



TRAFFIC CALMING POLICY

TRAFFIC CALMING POLICY
CITY OF CONCORD

TRAFFIC CALMING POLICY

What is Traffic Calming?

To some, traffic calming is defined by speed limit reductions, to some it is the installation of traffic control devices, and to others traffic calming is an attempt to reduce traffic volume and the negative effects that large volumes of traffic can have on residential neighborhoods. In the most basic terms, traffic calming is a programmatic response to inappropriate speeds or volumes on residential streets.

PURPOSE:

The City of Concord's Traffic Calming Policy was developed to guide city staff and to inform residents of the process for implementing traffic calming in residential areas. The guidelines in this policy will assist City staff in determining an appropriate course of action upon receiving a citizen's request.

To aid in prompt responses to traffic related concerns of the citizens of Concord, the City Manager has directed the Transportation Director, the Chief of Police, the Chief of the Department of Fire and Life Safety, and the Emergency Management Coordinator and their designated staff to sit as a Traffic Safety Advisory Committee (TSAC) to evaluate, work with residents, provide sensible and programmatic responses to each request, and recommend certain actions to City Council for consideration of implementation.

POLICY:

Streets that are maintained by the City of Concord and are considered to be local streets mainly in residential areas are covered under this policy. These streets serve as local circulation for automobiles, bicycles, and pedestrians and do not carry significant volumes of through traffic. They also tend to be adjacent to residential areas. **Streets identified as an expressway, major thoroughfare, minor thoroughfare, or major collector or city streets carrying more than 4,000 vehicles per day are not eligible under this policy.**

PROCEDURE FOR INITIATING A TRAFFIC CALMING REQUEST:

Citizens or neighborhood associations, (hereinafter "Applicant"¹), may submit a Request for Traffic Calming form to City of Concord Transportation Department staff either through mail at P.O. Box 308, Concord, NC 28026, or through email using the contact information for the Administrative Division found on the Transportation Department Contacts page on the City of Concord website at <https://www.concordnc.gov>.

Once a request is received, staff will initiate an engineering study to determine if traffic calming or additional traffic control devices are warranted.

Multiple requests for traffic calming in the same area within a 36 month period will not be evaluated without sufficient cause. Sufficient cause is determined at the discretion of the Transportation Director and/or the Traffic Safety Advisory Committee (TSAC).

¹ Applicant – Resident, petitioners, neighborhood association, or other entity initiating the request.

TRAFFIC ENGINEERING STUDY:

The Transportation Department will conduct field observations/site visits, and collect pertinent data to perform any necessary warrant analyses. Once the following information is collected, an initial recommendation will be determined by the Traffic Safety Advisory Committee (TSAC).

- Geometric features of the roadway (lane width, shoulder width, sight distance, and sidewalks)
- Traffic volume data and verification of street classification
- Speed data to determine the 85th percentile speed and extent of speeding violations should they exist
- Accident data through Concord Police Department Records
- Observation of pedestrian and bicycle activity
- Other information as deemed necessary

The Transportation Department will perform data collection, field observations, and applicable analyses within 30 days of receipt of the Traffic Calming Request where possible. In an effort to get the best representative data, school schedules, equipment availability, weather and other factors will be considered and may extend the time required to complete data collection. If it is determined that data collection or analysis will take longer than 30 days the Applicant will be notified no later than 30 days of receipt of the Traffic Calming Request.

Once the applicable data has been collected and subsequent analyses are complete, the results will be discussed at the next feasible TSAC monthly meeting. A Traffic Engineering Study Summary documenting the study results and subsequent TSAC recommendations will be prepared. The Study Summary will include the Impacted Area of any recommended traffic calming measures beyond those considered to be low cost / low impact. The Applicant will be notified of any recommendations within 5 business days from the TSAC meeting in which the request is discussed and will be provided with a copy of the Traffic Engineering Study Summary upon request.

GUIDELINES AND RECOMMENDATIONS:

There is no “one size fits all” solution to specific areas or types of concerns. For that reason, every unique request will be evaluated on a case by case basis. The Traffic Safety Advisory Committee (TSAC) is charged with analyzing requests and making recommendations for potential actions to be taken. Recommendations will be made based on the severity and type of any identified issues. State and national traffic calming examples and trends, Institute of Transportation Engineers (ITE) and the Federal Highway Administration (FHWA) traffic calming recommendations and procedures, as well as other applicable resources will be researched while determining any potential recommendations. All recommendations shall conform to the requirements and guidelines in the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD) as well as all prevailing local, state, and federal regulations and laws. Some examples of potential recommendations include but are not limited to (see Appendix A for descriptions):

TRAFFIC CALMING POLICY

Low Impact / Low Cost Traffic Calming Measures

- Referral to Concord Police Department’s watch list for targeted enforcement.
- Temporary Radar Speed Display Devices.
- Signage and warning device changes/enhancements.
- Low cost traffic improvements (striping, parking changes, etc.)

Other Traffic Calming Measures

- Median barriers.
- Neighborhood traffic circle / mini-roundabout.
- Chicanes, Chokers, or other travel lane narrowing / diverting device.
- Permanent/rotational schedule Radar Speed Display Devices.

Prioritization

The TSAC will perform additional reviews to assign a prioritization scores to each high cost / high impact project based on the following table:

City of Concord Traffic Calming Prioritization Criteria			
Criteria	Points Allowed	Points Awarded	Notes
Traffic Volume	1		For each 200 vehicles per day over 1500
Speeding	2		For each mph the 85th percentile speed is over the posted speed limit
Schools, Daycares Etc.	5		If within 1,200 feet of facility
Sidewalks	9		No sidewalks on either side of road
Sidewalks	4		Sidewalk on one side of road
School Crossing	7		If there is an official school crossing on the street
Pedestrian generator	5		If there is an activity within 1,200 feet that generates high numbers of pedestrians
Accidents	5		For each pertinent accident over a 3 year period
Residential density	1		Times the R Zoning District
Total Points Awarded			

This prioritization score will be taken into consideration for funding recommendations and project approval. If approved, traffic calming projects with the highest prioritization would be completed first.

