

The Traffic Calming Toolkit

The Federal Highway Administration (FHWA) and the Institute of Transportation Engineers (ITE) define the purpose of traffic calming as a means to support the livability and vitality of residential neighborhoods and commercial areas through improvements in non-motorist safety, mobility, and comfort. These objectives are guided by the five E's of traffic engineering (Education, Enforcement, Engineering, Enhancement and Evaluation) and are typically achieved by reducing vehicle speeds or volumes on a single street or a street network utilizing horizontal deflection, lane narrowing, roadside signage, and other measures that use self-enforcing physical or psycho-perception means to produce desired effects.

The measures, or "tools", that are used to address neighborhood traffic issues are grouped into a "Traffic Calming Toolkit". The measures in the toolkit are all sanctioned by FHWA and ITE and are subdivided by level of complexity which allows for an "incremental" or phased-approach to addressing an issue. In this manner, less impactful measures can be implemented first and monitored for their effect in addressing an issue. If proven ineffective, more extensive measures can then be implemented and again monitored for effect.

The following table summarizes the applicability of each individual traffic calming measure that will be considered by the City of Naperville. The table shall be used as an initial screening tool for the City to identify the most appropriate measure(s) to address the issue at hand (speeding, volume, crashes, pedestrian safety) once it is determined that the thresholds warranting improvement have been exceeded, as summarized below. The selected measure(s) will take into consideration the location of the improvement (intersection or street segment), the functional classification of the street, the physical and operational characteristics of the street, and the adjacent land uses (e.g. schools, parks, etc.).

The measures are grouped into four (4) levels of complexity. Level 1 and Level 2 measures underscore the first two E' of traffic engineering (Education and Enforcement) and represent *non-physical* measures, including signage and pavement marking, that do not change the dimensions of the travel way or redirect traffic. Non-physical measures provide a non-invasive form of traffic calming that are relatively inexpensive and easy to implement, and that can be relatively easy to remove if the measures/devices prove ineffective. As such, these measures/devices are typically implemented before physical measures.

Level 3 and Level 4 measures underscore the third and fourth E's of traffic engineering (Engineering and Enhancement) and represent *physical* measures that create horizontal deflections within the travel way or redirect traffic from the travel way. Physical measures are costlier to implement and require more design, coordination, and implementation efforts. As such, these measures/devices are typically implemented after non-physical measures have been attempted but have been proven ineffective.

The use of all traffic calming measures in the toolkit may be reviewed by any or all of the City's operating departments, and these departments have the authority to approve or reject their implementation at any particular location regardless of whether the criteria for their use is achieved. Once implemented, all measures should be evaluated for effectiveness (fifth "E" of traffic engineering). Detailed descriptions of each measure are located in the Appendix and include images of the measure, location where applicable, advantages, disadvantages, variations, special considerations, and cost.

Initiation of and Criteria Warranting Traffic Calming Measures

Traffic calming measures shall be considered by staff when the traffic speeds, volumes or crash history on a neighborhood street have been documented and exceed the relevant thresholds in the table below for the respective street classification.

Initiation of Level 1 or Level 2 Measures

If traffic calming is determined to be appropriate, Level 1 or Level 2 traffic calming measures will typically be implemented initially, depending on the traffic issue to be corrected. Staff shall reevaluate traffic conditions and conduct a follow-up study six months to one year after installation of the initial measures. The traffic calming measures will be deemed effective if the street/intersection conditions return to the acceptable ranges for the functional classification of the street.

Initiation of Level 3 Measures

If the Level 1 or Level 2 traffic calming measures have proven ineffective at bringing traffic conditions under the relevant thresholds, staff may seek to implement Level 3 traffic calming measures, or skip directly to Level 4 if necessary. Staff shall again reevaluate traffic conditions and conduct a follow-up study six months to one year after installation of the Level 3 measures. The Level 3 measures will be deemed effective if the street/intersection conditions return to the preferred ranges for the functional classification of the street.

Initiation of Level 4 Measures

If the Level 3 traffic calming measures have proven ineffective at bringing traffic conditions under the relevant thresholds, staff may seek to implement Level 4 traffic calming measures. Staff shall again reevaluate traffic conditions and conduct a follow-up study six months to one year after installation of the Level 4 measures. The Level 4 measures will be deemed effective if the street/intersection conditions return to the preferred ranges for the functional classification of the street.

