

Town of Fletcher

Traffic Calming Policy for Neighborhood Streets

Objectives

The objectives of the Town of Fletcher's Traffic Calming Policy for Neighborhood Streets are to improve safety and quality of life for residents by:

1. Achieving appropriate vehicle speeds on residential streets.
2. Involving citizens in the planning and decision making process.
3. Providing a "toolbox" of standard measures that can be used to address the unique characteristics of individual neighborhoods.

Policies

1. Traffic calming measures are intended to be applied to Town owned local streets serving predominantly single-family residential neighborhoods.
2. Emergency vehicle (police, fire, EMS, rescue, etc.) and public service (solid waste collection, school bus, public transit, etc.) access within and through the proposed project neighborhood will be given first priority during the evaluation for traffic calming measures. Reasonable access will be maintained and emergency responders and public service providers will be included in the review process. Notification of all traffic calming measures will be made to such providers prior to installation.
3. A "toolbox" of standard traffic calming measures (see Attachment #4) will be used to select appropriate measures for each individual project. It is recognized that each project is unique in its needs and requirements and will be studied individually to determine the most appropriate measure(s) for the location.
4. Requests for neighborhood traffic calming projects will be initiated by citizens living in the proposed project area. Citizen participation from initial request, to project design, to final installation and evaluation is an essential part of successful traffic calming programs. Experience in other municipalities has shown that measures implemented without neighborhood participation are often unsuccessful and frequently result in the removal of the measures after a short period of time.
5. The Town of Fletcher does not install "STOP" or "Children At Play" signs as speed control measures. See explanation in Attachment#3.

Process

The following process is designed to provide for receipt, evaluation, initiation and follow up of traffic calming requests from local residents. The steps outlined below are to be used as a guideline and may be deviated from if deemed appropriate by the Town Manager.

Step 1 - Request for Initial Review

Residents concerned with speeding in their neighborhood should first direct their concerns to the Fletcher Town Council. The Town Council will receive and review their concerns. If the Town Council deems the request appropriate, they will forward the matter to the Fletcher Police Department (FPD). The FPD will investigate the concerns and take initial actions to address them. Appropriate initial actions will be determined by the Chief of Police and may include any or all of the following: review of citation and accident history; increased enforcement of posted speed limits; increased enforcement of parking violations; placement of a speed monitoring radar trailer; neighborhood education initiatives through community oriented policing. Based on historical studies, it has been determined that violations of traffic ordinances, such as speed limits, are typically committed by residents of the neighborhood. Therefore, neighborhood education initiatives and targeted local enforcement will be the first step. After evaluation of the concerns and the initial actions to address them, the FPD will report their findings back to the Town Council.

Step 2 - Request for Analysis

If based on the FPD's report the Town Council does not feel that the initial measures are sufficient to effectively address the speeding problem, the resident may request further analysis of the problem by submitting a "Request for Traffic Calming Analysis Petition" (Attachment #1). To ensure that there is adequate support for traffic calming within the neighborhood, the resident initiating the process will be asked to get signatures of at least 10 other residents in the affected area supporting the request. The "affected area" is defined as those properties along streets expected to receive traffic calming measures, those streets whose access is substantially dependent upon the streets to be calmed, and any streets expected to receive significant increases in traffic volume as a result of the traffic calming installation. The Town will be responsible for determining the affected area. The request must also be supported by the neighborhood Homeowners Association if one exists. Upon receipt and verification of the petition, the Town will collect a minimum data set to initially review the request. Although there are no absolute minimum criteria established for traffic calming measures, the following guidelines will be used to evaluate the area:

- Daily traffic volumes greater than 600 vehicles or peak-hour volumes greater than 100 vehicles are typically required to consider traffic calming measures
- Traffic calming measures should not be installed on streets less than 1,000 feet long.
- Traffic calming measures should not be installed on streets with grades greater than 8%
- Traffic calming measures should not be installed on streets where the vertical or horizontal roadway alignment would result in inadequate stopping sight distance for motorists encountering traffic calming measures.

If the above guidelines are not met the Town will notify the petitioners that their request has been denied. If the guidelines are met, the Town will proceed with the collection of additional data for analysis. The following data will typically be collected:

- Vehicular volume (daily and peak hour)
- Speed data (85th percentile, median and average)
- Crash history
- Street characteristics (length, grade alignment, etc.)
- Emergency and public transit routes
- Pedestrian activity

Step 3 - Prioritization

All traffic calming projects will be ranked based on the criteria listed below. This ranking will allow the Town to prioritize projects based on budget availability and compatibility with other transportation projects.