Neighborhood Awareness Campaign

Because many people exceed the posted speed limit in their own neighborhoods the TSAC recommends a Neighborhood Awareness Campaign anytime there is a perceived concern. This should take place prior to and alongside any other potential traffic calming measures. “Speeders” are not always nonresidents – most are neighbors and friends who are committed to safe, peaceful neighborhoods. Nevertheless, speeding in residential areas is a bad habit and it takes a unified effort to help break it. That’s why neighborhood activity is so important. Neighbors should remind neighbors to pay attention to their driving habits and of their mutual responsibility to the residents living in the community. HOA’s and residents should take it upon themselves to use several creative methods for reducing traffic problems in neighborhoods:

- Hold discussions at scheduled neighborhood meetings
- Hold a “slow down” block party to get people to think about their driving habits.
- Groups of residents can walk the neighborhood with door hangers and talk to neighbors about neighborhood traffic safety.
- Leave the cars at home. Encourage family and friends to ride bicycles, walk or take the bus to destinations. This will reduce the traffic volume and speeding in the neighborhood.
- Contact GPS mapping companies and request possible cut through routes be removed or reserved for local traffic only.

These are just a few examples of ideas to assist residents in the education and enforcement of neighborhood traffic problems. It is the responsibility of the Applicant to begin this process and to keep the city staff apprised of the methods that are being employed in their neighborhood.

Vertical Deflection Devices

The City of Concord does not allow for the installation of vertical deflection devices along any City maintained street.

Speed Bumps are perhaps the most requested and misunderstood traffic calming device in Concord. Research shows varying opinions and reports on the effectiveness of Speed Bumps and other vertical deflection devices and each municipality has its own policy. While the benefits of Speed Bumps and other vertical devices are debatable, the negatives associated with them are quite clear. Impacts to emergency response, increased noise as vehicles pass over bumps, increased braking and acceleration noise, potential increased speeding between devices to make up time, increased wear on vehicles regularly traveling over bumps, street maintenance difficulties, snow and ice removal hindrance, potential liability, and a history of requests to remove previously installed speed humps are all among the negatives of speed bumps and other vertical deflection devices. For these reasons, the City of Concord does not allow the use of in-street vertical deflection devices.

Some examples of vertical deflection devices are:

- Speed bumps / humps.
- Raised intersections.
- Speed Tables.

Multi-Way Stops and Traffic Signals

At no time should a stop sign be installed as a traffic calming measure in response to potential speeding concerns. Stop signs serve to assign right-of-way and multi-way stops will only be considered in instances where the MUTCD warrant analysis indicates that a multi-way stop is appropriate. Similarly, traffic signals serve as traffic control devices and will only be considered where the MUTCD warrant analysis indicates a traffic signal is appropriate. For more information on Multi-Way Stops and Signals please see the Transportation Department's informational brochure.

Speed Limit Changes

Requests for changes to speed limits on City controlled streets in residential areas will be considered per the guidelines outlined in the City of Concord's Speed Limit Change policy.

Parking Restrictions

Requests for Parking Restrictions on City controlled streets will be considered per the guidelines outlined in the City of Concord's Parking Restrictions Policy.

Non-Approved Signs

Design, application, and placement of traffic control devices other than those adopted in the Manual on Uniform Traffic Control Devices (MUTCD) shall be prohibited. The most frequently requested signs that are not MUTCD approved are "Children at Play" signs. The City of Concord does not install "Children at Play" signs and will remove these signs if they are found to be placed along a city-maintained street. For more information on "Children at Play" signs please see the Transportation Department's Children at Play and Other Non-Standard Signs brochure.

Decorative Signs

Any newly erected signs will be on standard u-channel posts in compliance with the MUTCD requirements. Neighborhoods, or other entities with decorative signs will be responsible for installing decorative materials in accordance with their respective encroachment agreements.

If it is discovered that decorative signs exist in neighborhoods or other areas and a valid encroachment agreement does not exist, the HOA or other organization will be required to request an agreement from the City of Concord or remove all decorative elements and replace them with standard materials at the expense of the HOA or other entity.

Liability Concerns

There is limited documentation that specifically indicates that traffic calming devices and measures create direct traffic hazards. However, the installation of in-street traffic calming devices and measures onto the City's streets may create additional liability to the City. This liability must be balanced against the increased safety that results from lower speeds or limited access on City streets.

FUNDING FOR TRAFFIC CALMING PROJECTS:

The City of Concord has not identified any special funding source for traffic calming projects, nor has the City set-aside any existing funds to be used exclusively on traffic calming projects. Potential funding options available are special assessments, private funding, and operating funds. City Council will determine the appropriate funding mechanism for the installation of traffic calming devices on a case by case basis.

- **Assessments:** Installation of traffic calming devices is considered a street improvement and is eligible for special assessments in accordance with North Carolina General Statute § 160A-216 (1).
- **Private Funding:** Residents of an existing neighborhood wishing to accelerate the process may choose to fund all or part of the development, construction and installation of their requested traffic calming measures.
- **General Fund (Operating Budget):** The City of Concord may cover the cost of activities associated with the development, construction and installation of traffic calming devices dependent upon the availability of funding and City Council approval.

