CITY OF STERLING HEIGHTS

NEIGHBORHOOD TRAFFIC CALMING PROGRAM

NOVEMBER 2024

VISION ZERØ

SAFER STREETS FOR STERLING HEIGHTS

TABLE OF CONTENTS

INTRODUCTION

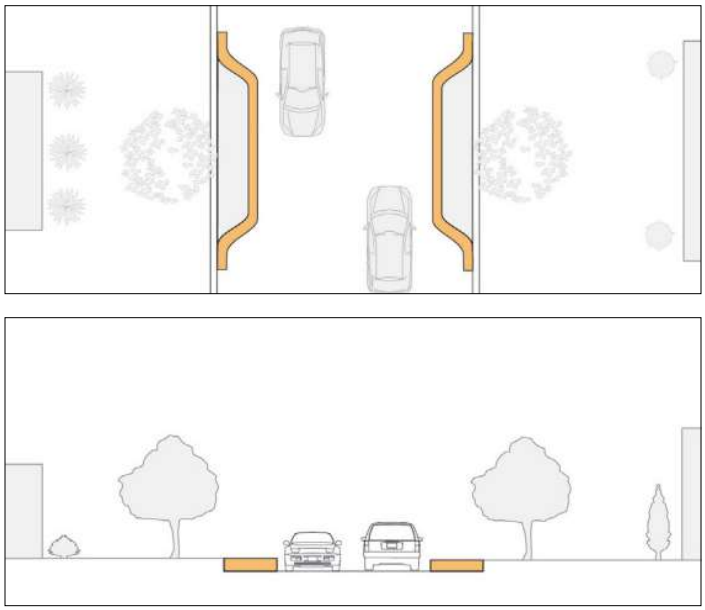
The City of Sterling Heights Traffic Calming Program was established to address vehicle speeding and traffic safety concerns on neighborhood streets. The program allows City staff to collaborate with residents to properly identify concerns, conduct studies and implement appropriate solutions that help reduce vehicle speeds and improve safety on neighborhood streets for all modes of travel. The purpose of the Traffic Calming Program is to collaborate with residents to evaluate their reported traffic concerns and implement Traffic Calming strategies to improve safety and quality of life.

WHAT IS TRAFFIC CALMING?

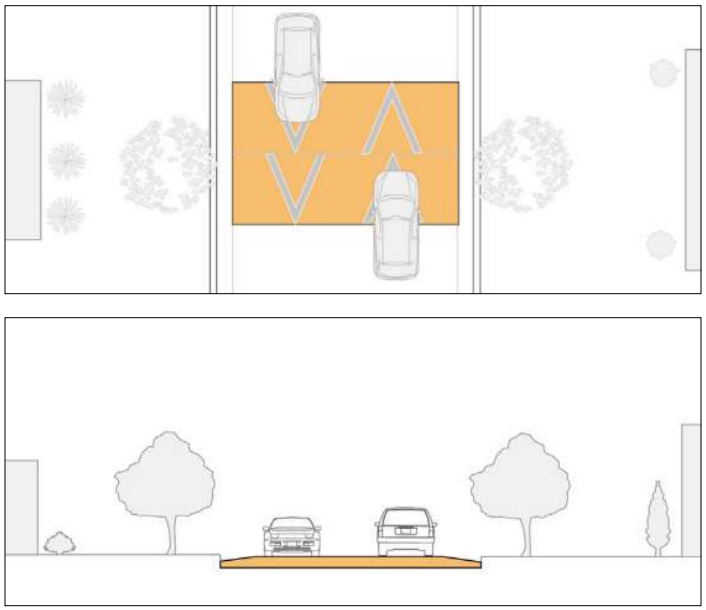
Traffic calming is the term used to identify a system of transportation safety strategies or measures. When implemented, these strategies discourage and reduce speeding, distracted driving, and reckless driving behaviors. The goal is to improve safety for vulnerable road users and to enhance the quality of life for residents by using enforcement, education, or engineering strategies. In-turn, traffic calming reduces the likelihood of crashes and improves safety and mobility.

Traffic calming measures can include street modifications that require additional maintenance, things you drive over like raised crosswalks or things you drive around like chicanes or roundabouts. Traffic calming measures can also include public education and enforcement campaigns that aim to provide knowledge and increase understanding.

