconstruction project, a traffic calming project which is desired for a street that is to be reconstructed will be ranked with others on its own merits, and decisions on whether or not to proceed will be decided by t	As applicable per Items 1-8

NOTES:

* A project must score 30 or more points to be considered eligible for further inclusion in the NTCP.
* The point total is considered along with other information when determining the priority of a project.