CRITERIA	BASIS FOR POINT ASSIGNMENT	POINTS
Speed	0 to 50 points: 5 points for every 1 mph of the 85 th percentile speed that exceeds the posted speed limit (example: posted speed limit = 35 mph; 85 th percentile speed = 38 mph; 3 x 5 = 15 points)	
Pedestrian Activity	0 to 20 points: 5 points for each school, church, bus stop, public park, community center, senior center, shopping center, etc. that is likely to generate a significant number of pedestrians crossing the street.	
Crash History	0 to 15: 3 points for every reported crash occurring within the project area during the last 3 years that is deemed correctible by traffic calming measures.	
Volume	0 to 10: 1 point for every 200 vehicles per day.	
Sidewalks	0 or 5: 5 points if there is no continuous sidewalk on at least one side of the street.	
	Total Points Available	100

Step 4 – Neighborhood Stakeholder Meeting

The Town will conduct a neighborhood stakeholder meeting for residents in the affected area. The meeting will be designed to be highly interactive and will encourage participants to express their opinions and to understand the opinions of others. The purpose of the meeting will be to:

- Educate residents about traffic calming, available traffic calming measures in the “toolbox” and the process;
- Review the traffic data collected and discuss the specific issues relating to their neighborhood;
- Use the “toolbox” to discuss measures that residents feel would be most appropriate for their situation;
- Develop a rough draft traffic calming plan that addresses the issues, is economically feasible and is supported by the residents

Step 5 - Conceptual Plan Development

The Town will create a conceptual plan for the affected area based on the recommendations and proposed solutions from the residents. The conceptual plan will be reviewed by emergency and public service providers, as well as other Town departments as needed. A final report consisting of the conceptual plan and any comments from these reviews will be produced.

Step 6 - Report to Neighborhood

The Town will conduct a public meeting with the affected area to review the conceptual plan and comments. Approximate project costs and installation schedule will also be presented. Participants will be asked to provide comments and help refine the recommended design. The Town will refine the design as needed to address comments received at this meeting.

Step 7 - Final Approval

A final public meeting will be held with the affected area to present the final traffic calming plan. A final budget and schedule for implementation will be presented at this time. Residents in the affected area will be given a ballot (Attachment #2) to cast their vote for approval or disapproval of the final project. Approval of the plan will require that 80% of the residents in the affected area vote "yes" for the plan. Only one vote will be allowed per property with the exception of multiple family dwellings wherein each dwelling unit shall be allowed one vote. The Town will determine the best method for distributing and insuring that all residents in the affected area receive a ballot. After reasonable efforts have been made, non-responsive residents will be considered as "no" votes. Upon verification of the submitted ballots and approval of the plan, the Town Board will consider final approval and implementation of the project.

Step 8 - Removal of Measures

In order to give the installed measures adequate time to cause a change in driver behavior, the measures will not be removed for two (2) years. After the measures have been in place for two (2) years, residents in the area may petition the Town to remove or significantly modify the measures. The petition process will require 80% of the residents in the originally defined "affected area" to approve the requested action. The Homeowners Association, if one exists, will also be required to support this petition. Upon receipt of a valid petition and with approval of the Town Council, traffic data will be collected and analyzed to determine any change in speed or volume in the project area from the original collected data. A report on all collected data will be provided to the petitioners and the Homeowners Association. If initial objectives of the project have not been achieved, the Town and residents may then consider alternative solutions or removal. Prior to final action, the Town will hold a public meeting to receive comments. Petitioners will be required to pay for 100% of removal costs and 50% of any additionally installed measures. (The Town reserves the right to remove any or all measures within the project area before the end of two (2) years if it is deemed necessary due to public health or safety reasons.)

Town of Fletcher
Traffic Calming Voting Ballot

Date:

Location of Traffic Calming Plan:

Please use this form to cast your vote for the proposed traffic calming plan and return it to Town Hall by (Date).

I have reviewed the final traffic calming plan and I am in favor of the traffic calming plan that has been proposed. (Please circle your choice)

YES

NO

My address is:

Signature: _____

Printed Name: _____

Please return this ballot to Town Hall by (date). Thank you for your assistance.



Why Stop Signs Are Not Used For Speed Control

One of the most common requests a town may receive is for the installation of stop signs to slow speeders in neighborhoods.