Traffic Issue	Functional Classification	Threshold Warranting Measures ¹
Speeding	Collector Street Neighborhood Connector Street Local Street	85 th -Percentile Speed Exceeds 34 mph 85 th -Percentile Speed Exceeds 34 mph 85 th -Percentile Speed Exceeds 32 mph
Volume/Congestion	Collector Street Neighborhood Connector Street Local Street	Average Weekday Traffic Volume Exceeds 12,000 vpd Average Weekday Traffic Volume Exceeds 5,000 vpd Average Weekday Traffic Volume Exceeds 1,500 vpd Or Cut-Through Traffic in Excess of 50% of Peak Hour Volume
Crashes	Collector Street Neighborhood Connector Street Local Street	5 or more crashes in 12-month period ² 5 or more crashes in 12-month period ² 5 or more crashes in 12-month period ²
Pedestrian Safety	Collector Street Neighborhood Connector Street Local Street	2 or more crashes in 12-month period ³ 2 or more crashes in 12-month period ³ 2 or more crashes in 12-month period ³
¹ Achieving thresholds does not mandate that improvements or measures will be initiated. ² Reflects crash types susceptible to correction by the traffic calming measure, including angle, turning and/or rear-end collisions. ³ Reflects crash types susceptible to correction by the traffic calming measure, including pedestrian and/or bicycle collisions.		

Traffic Calming Measures	Traffic Issue				Street Classification		Location		Typical Cost
	Speeding	Crashes	Volume / Congestion	Pedestrian Safety	L/N	C	Intersection	Street Segment	
Non-Physical Measures (Level 1)									
Education/Community Involvement	●	●	●	●	✓	✓	✓	✓	L
Targeted Speed & Stop Control Enforcement	●	⦿	○	⦿	✓	✓		✓	L
Enhanced Speed Limit Sign	●	○	○	⦿	✓	✓		✓	L
Enhanced Stop Sign	⦿	●	○	●	✓	✓	✓		L
Speed Limit Pavement Marking	●	○	○	⦿	✓	✓		✓	L
On-Street Parking	●	○	⦿	○	✓	✓		✓	L
Centerline Striping	●	⦿	○	⦿		✓		✓	M
Non-Physical Measures (Level 2)									
Permanent Driver Feedback Sign	●	⦿	○	⦿	✓	✓		✓	L
Turn Restriction Sign	○	●	●	○	✓	✓	✓		L
Corner Radius Reduction	●	●	○	●	✓	✓	✓		M
Parking Lane Marking/Boxes	●	⦿	⦿	⦿	✓	✓		✓	M
Bicycle Lanes	●	●	●	●	✓	✓		✓	M
Bulb-Out / Curb Extension	●	○	X	●	✓	✓	✓		H
Physical Measures (Level 3)									
Choker	●	⦿	○	⦿	✓	✓		✓	M
Lateral Shift	●	○	○	○	✓	✓		✓	M
Realigned Intersection	●	⦿	○	●	✓	✓	✓		M
Road Diet	●	●	●	●	✓	✓	✓	✓	M
Physical Measures (Level 4)									
Median Barrier	○	●	●	⦿	✓	✓		✓	H
Forced-Turn Island	○	⦿	●	⦿	✓	✓	✓		M
Diagonal Diverter	●	⦿	●	○	✓		✓		H
Half-Closure	○	⦿	●	⦿	✓		✓		M
<ul style="list-style-type: none"> ● Highly Effective ⦿ Moderately Effective ○ Neutral X Not Effective / Counterproductive 	Street Classifications L/N - Local & Neighborhood Connector Streets (< 5,000 vehicles/day) C - Collector Streets (5,000-12,000 vehicles/day)				Cost Ranges¹ L - Low (<\$6,000) M - Moderate (\$6,000-\$15,000) H - High (>\$15,000) <small>¹Represents generalized cost ranges for the design, materials and installation of each traffic control measure for purposes of comparison. The ultimate cost of any improvement may vary substantially based on the number of devices implemented, the length of the improvement, or the extent of necessary reconstruction (e.g. drainage modifications, streetscaping, etc.).</small>				



Education / Community Involvement

Description

City staff working with residents to listen, inform, educate and involve residents on neighborhood traffic issues using various forms of media and other self-policing materials.

Application

- Streets believed to experience excessive speeding, excessive volume or stop sign violations as communicated by residents
- Resident groups that wish to play an active role in easing traffic concerns along neighborhood streets

Advantages

- Results are immediate and can be effective at reducing speeding, crashes and stop sign violations
- Can be deployed on short notice and during specific hours when problems occur
- Solicits resident involvement
- Provides opportunity for staff and residents to partner on appropriate solutions
- Staff able to explain program as well as criteria to qualify for traffic calming measures in Toolbox

Disadvantages

- Effectiveness may be temporary

Variations

- Can include flyers and letters, yard sign campaigns, City website posts, school programs, radar gun loan programs, neighborhood meetings, and national campaigns such as Friendly Streets signs

Special Considerations

- Residents need to understand process before proceeding with a traffic calming project
- Traffic problems often caused by fellow neighborhood residents rather than “outsiders”

Cost

Low other than a considerable amount of staff time





Targeted Speed & Stop Control Enforcement

Description

Police department presence in neighborhoods to enforce existing speed limit and traffic control ordinances. Activities can include police patrols, portable radar speed trailers, hand held radar speed guns, and use of police patrol decoys.