DRIVE AROUND



DRIVE OVER



CITY-WIDE TRAFFIC CALMING TASK FORCE

The Traffic Calming Task Force meets regularly to discuss City-wide traffic and traffic safety related issues and efforts. The Task Force is composed of City officials representing a variety of departments. This Task Force oversees the Traffic Calming Program process and determines final implementation.

TRAFFIC CALMING PROGRAM OVERVIEW

There are seven steps involved in the program that ensure both residents and City staff are engaged and working together toward improving safety. The process is initiated by a resident submitting a request on the Traffic Calming Request Form.

Once this request has been submitted, the City of Sterling Heights Traffic Calming Task Force will perform a preliminary review to determine if the location is applicable. Based on this preliminary review, the resident is then notified if the location meets the initial criteria for further review.

The City will contact all residents in the defined project area to determine the level of support. When there is significant support from residents, City staff will perform studies based on the concerns laid out in the initial request to identify existing conditions and assign scores to priority criteria. Based on the priority score, the City will then determine the timing and type of traffic calming strategy for implementation. Funding for the improvements must be approved by the City Council before implementation can proceed. After improvements have been installed or constructed, there will be post-construction analysis to determine if the improvements have achieved the desired traffic calming and safety improvement results.

STEP 1
Resident Submits Request

Traffic Calming Request Forms are submitted online to Traffic Calming Task Force with location details.

STEP 2
Preliminary Evaluation

Traffic Calming Task Force assesses the location for previous resident complaints and validity of concern.

STEP 3
Task Force Evaluation

Data is collected on traffic speed and volumes, non-motorized connectivity and activity, and crash statistics.

STEP 4
Scoring the Project

Results from the evaluation are scored to determine the level of need and priority.

STEP 5
Strategy Selection

A report is developed with recommendations, cost estimates, and a timeline.

STEP 6
Implementation

Traffic Calming Task Force determines funding, schedule, and implementation strategies.