It seems like an obvious, inexpensive way to reduce vehicle speeds. However, what seems to be a perfect solution actually causes other problems.

When stop signs are used as "nuisances" or "speed breakers," there is a high incidence of drivers intentionally ignoring the sign. When vehicles do stop, the speed reduction is effective only in the immediate area of the sign, since a large percentage of motorists then increase their speed to make up for lost time. This results in increased midblock speeding. Most drivers are reasonable and prudent. However, when confronted with unreasonable and unnecessary restrictions, motorists are more likely to violate them, and they develop contempt for all traffic signs. often with tragic results.

For these reasons, the Town of Fletcher does not use stop signs as speed control devices. Instead, they are used to improve safety at intersections where traffic volumes or accidents require them.



"Children at Play" Signs

Another frequent request a town may receive is for "Children at Play" signs. Some parents believe that the safety of their children playing in or near the street can be enhanced through the installation of "Slow Children" or "Children at Play" signs.

Traffic studies have shown that such signs do not cause drivers to slow and do not reduce pedestrian accidents. In fact, placement of these signs can increase the potential for accidents by giving children and parents a false sense of security. Children should not be encouraged to play in the street. A sign cannot replace a parent's responsibility to monitor their children. Federal standards, such as the FHWA Manual of Uniform Traffic Control Devices, reject these signs because they openly suggest that playing in the street is acceptable.

For these reasons, the Town of Fletcher does not install these types of signs, and instead encourages parents and/or guardians to find alternative play areas for children, such as a backyard or local park.

Attachment #4

Town of Fletcher
Traffic Calming Policy for Neighborhood Streets

"Toolbox of Standard Traffic Calming Measures"

Traffic calming measures are generally categorized into four groups: Non-physical, Vertical, Horizontal, and Diversion.

Non-physical Measures

Non-physical methods of traffic calming generally do not alter the physical path of traffic. They typically do not require significant construction or alteration of the roadway. These measures normally require lower cost materials such as line striping or signing. Some non-physical measures however, can be costly. These non-physical measures should be considered and implemented before using more complicated and costly traffic calming measures. The non-physical measures included in this "toolbox" are as follows:

1. Speed Enforcement
2. Radar Trailers
3. Lane Striping
4. Pavement Marking Legends
5. Signage
6. High Visibility Crosswalks
7. On-Street Parking
8. Raised Pavement Markers
9. Streetscaping
10. Turning and Other Restrictions
11. Gateways / Entranceways

1. Speed Enforcement — targeted speed limit enforcement in selected areas on a temporary basis.



Advantages	Disadvantages
<p>May be implemented immediately with little planning</p> <p>No impact to emergency response times</p> <p>Effective for reducing speeds in a short span</p> <p>Secondary benefits include reduced crime and a higher sense of security</p>	<p>Expensive to maintain for an extended period of time</p> <p>May only be effective for a short time</p> <p>May only be effective for short distances</p>

Cost: Varies

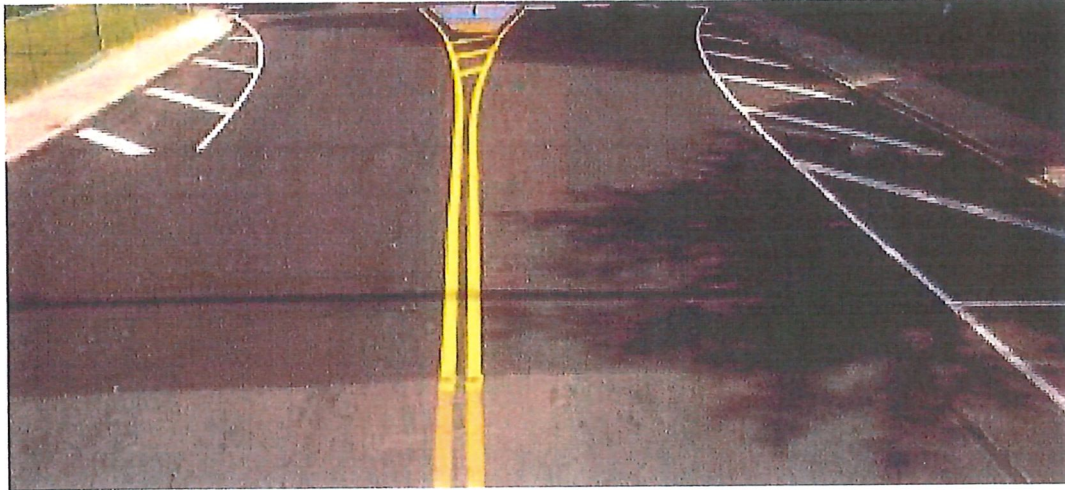
2. Radar Trailers — placement of a radar trailer to measure and display a passing vehicles speed compared to the posted speed limit reminds drivers to slow down if they are traveling too fast.