Application

- Streets believed to experience excessive speeding or stop sign violations as communicated by residents
- Streets with a history of speeding or stop sign violations

Advantages

- Targets violators without affecting normal traffic
- Results are immediate
- Highly effective while officer is present
- Radar speed trailers and police decoys can lower vehicle speeds with no officer present
- Can be implemented on short notice and easily moved
- Extent of problem can be discussed with residents, staff and TAB after enforcement period

Disadvantages

- Duration of enforcement activities is limited by Police Department staffing and resource allocations
- Effectiveness may be temporary once ended
- Requires periodic follow-up enforcement to have long-term effect

Variations

- Activities can occur in short intervals or extended periods.

Special Considerations

- Often helpful in school zones
- May be used during learning period when new measures or signs first installed
- Repeated short-term deployments over a longer term more effective than one longer deployment

Cost

Low other than a considerable amount of staff time





Enhanced Speed Limit Sign

Description

Visual enhancement to standard regulatory speed limit signs to notify and remind drivers of legal speed limit.

Application

- Streets experiencing excessive speeding as documented from temporary speed collection measures
- School zones where speeding is an issue

Advantages

- Low in cost and easy to install
- Signs with flashers can be hard-wired for electrical power or outfitted with a photovoltaic panel for solar power
- Signs with flashers can be timed to flash during periods when violations are highest or during school hours

Disadvantages

- Signs alone do not guarantee responsible driving behavior
- Effectiveness of static signs may reduce over time as regular drivers become desensitized
- Signs with flashers can create negative visual impacts during evening hours
- Flashing signs require regular maintenance

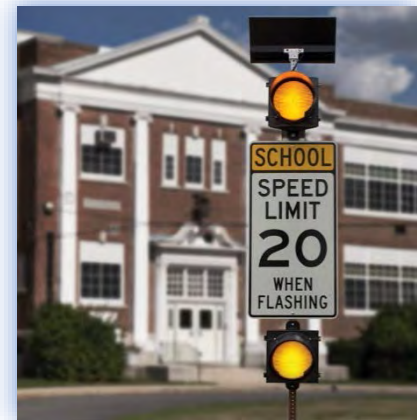
Variations

- Signs can be post-mounted or attached to existing posts/poles on the side of the street
- Signs can include imbedded LED lights or external signal heads

Special Considerations

- Signs with flashers should be on timers to flash during peak violation periods and avoid visual impacts during evening hours

Cost
Low





Enhanced Stop Sign

Description

Visual enhancement to standard regulatory STOP signs to alert drivers of posted stop control.

Application

- Streets experiencing excessive stop sign violations or crash problems
- School zones with significant pedestrian crossings

Advantages

- Low in cost and easy to install
- Significantly increases visibility during inclement weather (snow, fog, rain) or darkened conditions
- Signs can be hard-wired for electrical power or outfitted with a photovoltaic panel for solar power
- Can be timed to flash during periods when violations are highest

Disadvantages

- Effectiveness may reduce over time as regular drivers become desensitized
- Can create negative visual impacts during evening hours
- Requires regular maintenance

Variations

- Signs can include imbedded LED lights or external signal heads

Special Considerations

- Signs should be on timers to flash during peak violation periods and avoid visual impacts during evening hours

Cost

Low





Speed Limit Pavement Marking

Description

Speed limit pavement markings are numerals applied in the traffic lane to remind drivers of the regulatory speed limit.

Application

- Streets experiencing excessive speeding as documented from temporary speed collection measures
- School zones where speeding is an issue
- May be placed at entry points into residential areas

Advantages

- Provides a clear indication of the speed limit to drivers who are watching the road
- Do not become obscured by street-side vegetation, parked trucks or other obstructions
- Low in cost and easy to install
- Useful in reinforcing a reduction in speed limit

Disadvantages

- Used alone does not guarantee responsible driving behavior
- Used alone have not been shown to significantly reduce traffic speeds
- Effectiveness may reduce over time as regular drivers become desensitized
- Requires regular maintenance and periodic reapplication

Variations

- A “SLOW” word legend may be applied with the speed legend.
- Material can consist of paint or thermoplastic

Special Considerations

- Typically placed near speed limit sign posts but may be used alone

Cost

Low





On-Street Parking

Description

The allocation of paved space for parking narrows the travel lanes and adds side friction, making drivers feel more restricted and inducing lower travel speeds.