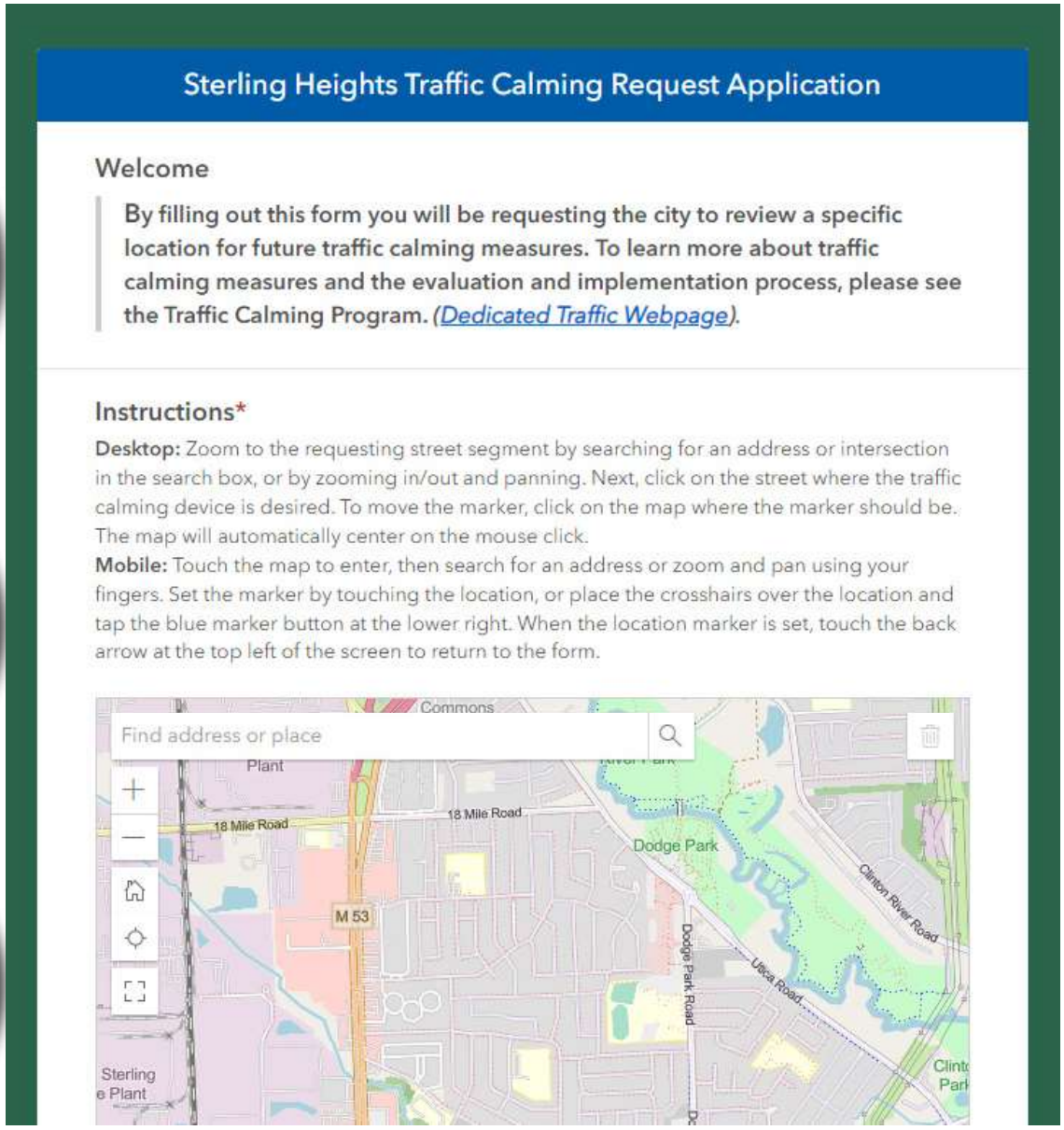
STEP 7
Post-Implementation Assessment

Follow-up studies determine the effectiveness of implemented traffic calming measures.

STEP 1

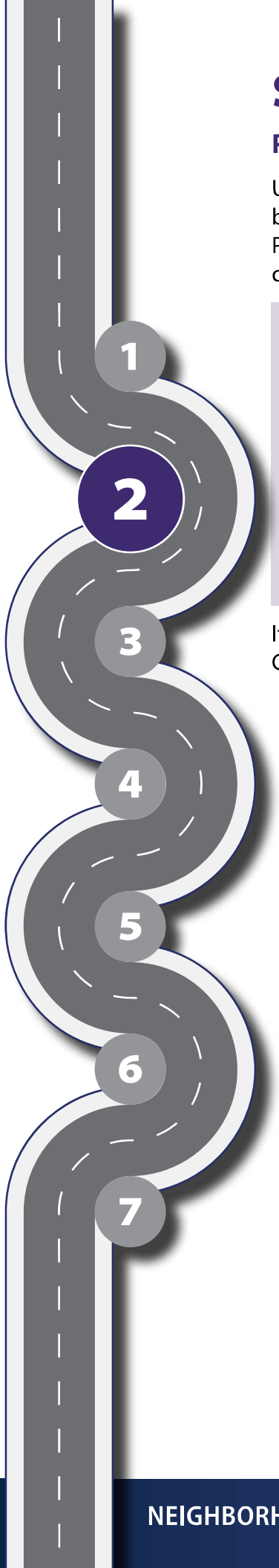
RESIDENT SUBMITS REQUEST

If a resident has noticed excessive speeding, an increase in erratic driver behavior, or other traffic safety concerns on their neighborhood street, filling out the Traffic Calming Request Form on the City's Traffic webpage is the first step to implementing the traffic calming program process.



FILLING OUT THE FORM

The resident begins by zooming in on the map to the location of their concern and clicking on the road. The Street Name, Road Jurisdiction, and Eligible for Traffic Calming form fields will auto-populate once a location is tagged on the map. The resident then fills out the boundaries for the requested segment, contact information, and the reason for the request. Once the form is complete, clicking submit then sends the request to the City.



STEP 2

PRELIMINARY EVALUATION

Upon receipt of a Traffic Calming Request Form, the Traffic Calming Task Force will begin the preliminary evaluation of the location at their next scheduled meeting. Preliminary evaluation will include assessing the location for previous resident complaints and validity of concern.

What is a valid concern?

- Was this request submitted by a resident?
- Was this request submitted on a local neighborhood street?
- Is the type of concern consistent with the Neighborhood Traffic Calming Program?
- Has this location been reported before? If yes, has it been studied?

If the location meets the purpose of the Neighborhood Traffic Calming Program, the City will move to Step 3 and begin further evaluation.