Advantages	Disadvantages
<p>In the long-term, less expensive than police enforcement</p> <p>May be implemented immediately with little planning</p> <p>No impact to emergency response times</p> <p>Effective for reducing speeds in a short span</p>	<p>Only effective for one direction of travel at a time</p> <p>May only be effective for a short time</p> <p>May only be effective for short distances</p>

Cost: Varies

3. Lane Striping — used to visually narrow travel lanes in a given area. Using highly visible stripes, drivers are encouraged to slow down. \



Advantages	Disadvantages
Inexpensive May be implemented immediately with little planning No impact to emergency response times	Increases maintenance costs

Cost: \$0.25 - \$1.00 per linear foot (paint)
\$1.00 - \$5.00 per linear foot (plastic)

4. Pavement Marking Legends – speed limit or other driver information is painted on the street to remind drivers of the speed limit or other special conditions of the area.

Advantages	Disadvantages
Inexpensive May be implemented immediately with little planning No impact to emergency response times	Increases maintenance costs Has not been proven to reduce speeds

Cost: \$25 - \$50 per letter or number
\$100 - \$200 per symbol

5. Signage — placing additional regulatory signs and appropriate warning and information signs to remind drivers of the various roadway conditions and hazards in the area.



Advantages	Disadvantages
Inexpensive No impact to emergency response times	Increases maintenance costs Signs are typically considered unsightly and some people do not want them in their yard.

Cost: \$75 - \$100 per sign

6. High Visibility Crosswalks — high intensity paint or plastic can be used to clearly delineate a crosswalk. Should be accompanied by signage.



Advantages	Disadvantages
<p data-bbox="337 1184 488 1213">Inexpensive</p> <p data-bbox="337 1251 732 1310">No impact to emergency response times</p> <p data-bbox="337 1352 740 1453">Helps collect and distribute pedestrians at one point along the street</p> <p data-bbox="337 1491 727 1520">Increases visibility of pedestrians</p>	<p data-bbox="889 1180 1317 1239">Increases maintenance costs over that of a normal crosswalk</p> <p data-bbox="889 1281 1317 1381">May provide pedestrians with a false sense of security, especially if used at mid-block locations</p>

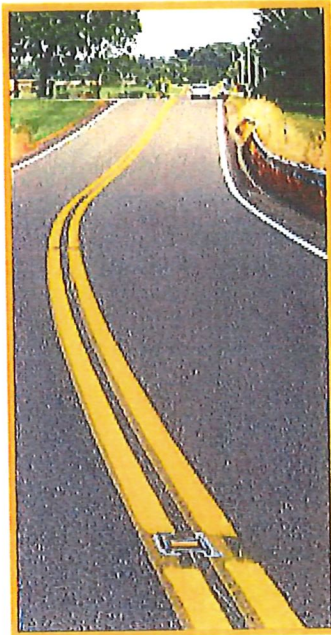
Cost: \$200 - \$300 per crosswalk lane

7. On-Street Parking — designates an area along a street to park vehicles. May be used on one side or both sides of the street depending on the width of the street.

Advantages	Disadvantages
<p>Provides more vehicle storage</p> <p>Narrows street width to encourage slower vehicle traffic</p> <p>Shortens pedestrian crossing distance</p> <p>Encourages pedestrian activity in the area</p>	<p>May be ineffective if parking is not adequately utilized</p> <p>May reduce sight distance for both drivers and pedestrians</p> <p>May increase certain types of vehicular crashes</p> <p>May restrict bicycle movement</p> <p>Traffic volumes may increase in areas with high demand and low availability of off-street parking</p> <p>May impede emergency response vehicles and solid waste collection</p>

Cost: Depends on frequency of spaces

8. Raised Pavement Markers — plastic reflectors installed in the pavement that alert a driver when they are deviating from the travel lane. They can be installed on the centerline and edge line of a roadway or across a road to serve as a rumble strip. They are often used on curves.