Should a project be recommended for Private Funding, the Applicant will be responsible for raising 90% of their portion of the estimated costs prior to the City advertising any contracts for services and construction, and 100% of their portion of the contract quote/bid within 30 days of receipt prior to the contract being submitted to City Council for final approval.

Should a project be recommended for private funding and City staff are to perform construction, the Applicant will be responsible for raising the estimated costs of materials and labor per the current City of Concord Adopted Fees, Rates and Charges Schedule.

TRAFFIC CALMING IMPLEMENTATION:

The Applicant is responsible for implementing a Neighborhood Awareness Campaign. The Transportation Department, together with the other TSAC members, will provide for the planning, applicable design, and implementation of most low impact / low cost traffic calming measures that are recommended beyond Neighborhood/Community Education Campaigns without further action by the Applicant.

Other traffic calming measures of a higher cost, or potentially high impact may require more in depth design and funding considerations. If the TSAC recommends traffic calming measures beyond those considered to be low impact / low cost all requirements of the implementation process will need to be completed.

High Cost / High Impact Traffic Calming Measure Implementation Process

Prior to the implementation of any traffic calming measures considered to be potentially high impact or high cost the following requirements must be met:

TRAFFIC CALMING POLICY

- Transportation Department staff will determine an Impacted Area² and identify all properties within that area as well as identify those properties which could potentially be assessed in the event of special assessments being recommended as the funding mechanism for project implementation.
- A Traffic Calming Petition Form signed by at least 75% of the property owners³ (one per unit) designated by Transportation Department Staff to be within the Impacted Area is required in support of the implementation of the recommended traffic calming measures. In the instance of a commercial strip mall or development with multiple long term leased commercial entities falling within the identified Impacted Area, the Transportation Director reserves the right to treat each entity as a separate unit to be accounted for in the required 75%. In the case of a commercial business, only the Owner, authorized corporate officer, or other authorized representative with documentation showing such status will be counted. A completed petition should be submitted within 6 months from the date the Applicant is advised of the recommendations from TSAC. A completed petition should be accompanied by a verification statement from the Applicant confirming that the signatures on the petition are valid and represent at least 75% of the property owners within the Impacted Area. Failure to provide a completed petition within the time period allotted will result in the request being closed and ineligible for re-evaluation within 36 months.
- If an HOA or other neighborhood organization is identified within the impacted area, a statement endorsing the implementation of the recommended traffic calming measures should be completed for each identified entity.
 - If an HOA or neighborhood organization refuses to endorse the implementation of the recommended traffic calming measures then a minimum of 75% of the property owners that fall within both the respective HOA or other neighborhood organization and the impacted area must be in support of the implementation. The Traffic Calming Verification Statement and Petition should reflect such status.
- A Public Hearing will be held before City Council prior to the implementation of any in-street structural traffic calming measures are implemented. City Council will indicate support for recommended traffic calming projects and will make recommendations for project funding.
- If City Council indicates support for a traffic calming project, a final design will be completed and an estimate of construction costs will be prepared.
 - Depending on the scope of the project and the availability of City staff, contracted services may be required for the design and construction of recommended traffic calming measures. If it is determined that City staff can complete the design then funding for design services will not need to be secured. If City staff are unable to complete the design then an estimate for the costs of design services will be obtained in order to secure funding. Similarly, if it is determined that construction services will need to be contracted then an estimate for construction will be performed after the design is completed.
- Project funding should be secured and available for design services and construction according to the funding recommendations made by City Council.

² Impacted Area – Area determined by Transportation Department staff to be affected by potential traffic calming measures, and has the support of 75% of the property owners in order to implement traffic calming measures.

³ Property Owner – Individual or entity in possession of title for the land, building, or other. Renters/Tenants will not be considered.

TRAFFIC CALMING POLICY

- If special assessments are recommended by City Council as the funding source for a traffic calming project, the property owners to which the assessments apply may not include all those determined to be in the impacted area. Special assessments will be levied and collected in accordance with North Carolina General Statute § 160A.
- If Private Funding is recommended, the Applicant is responsible for raising the required funding prior to design and/or construction contracts being submitted to City Council for approval.
- Any required Right-of-Way and Easements will be sought after project funding has been secured.
- A contract for the construction of the traffic calming project will be advertised and awarded in accordance with City of Concord policies and procedures.
 - City of Concord staff will administer contracts for traffic calming projects regardless of the funding source.

Post Implementation

Post construction monitoring and re-evaluation will be performed at various intervals from 3 months to 3 years depending on the nature of the project and the necessity for minimum data collection sufficient to determine the effectiveness of a completed traffic calming project.

Requests from residents/citizens for the removal of traffic calming measures will only be considered after sufficient data has been collected to determine the effectiveness of the device(s) and will be required to follow the same general process as a traffic calming request. Where post-implementation monitoring and evaluation of a completed traffic calming project shows positive results and improved safety, a removal request should include sufficient reasoning supporting the removal of the device(s). Removal requests based merely on inconvenience will not be considered. All costs associated with the removal of traffic calming devices will be the responsibility of the party initiating the request.

If at any time post implementation of a traffic calming measure City staff determines that unforeseen issues exist as a result of the traffic calming measures, the Transportation Director reserves the right to remove, redesign, or alter said traffic calming measure. Should a traffic calming measure be determined to need removal or redesign, a technical memorandum will be prepared outlining the reasoning and justification for such action.



APPENDIX A

TRAFFIC CALMING REFERENCE GUIDE

The examples shown in this appendix are given for informational purposes only and are not intended to represent all possible traffic calming measures which may be used in a given situation. The inclusion of a specific traffic calming measure in this appendix does not indicate the likelihood of whether or not that specific measure will be considered for use at any time.