STEP 3

TRAFFIC CALMING TASK FORCE EVALUATION CRITERIA

Once it has been determined that the location needs evaluation, the Traffic Calming Task Force will conduct a review of the site, collect data, and perform applicable studies to determine the validity of the reported traffic problem.

1
2
3
4
5
6
7

SPEEDS

85TH PERCENTILE SPEED BEST PRACTICE

A speed study may be conducted by using a speed measuring device to collect and record speeds. Data collected during a speed study must show that the fastest 15% of vehicles in the study area are driving five miles per hour or more over the posted speed limit. Prioritization points are given when this threshold is met.

SAFETY ANALYSIS

NUMBER AND SEVERITY OF CRASHES OVER A FIVE-YEAR PERIOD

Crash Reports in the study area may be used to review crash location, contributing factors, and severity, and to develop collision diagrams. Crash contributing factors that support traffic calming measures may include speeds too fast for existing conditions, failure to yield, etc. Field reviews and interviews with residents may also help determine other factors not noted in Crash Reports. Prioritization points are given per crash where conditions such as speeds too fast for existing conditions are a contributing factor.

NON-MOTORIZED CONNECTIVITY AND SAFETY

IDENTIFIED NEEDS

An assessment of existing bicycle and pedestrian facilities, as well as connectivity to origin-destinations will be performed. Locations that are heavily utilized by non-motorized travelers will be prioritized. Adjacent land use may determine level of priority. Locations near schools, recreation, and transit routes and bus stops are examples of areas where protection of non-motorized travelers is a priority.

ADDITIONAL CONSIDERATIONS

CLEAR SAFETY CONCERNS AND LEVEL OF PUBLIC CONCERN

Other items that may elevate the reported concern as a valid traffic problem include noticeable design or sight distance deficiencies. These can include heavy traffic volumes, obstacles on adjacent roadways that may cause diversion of traffic, vegetation overgrowth blocking driver line of sight, improper striping or signage, etc. Locations may be prioritized if the level of public concern has been recorded frequently in the past.

STEP 4

SCORING THE PROJECT

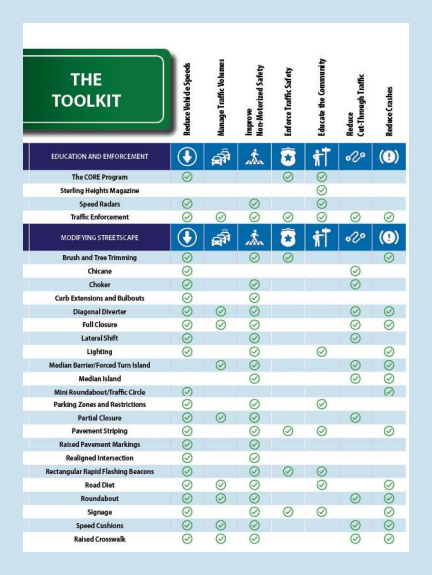
After the City has collected data through studies and analysis, the project will be given a score based on the criteria. This score will be used when prioritizing future project implementation and securing funding. Low scoring projects with clear traffic concerns may also be prioritized depending on feasibility and funding availability.

CRITERIA	RANGE	POINTS	SCORE
Percentage of Drivers Exceeding the Speed Limit	Less than 15%	1	
	15-25%	3	
	More than 25%	5	
Non-Motorized Connectivity Needs Based on Existing Activity or Destinations	No	1	
	Yes	5	
Traffic Volume	Less than 400 Vehicles a Day	0	
	400-800 Vehicles a Day	2	
	More than 800 Vehicles a Day	5	
Crashes with Contributing Factors Related to Traffic Concern	No	0	
	Yes	3 for each	
TOTAL SCORE			