Advantages	Disadvantages
<p>Inexpensive</p> <p>May be implemented immediately with little planning</p> <p>No impact to emergency response times</p> <p>Secondary benefits include increased delineation and roadway safe</p>	<p>Noise</p> <p>May be unintentionally removed during snow removal</p> <p>Increased maintenance costs</p>

Cost: \$2.00 \$7.00 per marker

9. Streetscaping — typically includes planting trees and other landscape along the roadway. Also usually involves establishing a planting area between the street and the sidewalk.



Advantages	Disadvantages
<p>May reduce speeds and volumes</p> <p>Positive aesthetic effect</p> <p>Increases pedestrian safety</p> <p>Improves quality of life for neighborhood</p> <p>No impact to emergency response times</p>	<p>Can create vehicular hazards</p> <p>Can create poor visibility conditions if installed too dense</p> <p>High cost</p> <p>Increased maintenance costs</p>

Cost: Varies depending on materials, length and width of application area, and availability of right-of-way

10. Turning and Other Restrictions — turn restriction signs can be posted to restrict movement through a given area and to limit travel in certain areas. Other restrictions such as "No Trucks" can also help reduce cut-through traffic. Speed limit reductions can be used in areas where existing speed limits are deemed too high; however, speed limit changes alone are generally not effective in significantly reducing vehicular speeds on local streets.



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Advantages	Disadvantages
<ul style="list-style-type: none"> Inexpensive to install No impact to emergency response times May increase pedestrian safety Transit and school buses can be exempted Restrictions can be "time limited" 	<ul style="list-style-type: none"> Deliberate violation could create a hazard May divert problem to another street Requires enforcement Requires approval of an enabling ordinance Not effective at reducing speeds

Cost: \$75 - \$100 per sign plus the cost of enforcement

11. Gateways / Entranceways — include decorative signing and/or landscaping to visually identify the entrance to a neighborhood. This helps make the area appear more as a destination rather than a connection to another area. A median island is often incorporated into the design.



Advantages	Disadvantages
<p>May reduce volumes</p> <p>Positive aesthetic effect</p> <p>Improves quality of life for neighborhood</p> <p>No impact to emergency response times</p>	<p>Can create vehicular hazards</p> <p>Can create poor visibility conditions</p> <p>Can be expensive</p> <p>Increased maintenance costs</p>

Cost: Varies depending on materials, length and width of application area

Vertical Measures

Vertical traffic calming measures introduce variations in pavement height or travel surfaces that cause discomfort to the occupants of vehicles operating in excess of the desired speed limit. These measures do not restrict traffic flow so they are typically not used to mitigate cut-through traffic concerns. However, because of the inconvenience they cause, some non-local traffic may avoid areas when they are installed.

Vertical traffic calming measures are usually considered undesirable for primary emergency response routes and transit routes.

The vertical measures included in this "toolbox" are as follows:

1. Textured Pavements
2. Speed Humps
3. Speed Lumps
4. Speed Tables
5. Raised Crosswalks
6. Raised Intersections

1. Textured Pavement — textured pavement can alert drivers to special conditions through sound and/or vibration. Brick pavers are a form of textured pavement.



Advantages	Disadvantages
May reduce speeds May add aesthetic value If used at intersection, can calm two streets at once Little or no impact to emergency response times	Textured materials are expensive Increased noise Difficult for physically challenged individuals to maneuver Increased maintenance costs

Cost: Varies depending on materials and application area

2. Speed Humps - raised hump in the roadway with a parabolic top which extends across the road at right angles to the direction of traffic flow. Most effective if used in a series, spaced 300-500 feet apart.

Advantages	Disadvantages
<p data-bbox="337 779 669 810">Effective in reducing speeds</p> <p data-bbox="337 842 764 911">Compatible with pedestrian and bicycle movements</p> <p data-bbox="337 947 764 1016">May decrease cut-through traffic by increasing travel time</p> <p data-bbox="337 1052 480 1083">Inexpensive</p>	<p data-bbox="886 768 1317 837">Increased noise when vehicle travel over them</p> <p data-bbox="886 873 1195 905">Slows emergency vehicles</p> <p data-bbox="886 940 1008 972">Aesthetics</p> <p data-bbox="886 1008 1252 1104">Can be very uncomfortable to vehicle occupants with certain disabilities</p> <p data-bbox="886 1140 1219 1171">Increased maintenance costs</p>

Cost: \$1,500 - \$2,000 each

3. Speed Lumps variations of speed humps that add two cut-outs for tires of larger vehicles. The cut-outs are designed so that wider vehicles, such as emergency vehicles, can fit through with little slowing but a standard vehicle must pass at least one side of its wheels over the hump.