Application

- Collector, neighborhood connector and local streets where excessive speeding has been documented
- One-way or two-way streets
- Streets where there is a demand for parking such that the parking lane would be occupied during times when traffic calming is desired

Advantages

- Can increase parking where needed
- Effective at reducing travel speeds
- Can apply using time-of-day restrictions to maximize throughput during peak periods
- Can be combined with other measures such as parking boxes or curb extensions for added effect

Disadvantages

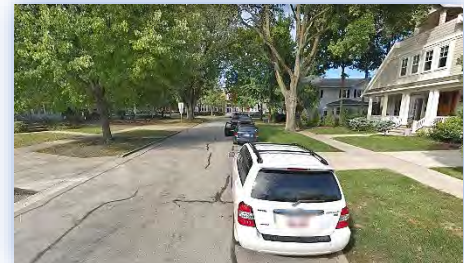
- Effective only if vehicles are parked on the street
- Can impede bicycle travel or preclude the ability to provide bicycle lanes
- May increase potential for side-swipe collisions
- May limit road user visibility or sight distance at driveways/intersections

Variations

- Can apply to one or both sides of the street
- Can apply alternating sides of street for chicane effect
- Parking can be parallel or angled based on street width

Cost

Low





Centerline Striping

Description

While most neighborhood streets exist without pavement markings, centerline striping can be used to reduce travel widths, making drivers feel more restricted and inducing lower travel speeds.

Application

- Collector, neighborhood connector and local streets where excessive speeding has been documented
- Most suitable to long, straight and wide streets where drivers feel unconstrained

Advantages

- Relatively easy to install
- Does not hinder emergency vehicle response times

Disadvantages

- Removal or reconfiguration of striping may leave scars on pavement surface
- Regular maintenance is required to refresh striping

Variations

- Centerline may consist of two parallel solid yellow lines or single yellow skip lines
- Material can consist of paint or thermoplastic

Special Considerations

- Pavement striping should conform to the guidance provided in the Manual on Uniform Traffic Control Devices (MUTCD)

Cost

Moderate depending on length of street





Permanent Driver Feedback Sign

Description

Permanent radar speed detection signs providing feedback to drivers on oncoming travel speed. These signs have no cameras and do not take any photos of offending drivers for enforcement purposes.

Application

- Streets experiencing excessive speeding as documented from temporary speed collection measures
- School zones where speeding is an issue

Advantages

- Provides continuous speed monitoring after temporary radar speed monitors are removed
- Alerts violators without affecting normal traffic
- Visual reminder of speed has been shown to be effective
- In addition to travel speed, can be programmed to display multiple messages or symbols such as SLOW DOWN, TOO FAST, or happy face.
- Can be outfitted with eye-catching violator strobe lights for excessive speeding
- Can retain and transmit traffic and speed data for comparison and analysis
- Can be hard-wired for electrical power or outfitted with a photovoltaic panel for solar power

Disadvantages

- Effectiveness may reduce over time as regular drivers become desensitized
- Some drivers may ignore knowing that the signs do not include automated enforcement

Variations

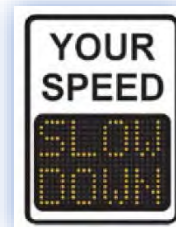
- Signs can be post-mounted or attached to existing posts/poles on the side of the street

Special Considerations

- Typically installed on same post with regulatory speed limit sign

Cost

Low





Turn Restriction Sign

Description

Limits or prohibits specific turning movements by way of signage

Application

- Intersections of arterial or collector streets with neighborhood streets where a problem of cut-through traffic in the neighborhood has been documented
- Neighborhood streets where volume control is desired

Advantages

- Effective in addressing time-of-day cut-through traffic problems
- Does not hinder emergency vehicle response times
- Low in cost and easy to install

Disadvantages

- May divert traffic problem onto another neighborhood street
- May increase trip lengths for some drivers or limit access for local homeowners or businesses
- Requires active enforcement to maintain compliance

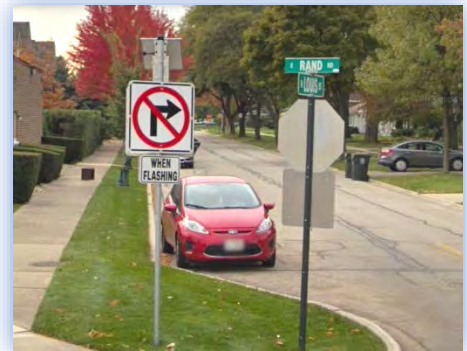
Variations

- Can regulate turn movements by time of day and day of week

Special Considerations

- Signs are most effective when limited to posted hours. Physical measures are more effective and appropriate for full-time movement turn prohibitions.