Driver Feedback Radar Speed Displays



Description:

- Dynamic displays intended to remind drivers of their speed
- Typically trailer or post mounted

Applications:

- Appropriate on most streets where there is a perception of a speeding issue
- Temporary short term placement or permanent installation is possible
- Appropriate for both one-way and two-way streets in urban and suburban settings
- Works well in conjunction with an enforcement campaign to educate drivers

TRAFFIC CALMING POLICY - APPENDIX A

Design/Installation Issues:

- Permanent applications should meet MUTCD guidelines for design and installation
- Power sources should be determined prior to installation
- Should be placed for radar to work properly and display to be visible to drivers
- Should not interfere with traffic



Potential Impacts:

- Studies have shown that when alerted by a radar speed display driver feedback sign, speeders slow down up to 80% of the time. Overall compliance with the posted speed limit has been reported to increase 30-60%

Emergency Response Issues:

- No impacts to emergency response

Typical Cost (2017 dollars):

- Approximately \$5,000-\$8,000 per unit depending on options and available solar attachments, potentially more if permanent power supply needs to be installed.

Traffic Circles



Description:

- Raised islands placed in un-signalized intersections around which traffic circulates
- Approaching motorists yield to motorists already in the intersection
- Require drivers to slow to a speed that allows them to comfortably maneuver around them
- Approaches not designed to modern roundabout principals - no deflection

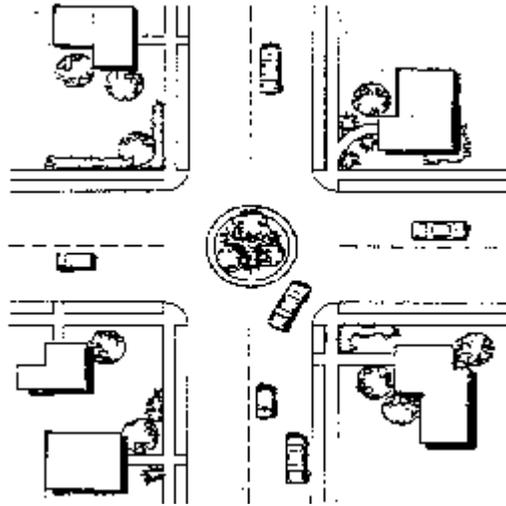
Applications:

- Appropriate at intersections of local streets
- One lane each direction entering intersection
- Not typically used at intersections with high volumes of large trucks or buses
- Appropriate for both one-way and two-way streets in urban and suburban settings

Design/Installation Issues:

- Typically circular in shape, though not always
- Sometimes landscaped in their center islands
- Recommend YIELD signs on all approaches
- Key design features are the offset distance (distance between projection of street curb and center island), lane width, circle diameter, and height of mountable apron for large vehicles
- Drainage

TRAFFIC CALMING POLICY - APPENDIX A



Potential Impacts:

- Minimal anticipated traffic diversion
- Large vehicles/buses may not be able to circulate around center island for left turns, mountable islands may be needed
- Landscaping needs to be designed to allow adequate sight distance, per AASHTO
- Potentially reduces number and severity of collisions

Emergency Response Issues:

- Emergency vehicles typically slow to approximately 13 mph; approximate delay of between 5 and 8 seconds per circle for fire trucks
- Fire trucks can maneuver around traffic circles at slow speeds provided vehicles are not parked near the circle

Typical Cost (2017 dollars):

- Approximately \$15,000, with a range between \$10,000 and \$25,000

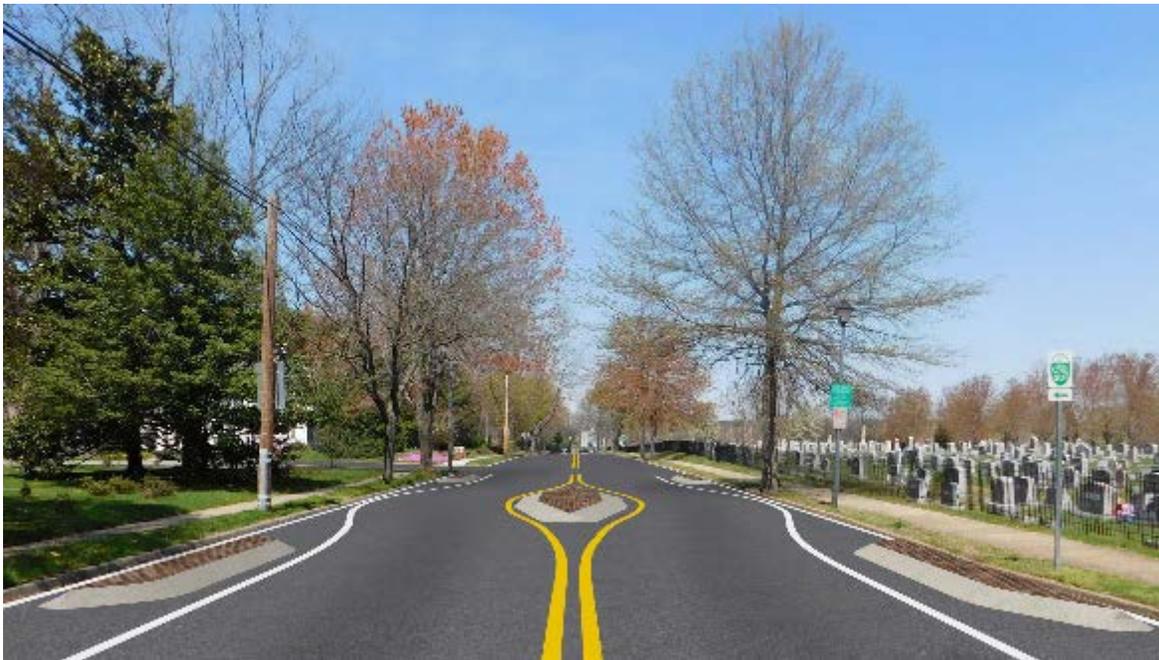
Chicane

Description:

- A series of alternating curves or lane shifts that force a motorist to steer back and forth instead of traveling a straight path
- Also called deviations, serpentines, reversing curves, or twists

Applications:

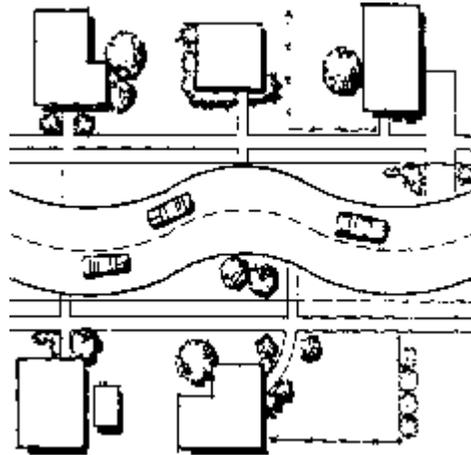
- Appropriate for mid-block locations but can be an entire block if it is relatively short
- Most effective with equivalent low volumes on both approaches
- Appropriate speed limit is typically 35 mph or less
- Typically, a series of at least three landscaped curb extensions
- Can use alternating on-street parking from one side of a street to the other
- Applicable on one-lane one-way and two-lane two-way roadways
- Can be used with either open or closed (i.e. curb and gutter) cross-section
- Can be used with or without a bicycle facility



Design/Installation Issues:

- Chicanes may still permit speeding by drivers cutting straight paths across the center line
- Minimize relocation of drainage features
- May force bicyclists to share travel lanes with motor vehicles
- Maintain sufficient width for ease of emergency vehicles and trucks throughout

TRAFFIC CALMING POLICY - APPENDIX A



Potential Impacts:

- No effect on access
- Street sweeping may need to be done manually
- Can impact parking and driveway access
- Provides opportunity for landscaping

Emergency Response Issues:

- Appropriate along primary emergency vehicle routes

Typical Cost (2017 dollars):

- Reported costs range between \$8,000 and \$25,000

Choker / Bulb-out



Description:

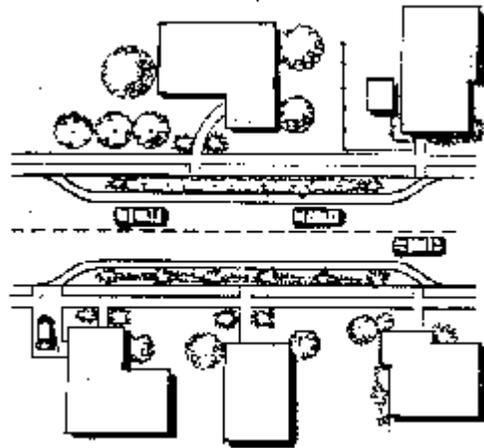
- Curb extension is a lateral horizontal extension of the sidewalk into the street, resulting in a narrower roadway section
- If located at an intersection, it is called a corner extension or a bulb-out
- If located midblock, it is referred to as a choker
- Narrowing of a roadway through the use of curb extensions or roadside islands

Applications:

- Can be created by a pair of curb extensions, often landscaped
- Encourages lower travel speeds by reducing motorist margin of error
- If the pinch point is angled relative to the roadway, it is called an angled choker
- May be suitable for a mid-block crosswalk
- Appropriate for local streets

Design/Installation Issues:

- Can be used on a one-lane one-way and two-lane two-way street
- Most easily installed on a closed-section road (i.e. curb and gutter)
- Applicable with or without dedicated bicycle facilities
- Applicable on streets with, and can protect, on-street parking
- Typical width of 6 to 8 feet; offset from through traffic by approximately 1.5 feet
- Locations near streetlights are preferable
- Length of choker island should be at least 20 feet



Potential Impacts:

- Encourages lower speeds by funneling it through the pinch point
- Can result in shorter pedestrian crossing distances if a mid-block crossing is provided
- May force bicyclists and motor vehicles to share the travel lane
- May require some parking removal
- May require relocation of drainage features and utilities

Emergency Response Issues:

- Retains sufficient width for ease of use for emergency vehicles

Typical Cost (2017 dollars):

- Between \$1,500 and \$20,000, depending on length and width of barriers

Median Island



Description:

- Raised island located along the street centerline that narrows the travel lanes at that location
- Also called median diverter, intersection barrier, intersection diverter, and island diverter