Advantages	Disadvantages
<p>Effective in reducing speeds</p> <p>Maintains rapid emergency response times</p> <p>Relatively easy for bicyclists to cross if installed correctly</p> <p>Inexpensive</p>	<p>Increased noise when vehicle travel over them</p> <p>Some private vehicle with large wheel bases can avoid the humps</p> <p>Aesthetics</p> <p>Can be very uncomfortable to vehicle occupants with certain disabilities</p> <p>Increased maintenance costs</p>

Cost: \$1,800 \$2,500 each

4. Speed Tables - elongated speed humps with flat tops that usually allow for the entire wheel base of a standard vehicle to be on the top flat part. Usually, a textured pavement or alternative design is used to distinguish the speed table from the rest of the roadway.



Advantages	Disadvantages
<p>Smother than humps for larger vehicles</p> <p>Effective in reducing speeds</p> <p>Compatible with pedestrian and bicycle movements</p> <p>May also decrease cut-through traffic by increasing travel time</p>	<p>Increased noise when vehicle travel over them</p> <p>Decorative materials are expensive</p> <p>Aesthetics, if decorative surface is not used</p> <p>Can be very uncomfortable to vehicle occupants with certain disabilities</p> <p>Increased maintenance costs</p> <p>Slows emergency vehicles</p>

Cost: \$1,500 - \$4,000 each

5. Raised Crosswalks — equivalent to speed tables with crosswalk markings. Should include signage.



Advantages	Disadvantages
<p>Smoother than humps for larger vehicles</p> <p>Effective in reducing speeds</p> <p>Increases visibility for pedestrians</p> <p>May also decrease cut-through traffic by increasing travel time</p> <p>Slows vehicular traffic at conflict point with pedestrians</p> <p>Better than a simple crosswalk for visually impaired pedestrians</p>	<p>Increased noise when vehicle travel over them</p> <p>Decorative materials are expensive</p> <p>Aesthetics, if decorative surface is not used</p> <p>Can be very uncomfortable to vehicle occupants with certain disabilities</p> <p>Increased maintenance costs</p> <p>Slows emergency vehicles</p>

cost: \$1,800 - \$4,500 each

6. Raised Intersections — equivalent to speed tables, only they are applied over the entire intersection with ramps on all sides. They are normally at or near the same elevation as the sidewalk. They often use textured and/or colored pavements.



Advantages	Disadvantages
Smoother than humps for larger vehicles	Increased noise when vehicle travel over them
Effective in reducing speeds	Decorative materials are expensive
Increases visibility for pedestrians	Aesthetics, if decorative surface is not used
May also decrease cut-through traffic by increasing travel time	Can be very uncomfortable to vehicle occupants with certain disabilities
Slows vehicular traffic at conflict point with pedestrians	Increased maintenance costs
	Slows emergency vehicles

Cost: Varies based on materials and size of intersection

Horizontal Measures

Horizontal measures are used to eliminate straight-line travel that allows high speeds. The horizontal measures included in this "toolbox" are as follows:

1. Curb Extensions
2. Chicanes
3. Two-Lane Chokers
4. Medians
5. Lane Shifting with Alternating Parking

1. Curb Extensions — make pedestrian crossing movements shorter and easier. Used to narrow the roadway cross-section at particular points but still maintains separate lanes for opposing traffic flow. Often used in combination with a raised crosswalk.



Advantages	Disadvantages
<p>Narrows street width to encourage slower vehicular traffic at specific points</p> <p>Shortens pedestrian crossing distance and make pedestrians more visible</p> <p>May facilitate more on-street parking spaces</p> <p>Intended to reduce vehicle speeds</p>	<p>Conflicts with flow of bicycle lanes</p> <p>Requires removal of some on-street parking</p>

Cost: \$7,000 - \$10,000 per pair

2. Chicanes — physical restriction built at the curbside of the roadway to create bends in a formerly straight road. Vehicles are forced to negotiate the narrowed road in a serpentine fashion.