Cost
Low





Corner Radius Reduction

Description

Curb modifications at the corner of intersections to reduce the corner radius which requires motorists to reduce speed by making tighter turns.

Application

- Collector, neighborhood connector or local streets
- Wide intersections where speeding and pedestrian safety are issues
- Intersections where drivers are most likely to encounter pedestrians crossing in the crosswalk

Advantages

- Reduces speed of right-turning vehicles
- Improves pedestrian safety
- Reduces pedestrian crossing distance and time
- Improves traffic signal timings
- Expands pedestrian area allowing for better ramp alignment and more space for streetscaping
- Improves sight lines between pedestrians and motorists

Disadvantages

- Could cause larger vehicles to drive over the curb and put pedestrians at risk or cross into opposing traffic lane

Variations

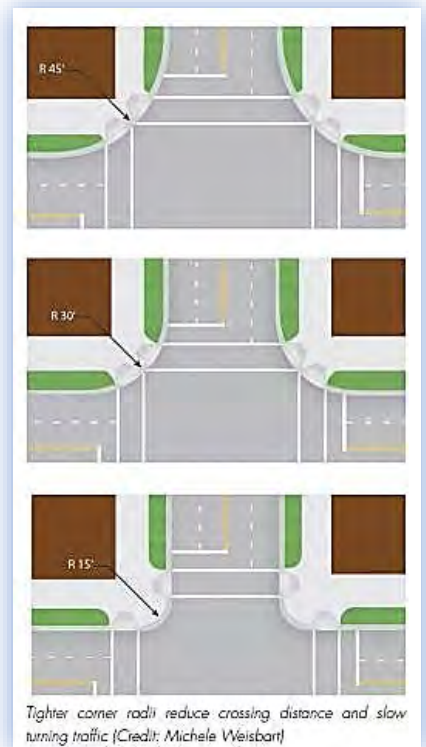
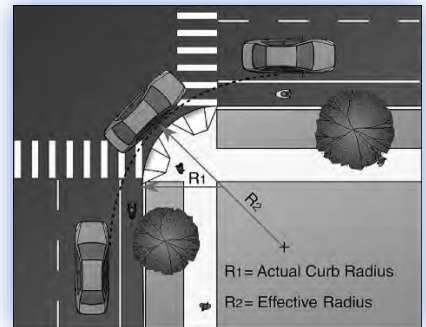
- Can initially be implemented with edge striping
- Can be designed with a compound curve where radius is smaller, slowing vehicles on approach to crosswalk, and larger after the crosswalk to allow for the turn

Special Considerations

- Effective radius may be larger than actual radius depending on the width of the travel lanes and presence of on-street parking or bike lanes
- Smallest curb radius should be chosen based on how effective radius accommodates design vehicle
- Curb radius of 5 to 10 feet most effective
- Must accommodate trucks and buses on designated truck and bus routes

Cost

Moderate to high depending on site conditions (i.e., drainage or utility relocations)





Parking Lane Marking/Boxes

Description

Pavement markings used to define parking lanes and narrow the travel lanes, making drivers feel more restricted and inducing lower travel speeds.

Application

- Collector, neighborhood connector and local streets where excessive speeding has been documented
- One-way or two-way streets

Advantages

- Can increase parking where needed
- Effective at reducing travel speeds
- Does not require demand for parking to be effective
- Can be combined with other measures such as curb extensions for added effect
- Can be used as de-facto bicycle lanes in the absence of parked vehicles

Disadvantages

- Can preclude the ability to provide bicycle lanes
- May increase potential for side-swipe collisions
- May limit road user visibility or sight distance at driveways/intersections

Variations

- Can apply to one or both sides of the street
- Can apply alternating sides of street for chicane effect
- Can consist of parking boxes, T-markings or a continuous lane line.

Cost

Moderate depending on length of parking lane





Bicycle Lanes

Description

Pavement markings used to define dedicate space on the street for bicycle travel. The bicycle lanes also serve to narrow the travel lanes, making drivers feel more restricted and inducing lower travel speeds.

Application

- Collector, neighborhood connector and local streets where excessive speeding has been documented
- Streets that provide important linkages in the City’s bicycle network or lead to bicycling destinations
- One-way or two-way streets

Advantages

- Increases safety for bicyclists
- Effective at reducing travel speeds

Disadvantages

- Can preclude ability to provide street parking depending on street width

Variations

- Can consist of white solid lines or green markings
- Should be supplemented with bicycle symbol pavement markings and pavement arrows pointing in the direction of travel

Special Considerations

- Should be applied in locations identified in an adopted City bicycle plan
- Bicycle lanes should be at least 5 feet in width
- Separate bicycle lanes should be provided for each direction of travel
- Bicycle lanes should not be hampered by curb extensions

Cost

Moderate depending on length of parking lane





Bulb-out / Curb Extension

Description

Bulb-outs or neckdowns are horizontal curb extensions at intersections that reduce the width of the street.