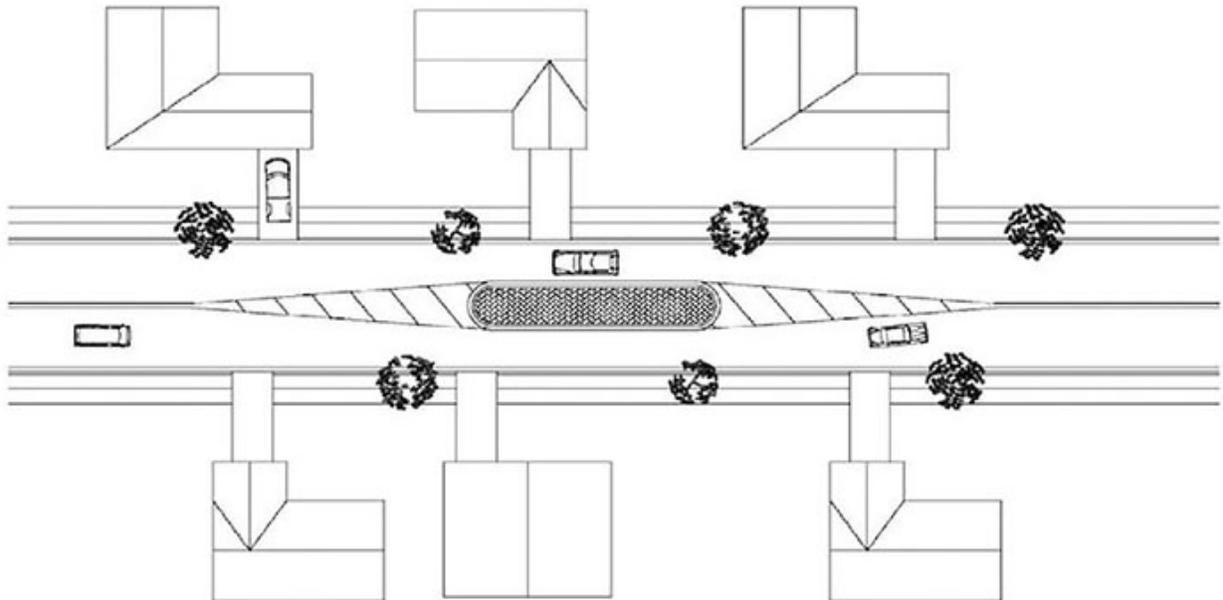
Applications:

- For use on arterial, collector, or local roads
- Can often double as a pedestrian/bicycle refuge islands if a cut in the island is provided along a marked crosswalk, bike facility, or shared-use trail crossing
- If placed through an intersection, considered a median barrier

Design/Installation Issues:

- Potential legal issues associated with blocking a public street (e.g., business or emergency access)
- Barriers may consist of landscaped islands, mountable facilities, walls, gates, side-by-side bollards, or any other obstruction that leave an opening smaller than the width of a passenger car
- Can be placed mid-block or on the approach to an intersection
- Typically installed on a closed-section roadway (i.e. curb and gutter)
- Can be applied on roads with or without sidewalks and/or dedicated bicycle facilities

TRAFFIC CALMING POLICY - APPENDIX A



Potential Impacts:

- May impact access to properties adjacent to islands
- Little impact on traffic volume diversion
- Safety can be improved without substantially increasing delay
- Shortens pedestrian crossing distances
- Bicyclists may have to share vehicular travel lanes near the island
- May require removal of some on-street parking
- May require relocation of drainage features and utilities

Emergency Response Issues:

- Appropriate along primary emergency vehicle roads or street that provide access to hospitals/emergency medical services

Typical Cost (2017 dollars):

- Cost between \$1,500 and \$10,000, depending on length and width of island

Closures

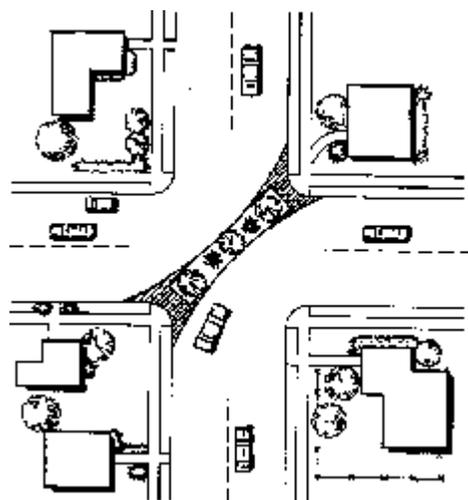


Applications:

- Appropriate for local streets (half and full), at intersection (half and full), or mid-block (full closure only)
- Typically applied only after other measures have failed or are deemed inappropriate or ineffective
- Typically found on closed-section roadways (i.e. curb and gutter)
- Can be applied with and without dedicated bicycle facilities and on roads with on-street parking
- Often used in sets to make travel through neighborhoods more circuitous
- Not appropriate along bus transit routes

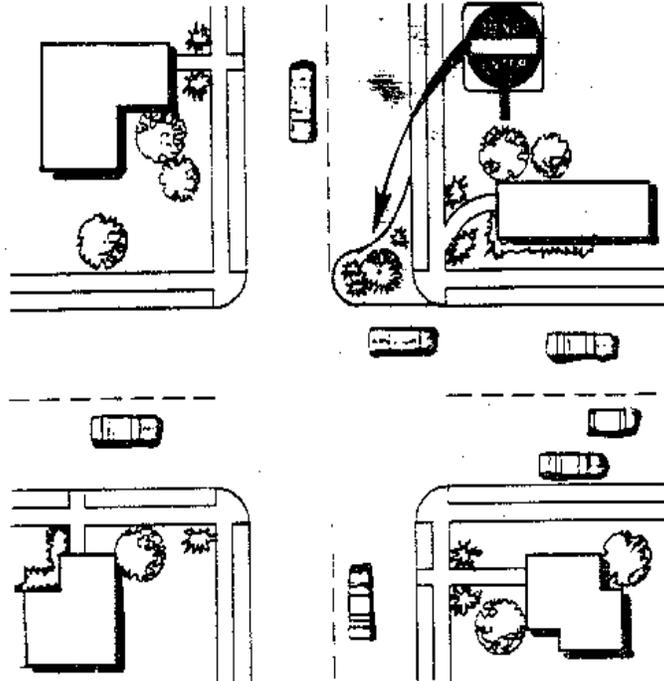
Descriptions:

Diagonal diverters are barriers placed diagonally across an intersection, blocking through movement; they are sometimes called full diverters or diagonal road closures.