Advantages	Disadvantages
<p>Typically results in lower speeds</p> <p>Can be aesthetically pleasing</p> <p>May also decrease cut-through traffic by increasing travel time</p>	<p>May lead to head-on collisions</p> <p>Higher maintenance costs</p> <p>Can severely impact emergency response time</p> <p>Loss of on street parking</p>

Cost: \$4,000 - \$8,000 (depends on length of road)

3. Two-Lane Chokers — used at mid-block points to reduce the overall cross section of the street providing a natural slow down point.



Advantages	Disadvantages
<ul style="list-style-type: none"> May reduce speeds May reduce volumes Positive aesthetic effect Provides safer pedestrian crossings May encourage on-street parking No impact to emergency response times 	<ul style="list-style-type: none"> No vertical or horizontal deflection Loss on on-street parking Bicyclists have to merge with traffic

Cost: \$7,000 - \$10,000

4. Medians — used to separate lane movements and provide a visual cue along the roadway. Medians can also be used as a diversion device by restricting access at intersection and to adjacent properties.



Advantages	Disadvantages
<p>Prevents passing movements along roadway</p> <p>Provides area for landscaping</p> <p>Effective in reducing speeds</p> <p>Provides pedestrian refuge area and aids crossing</p> <p>Can be used to restrict movements at intersections</p>	<p>May require parking removal</p> <p>Can be costly</p> <p>May limit access depending on length of median section</p> <p>May reduce sight distance depending on roadway alignment and size of median</p> <p>May impact emergency response times</p>

Cost: Varies based on size and materials

5. Lane Shifting with Alternating Parking — shifting traffic lanes within the existing roadway by use of lane markings and parking. The zigzag pattern allows for two full lanes while permitting short stretches of parking on alternating sides of the street.



Advantages	Disadvantages
<p>Provides more vehicle storage</p> <p>Narrows street width to encourage slower vehicle traffic</p> <p>Shortens pedestrian crossing distance</p> <p>Encourages pedestrian activity in the area</p>	<p>May be ineffective if parking is not adequately utilized</p> <p>May reduce sight distance for both drivers and pedestrians</p> <p>May increase certain types of vehicular crashes</p> <p>May restrict bicycle movement</p> <p>Traffic volumes may increase in areas with high demand and low availability of off-street parking</p> <p>May impede emergency response vehicles and solid waste collection</p>

Cost: Depends on frequency

Diversion Measures

Diversion measures change the flow of traffic and limit or eliminate certain movements. Diversion measures should only be used as a final option when the previously described measures have not produced the desired results. Diversion measures are not considered on primary emergency routes unless provisions can be made to maintain access for emergency vehicles. The diversion measures included in this "toolbox" are as follows:

1. Street Closures
2. Diagonal Diverters
3. Semi-diverters

1. Street Closures — placing barriers or removing pavement to block all traffic access on a street. Pedestrian and bicycle access is typically maintained, Can be designed to allow emergency vehicles to "breakthrough" the closure. Cul-de-sacs are a common form of this measure.



Advantages	Disadvantages
Eliminates through traffic Reduces speeds Improves safety for all modes of transportation	Limits access Creates problems for emergency vehicles Need to construct turn-around area near the closure point

Cost: Depends on size and materials

2. Diagonal Diverters — bisect an intersection diagonally, disconnecting the legs of the intersection and creating two separate roadways. Can be accomplished with a simple barrier such as guardrail or can be created by removing pavement and adding landscaping. Pedestrian and bicycle access is usually maintained. Can be designed with emergency vehicle "break-through" ability.

Advantages	Disadvantages
<p>Reduces speeds and volumes</p> <p>Can be an aesthetic enhancement</p> <p>Increases pedestrian safety</p> <p>Improves neighborhood quality of life</p>	<p>Can create vehicular hazards</p> <p>May create poor visibility conditions</p> <p>Can be expensive</p> <p>Creates problems for emergency vehicles</p>

Cost: Depends on size and materials

3. Semi-diverter — typically a landscaped island barrier located on one side of the street at an intersection that only permits traffic on the opposite side to pass through. This creates a one-way street at the intersection but maintains two-way traffic for the rest of the block.



Advantages	Disadvantages
<ul style="list-style-type: none"> Reduces volumes Can be an aesthetic enhancement Increases pedestrian safety Improves neighborhood quality of life Limits cut-through traffic 	<ul style="list-style-type: none"> Can create vehicular hazards Permanently restricts traffic Can create poor visibility conditions Can be expensive Does not control speed May impede emergency response times

Cost: Depends on size and materials.