Application

- Collector, neighborhood connector or local streets
- Wide intersections where speeding and pedestrian safety are issues
- Intersections where drivers are most likely to encounter pedestrians crossing in the crosswalk

Advantages

- Reduces speed, particularly for right-turning vehicles
- Reduces pedestrian crossing distance and time
- Increases pedestrian comfort and safety
- Tightens the corner radius
- Prevents on-street parking near intersection
- Improves sight lines between pedestrians and motorists
- Creates more streetscape area

Disadvantages

- Makes snow removal and street sweeping more difficult
- May create bicycle/vehicle conflicts
- Makes right-turns more difficult for large vehicles which could cause vehicles to drive over the curb and put pedestrians at risk or cross into opposing traffic lane
- May result in loss of street parking
- Can complicate drainage design

Variations

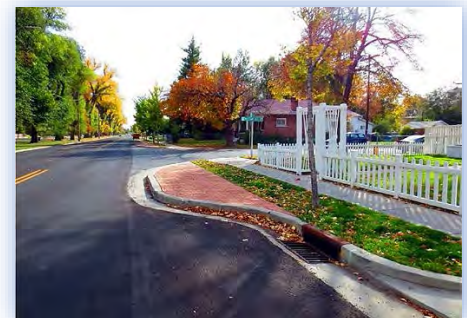
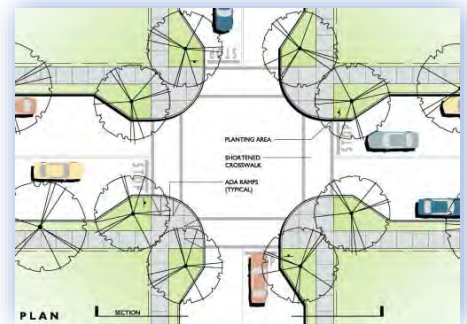
- Install on one or multiple approaches
- Extend curb on one or both sides of street
- Can initially be implemented with edge striping and delineators

Special Considerations

- Should not be used on narrow streets

Cost

Moderate to high depending on site conditions (i.e., drainage or utility relocations)





Choker

Description

Horizontal midblock curb extensions that reduce the width of the street.

Application

- Collector, neighborhood connector or local streets with parking lanes
- Wide streets where speeding and pedestrian safety are issues
- Midblock locations where pedestrian crossings occur

Advantages

- Encourages lower travel speed by physically narrowing the street width at a pinch point
- Reduces pedestrian crossing distance and time
- Improves sight lines between pedestrians and motorists
- Creates more streetscape area

Disadvantages

- Makes snow removal and street sweeping more difficult
- May create bicycle/vehicle conflicts
- May result in loss of on-street parking
- May complicate drainage design

Variations

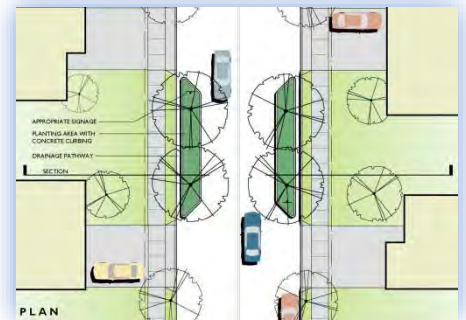
- Can be detached from the curb line to allow for drainage
- Can extend curb on one or both sides of street
- Can consist of a two-lane choker allowing one lane in each direction or a one-lane choker which forces two-way traffic to take turns passing through the pinch point
- Can incorporate a midblock crosswalk
- Can initially be implemented with edge striping and delineators

Special Considerations

- Typical width 6-8 feet; typical length 20 feet

Cost

Moderate to high depending on landscaping and storm sewer adjustments





Lateral Shift

Description

Horizontal midblock curb extensions that reduce the width of the street and cause a jog (lateral shift) in the travel lanes.