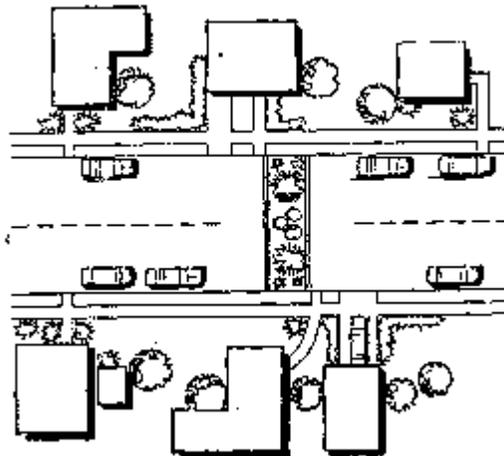


TRAFFIC CALMING POLICY - APPENDIX A

Half closures are barriers that block travel in one direction for a short distance on otherwise two-way streets; they are sometimes called partial closures, entrance barriers, or one-way closures (when two half-closures are placed across from one another at an intersection, the result is a semi-diverter).

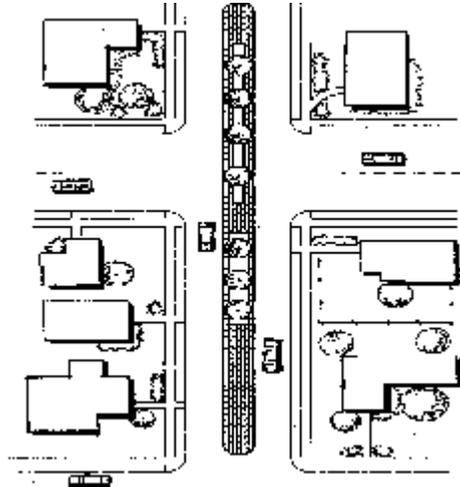


Full-street closures are barriers placed across a street to completely close the street to through-traffic, usually leaving only sidewalks open; they are sometimes called cul-de-sacs, dead-ends, or mini-parks.



TRAFFIC CALMING POLICY - APPENDIX A

Median barriers are raised islands in the centerline of a street and continuing through an intersection that block the left turn movement from all intersection approaches and the through movement at the cross street.



Design/Installation Issues:

- Issues associated with closing a public street
- Can be placed at an intersection or midblock
- Barriers may consist of landscaped islands, walls, gates, side-by-side bollards, or any other obstruction that leave an opening smaller than the width of a passenger car
- Appropriate signage needed at entrances to full-closure street blocks
- May require modifications to maintain surface drainage capacity
- Should consider traffic diversion patterns and associated impacts
- Possible to make diverters passable for pedestrians and bicyclists

Potential Impacts:

- Concerns regarding street network connectivity and capacity
- May result in traffic diverting to other local streets (should be used in groups/clusters)
- Concern over effects on emergency response, street network connectivity and capacity, and parallel local streets that carry diverted traffic
- No significant effect on vehicle speeds beyond the closed block
- Can improve pedestrian crossing safety

Emergency Response Issues:

- Closures can increase response times and should not be used on roads/streets that provide access to hospitals or emergency medical services; half closures allow for a higher degree of emergency vehicle access than full closures
- All closure types can be designed to allow emergency vehicle access with removable, or breakaway delineators or bollards, gates, mountable curbs, etc.

Typical Cost (2017 dollars):

- Full Closure - <\$10,000 for simple closures, to \$100,000 for complex closures with drainage mods.
- Half Closure - \$3,000 for simple closure, to \$40,000 for complex closures with drainage mods.

The information provided in this appendix has been obtained from the research and experience of transportation engineering and planning professionals. The information is intended for informational and example purposes only and does not include ITE or FHWA recommendations on the best course of action.



Request for Traffic Calming

(Please Read the City's Traffic Calming Policy Prior to Submitting Request)

Name of Applicant: _____

Subdivision: _____

Address: _____

Day phone #: _____

E-mail address: _____

Neighborhood association (HOA) if applicable: _____

Please check the following that you feel apply to issues on your street:

- Speed of automobiles: _____
- Number of accidents: _____
- High pedestrian volume necessitates traffic calming: _____
- Lack of amenities (traffic control signs, sidewalks, etc.): _____

Please tell us about the specific problems on your street or in your neighborhood:

I have read the City of Concord Traffic Calming Policy and agree to be the named Applicant for this

request. _____ Date: _____
Signature of Applicant

Please submit your request by mail, or email to edwardsg@concordnc.gov. Further contact information can be found on the Transportation Department Contacts page on the City of Concord website at <https://www.concordnc.gov>.



Traffic Engineering Investigation

Project # _____

Date of Request: _____

Concern _____

Contact: _____

Street Name: _____ Date: _____

Investigated by: _____

Physical Features

Surface: _____ Pavement Width: _____

Number of Lanes: _____ Lane Width: _____

Striping: _____ Curbing: _____

Sidewalk: _____ Shoulder Width: _____

Sight Distance: _____

Other: _____

Street Classification: _____

Speed Study

Dates: _____ to _____ Device used: _____

Location of device: _____

Speed Limit: _____ MPH Posted? _____

85th percentile: _____ MPH Avg. Speed: _____

Max comfortable speed as performed by driving test: _____

AADT: _____

Accident Information

Number of accidents in lat 36 months: _____

Warrant Analysis

Multi-Way Stop: _____ Signal: _____

Notes _____

TSAC Agenda Date: _____



TRAFFIC SAFETY ADVISORY COMMITTEE

MEMORANDUM

To:

Date: February 25, 2019

Subject: Traffic Calming Request #

The Traffic Safety Advisory Committee has evaluated a request for traffic calming on **XXXXXXXXXX Road** received **XX/XX/XXXX** from the Applicant (applicant's name).