Application

- Neighborhood connectors or local streets
- Wide streets where excessive speeding has been documented
- Locations where parking alternates from one side of the street to the other

Advantages

- Encourages lower travel speed by physically narrowing the street width and shifting the travel lanes
- Can provide locations for midblock pedestrian crossings
- Improves sight lines between pedestrians and motorists
- Minimal impact on emergency vehicle response
- Creates more streetscape area

Disadvantages

- Makes snow removal and street sweeping more difficult
- May create bicycle/vehicle conflicts
- May result in loss of on-street parking

Variations

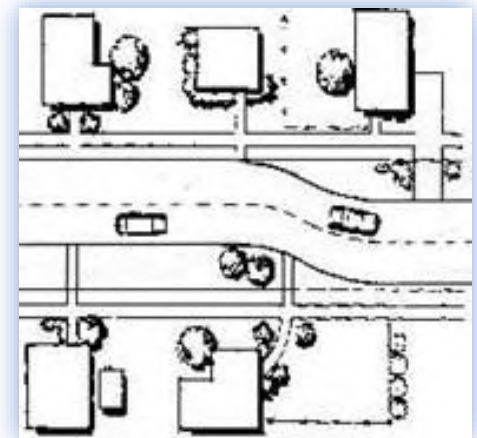
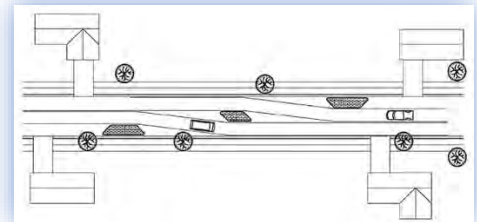
- Can be detached from the curb line to allow for drainage
- Can initially be implemented with edge striping and delineators

Special Considerations

- A raised median may be used to separate traffic through the shift

Cost

Moderate to high depending on landscaping and storm sewer adjustments.





Realigned Intersection

Description

Changes in alignment that convert T-intersections with straight approaches into curving streets that meet at right angles.

Application

- T-type intersections
- Collector, neighborhood connector or local streets where excessive speeding has been documented
- Streets with or without parking lanes or bicycle facilities

Advantages

- Effective at reducing speed and improving safety at T intersections
- Can improve pedestrian safety
- Discourages traffic continuing through a neighborhood
- Improves sight lines between pedestrians and motorists
- Minimal impact on emergency vehicle response
- Creates more streetscape area

Disadvantages

- Makes snow removal and street sweeping more difficult
- May create bicycle/vehicle conflicts
- Make right-turns more difficult for large vehicles
- May result in loss of on-street parking

Variations

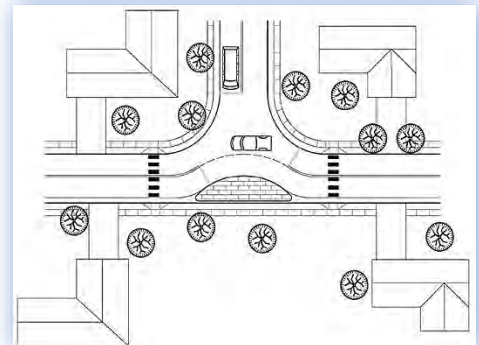
- Can be detached from the curb line to allow for drainage
- Can initially be implemented with edge striping and delineators

Special Considerations

- Typical maximum speed limit 25 mph

Cost

Moderate depending on curb alignment, landscaping and storm sewer adjustments.





Road Diet

Description

The conversion of an undivided roadway to a cross-section with fewer or narrower vehicular travel lanes.

Application

- Collector, neighborhood connector or local streets
- Undivided four-lane roadways
- Wide two-lane roadways

Advantages

- Permits the inclusion of facilities for other uses, such as bicycle lanes, medians, left-turn channelization, sidewalks, and on-street parking
- Reduces travel speeds
- Reduces road capacity which can lower traffic volumes
- Improves pedestrian crossing safety
- Reduces crash potential
- Improves bicycle safety if dedicated facilities provided

Disadvantages

- Can create congestion on higher volume streets
- May result in loss of on-street parking

Variations

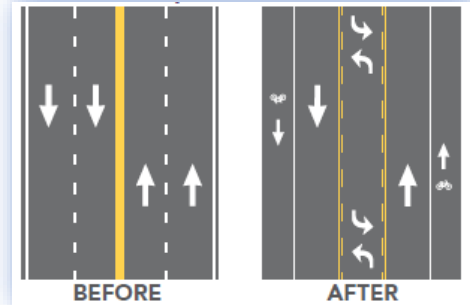
- Can be accomplished by adding parking lanes, bicycle lanes, a median, or by reclaiming some of the street width for sidewalks and street trees.

Special Considerations

- Curb adjustments may impact drainage infrastructure
- Access to bus stops may be hampered on streets carrying bus routes

Cost

Moderate to high depending on physical geometric changes, length of application, and need for traffic signal modifications.





Median Barrier

Description

A raised island along the centerline of a street that extends through an intersection to block cross traffic and left-turn movements.

Application

- Collector and neighborhood connector streets providing access to local neighborhood streets
- Streets contributing excessive cut-through traffic onto neighborhood streets

Advantages

- Discourages cut-through traffic
- Reduces traffic volumes on a cut-through route
- Reduces left-turn and angle collisions
- Reduces pedestrian crossing distances
- Improves pedestrian safety

Disadvantages

- Limits turns to and from the side street for local residents and businesses
- Can create more circuitous travel patterns through neighborhood
- Can divert cut-through traffic onto adjacent streets
- Is in effect at all times even though cut-through problem may only be at specific times
- Delays emergency response times
- May require removal of on-street parking on approach and departure from barrier zone

Variations

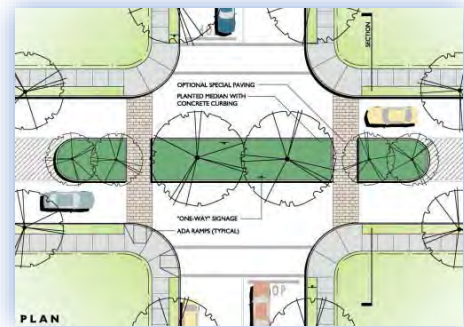
- Can consist of landscaped islands, walls, gates, or raised curbing with bollards

Special Considerations

- Extend beyond intersection to discourage U-turns
- Can provide pass-throughs for bicyclists
- To be designed as an accessible crossing island for pedestrians, median must have a minimum width of 6 feet with tactile warning strips

Cost

High depending on design, length and need for excavation





Forced-Turn Island

Description

Raised islands at intersections that force right-turn movements to and from the local street.

Application

- Local streets where excessive cut-through traffic or high traffic volumes have been documented

Advantages

- Redirects traffic to main streets
- Discourages cut-through traffic
- Reduces traffic volumes on a cut-through route
- Reduces left-turn and angle collisions
- Creates a landscaping opportunity

Disadvantages

- Limits turns to and from the side street for local residents and businesses
- Can create more circuitous travel patterns through neighborhood
- Can divert cut-through traffic onto adjacent streets
- Is in effect at all times even though cut-through problem may only be at specific times
- Delays emergency response times
- May encourage U-turn movements

Variations

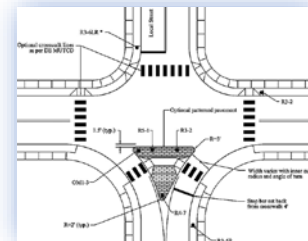
- Can consist of raised concrete curbs, barriers, bollards and signs
- Can be implemented on a trial basis using parking blocks, delineators, striping and signage

Special Considerations

- Use in combination with turn restriction signage

Cost

Moderate depending on length and width of barrier, materials used, and landscaping





Diagonal Diverter

Description

A barrier extended diagonally across an intersection to redirect through traffic movements and reduce travel speeds.

Application

- Intersections of neighborhood connectors or local streets where excessive speeding and/or cut-through traffic has been documented

Advantages

- Reduces cut-through traffic
- Reduces travel speeds and volume
- Creates landscaping opportunities
- Accommodates bicyclists and pedestrians
- Self-enforcing

Disadvantages

- Creates more circuitous travel patterns through neighborhood for local residents and businesses
- Can divert cut-through traffic onto adjacent streets
- May result in the loss of a few parking spaces near intersection
- Is in effect at all times even though cut-through problem may only be at specific times
- Delays emergency response times
- May require reconstruction of corner curbs

Variations

- Can provide pass-throughs for bicyclists
- Can be implemented on a trial basis using bollards, barrels, delineators, striping and signage

Special Considerations

- Effective at addressing neighborhood traffic issues when staggered on multiple streets, particularly in a grid system
- Pedestrians should be accommodated by pass-throughs or walkways across or through the diverter.

Cost

High depending on size, materials, drainage and landscaping





Half-Closure

Description

Barrier across a portion of the street to block travel in one direction for a short distance on an otherwise two-way street.

Application

- On local streets at intersections with higher volume streets that have been documented to contribute excessive cut-through traffic into a neighborhood

Advantages

- Eliminates cut-through traffic in one direction
- Reduces volume and speed in immediate area
- Restricts access without creating one-way streets
- Can accommodate two-way bicycle travel
- Can improve pedestrian crossing safety
- Creates landscaping opportunities

Disadvantages

- Creates more circuitous travel patterns through neighborhood for local residents and businesses
- Can divert cut-through traffic onto adjacent streets
- Is in effect at all times even though cut-through problem may only be at specific times
- May result in the loss of parking near the closure

Variations

- Can be detached from the curb line to allow for drainage
- Can be implemented on a trial basis using bollards, delineators, striping and signage

Special Considerations

- Effective at addressing neighborhood traffic issues when staggered on multiple streets, particularly in a grid system
- Pedestrian pass-throughs should be considered near crosswalks

Cost

Moderate depending on size, materials, landscaping, and drainage modifications