Summary of Findings

Analysis of collected data shows that the 85th percentile speed is XX MPH and the legal speed is XX MPH. ETC.....

Recommendations

At this time TSAC recommends

Preliminary cost estimates to implement these recommendations are \$ _____

Next Steps

Attached is a map of the Impacted Area showing the properties which will be included in the calculations for a Traffic Calming Petition. Properties to which a special assessment would apply should City Council recommend them as the funding mechanism are indicated on the Impacted Area map. It is the Applicant's responsibility to secure signatures indicating 75% of the property owners in the Impacted Area are in support of the proposed traffic calming measures. A completed petition should be returned to the Transportation Department along with a Petition Verification Statement from the Applicant within 6 months from the date of this memo. Upon receipt and verification of a completed petition the Traffic Calming Request will be scheduled for a Public Hearing held before City Council.

Attachments:

Traffic Engineering Investigation worksheet

Impacted Area Map (if applicable)

Petition Packet (if applicable)

Applicable Warrant Analyses (if applicable)

Prioritization (if applicable)

Other



**TRAFFIC CALMING PETITION
VERIFICATION STATEMENT**

TRAFFIC CALMING REQUEST # _____

There are a total of _____ properties identified within the Impacted Area. There are _____ valid signatures on the Traffic Calming Petition Form, which represent _____ % of the properties within the Impacted Area.

The HOA(s)/Neighborhood Organization(s) _____ **Endorses**, _____ **Does not Endorse** this Traffic Calming Request.

Please fill out this section if the HOA(s)/Neighborhood Organization(s) does not endorse this request (please use a separate sheet if there are multiple HOAs/Neighborhood Organizations who do not endorse this request):

There are a total of _____ properties identified within both the Impacted Area and the non-endorsing HOA/Neighborhood Organization. There are _____ valid signatures on the Traffic Calming Petition Form, which represent _____ % of the properties within this area.

I verify the signatures on the Traffic Calming Petition Form are those of the property owners of record, that they are valid, and that only one signature per property/business has been considered in the above percentage.

Signature of Applicant

Date: _____



TRAFFIC CALMING PETITION FORM

STREET NAME(S) _____

Proposed Traffic Calming Project Statement:

Number of Properties in Impacted Area: _____ Assessable Properties: _____

Preliminary Project Cost Estimate: \$ _____

Potential funding options to be recommended and approved by City Council:

- Special Assessments up to **100%** of the cost of the project in accordance with NC GS 160A (properties to be assessed, if recommended by City Council, are indicated on the Impacted Area Map or list)
- Private Funding
- City Operating Budget

Support from 75% of the property owners (one per property) within the Impacted Area is required for the traffic calming request to move forward in the approval process.

By signing below I certify that I support the referenced traffic calming request, and agree to the potential funding options noted above and further explained in the Traffic Calming Policy.			
PROPERTY OWNER PRINTED NAME & SIGNATURE	ADDRESS	TELEPHONE #	Identified as Assessable (Y/N)



TRAFFIC CALMING PROJECT ENDORSEMENT STATEMENT

TRAFFIC CALMING REQUEST # _____

In a meeting held on the _____ day of _____, _____, the _____ Homeowners Association (HOA) / Community Organization reviewed the Traffic Safety Advisory Committee's recommendations in regards to the Traffic Calming Request numbered _____ and hereby

Endorses _____ (Initials of Authorized Representative) the request and any subsequent project for future implementation on the identified streets within the respective area.

Does Not Endorse _____ (Initials of Authorized Representative) the request and any subsequent project for future implementation on the identified streets within the respective area.

Preliminary Project Cost Estimate: _____

Should City Council recommend funding for the implementation of the Traffic Calming Project other than authorizing 100% city funding, the HOA / Community Organization agrees to provide _____% (0-100%) of the project cost or \$_____ towards the implementation of the project. _____
Initials of Authorized Representative

Should the actual cost of the project cause the amount agreed to above to be \$1,500 or 10% more than stated, whichever is greater, further approval will be required.

This Endorsement Statement is provided in accordance with the by-laws and/or other governing documents of the _____ Homeowners Association / Community Organization.

Printed Name of Authorized Representative

Title of Authorized Representative

Signature of Authorized Representative

Date: _____

TRAFFIC CALMING REQUEST # _____



**TRAFFIC CALMING PROJECT
FUNDING STATEMENT**

TRAFFIC CALMING REQUEST # _____

Per the City of Concord Traffic Calming Policy, the Applicant agrees to raise the necessary funding for the traffic calming project in reference to the Traffic Calming Request # _____, which has been recommended for Private Funding by Concord City Council in a public hearing held _____, 20____.

Design Services will be performed by City staff.

Design Services are to be contracted at an estimated cost of \$ _____.

Construction Services will be performed by City staff, with an estimated cost of materials and labor of \$ _____.

Construction Services are to be contracted at an estimated cost of \$ _____.

I understand that 90% of the estimated costs above are required to be raised and available prior to City staff pursuing contract services, and that 100% of the contract quote/bid costs will be required to be raised and available within 30 days of the receipt of quotes/bids prior to the approval of said contracts. If 100% of the quote/bid cost is not available within 30 days from the receipt of quotes/bids the contract will not be eligible for approval. Further, 100% of the cost of materials and labor should be raised and available prior to City staff performing construction work.

Printed Name of Applicant

Signature of Applicant

Date: _____

TRAFFIC CALMING REQUEST # _____