STEP 5

STRATEGY SELECTION

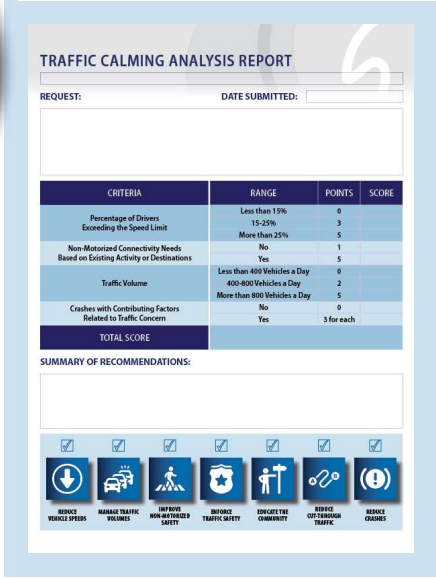
Traffic calming measures and strategies can be categorized by the following: enforcement, education, or streetscape modifications. Streetscape modifications include horizontal or vertical deflections, road closures, and visibility improvements like signage, pavement markings or lighting. City staff will select traffic calming measures or strategies from the Toolkit in Appendix A that best alleviate the observed traffic problems while also determining financial feasibility. In most cases, a mix of traffic calming measures will be used to address the problem. Implementation of streetscape modifications many times will require public education prior to and support through enforcement post-construction.



Modifications to the streetscape may be selected based on applicability. Pavement width, adjacent land use, and proximity to intersections are examples of factors that may eliminate some strategies from the list of applicable treatments in a specific location.

Streetscape modifications shall not be allowed where no traffic problems are identifiable, and the installation of the devices would inconvenience or potentially endanger the public. No traffic calming device shall be installed or placed on any street without funding approval.

Funding will need to be identified for any project that is considered for implementation. Funding for traffic calming and safety projects will be sourced from the City's General Fund unless external funding sources are identified. Availability and amount of funding needed to implement projects will vary depending on the type of traffic calming measure or device selected.



For each study area, a Traffic Calming Analysis report will be generated that indicates the study results, scoring, recommended traffic calming strategies, potential funding, and timeframe.

STEP 6

IMPLEMENTATION OF TRAFFIC CALMING OR SAFETY IMPROVEMENTS

Final implementation steps are determined based on the estimated cost of the project. The Traffic Calming Task Force will determine and indicate in the Traffic Calming Analysis Report if the project can be done within the current budget year. In the case where the project requires immediate implementation and is in excess of available funds, the Traffic Calming Analysis Report will be presented to City Council for review and approval. The timeline of implementation could take mutliple years depending on availability of funds and project scope.

STEP 7

POST-IMPLEMENTATION ASSESSMENT

After traffic calming measures and/or devices are implemented, staff will conduct a post-implementation assessment of their effectiveness.

- Effectiveness may be measured after six months, at one year, two year, or five years as applicable or determined by the Traffic Committee.
- Results may be measured by collecting and evaluating updated speed, crash, and cut-through traffic volume data. Additionally, the number of citations, level of outreach and education can also be assessed to determine the effectiveness of education and enforcement strategies. If data shows improvement from pre-implementation conditions, the treatment may be determined to be effective.
- If there are any undesirable adverse effects, devices may need to be removed.
- If the device implemented was temporary and has shown to be effective, staff will determine if a permanent device may need to be installed.

THE TOOLKIT

NEIGHBORHOOD TRAFFIC CALMING PROGRAM

Appendix A

The toolkit provides information on each identified traffic calming measure/device, its applicability, advantages, disadvantages, effectiveness, cost to implement and other considerations. The traffic calming tools in this toolkit can be combined to form a series of traffic calming strategies.

TRAFFIC CALMING MEASURES ASSOCIATED COSTS

Traffic calming measures/devices in this category typically cost less than $5,000 to install.

Neighborhood Speed Watch Program, Neighborhood Traffic Safety Newsletter, Speed Radars, Traffic Enforcement, Brush Trimming, Pavement Striping, Raised Pavement Marking, Signage, Parking Zones and Restrictions, Speed Cushion, Tree Canopy

COST $$$$

Traffic calming measures/devices in this category typically range from $5,000 to $10,000 to install.

Choker, Curb Extensions and Bulbouts, Median Barrier/Forced Turn Island, Median Island, Mini Roundabout/ Traffic Circle, Rectangular Rapid Flashing Beacons, Raised Crosswalk

COST $$$$

Traffic calming measures/devices in this category typically range from $10,000 to $25,000 to install.

Chicane, Diagonal Diverter, Lateral Shift, Full Closure, Partial Closure, Realigned Intersection, Road Diet, Lighting

COST $$$$

Traffic calming measures and devices in this category typically cost more than $25,000 to install.

Roundabout

COST $$$$

Costs may vary dependent on scale, quantity or if the device is temporary or permanent. The estimated price range indicated in the toolkit is the typical cost per device, multiple devices are likely required for each implementation project.

EFFECTIVENESS LEGEND

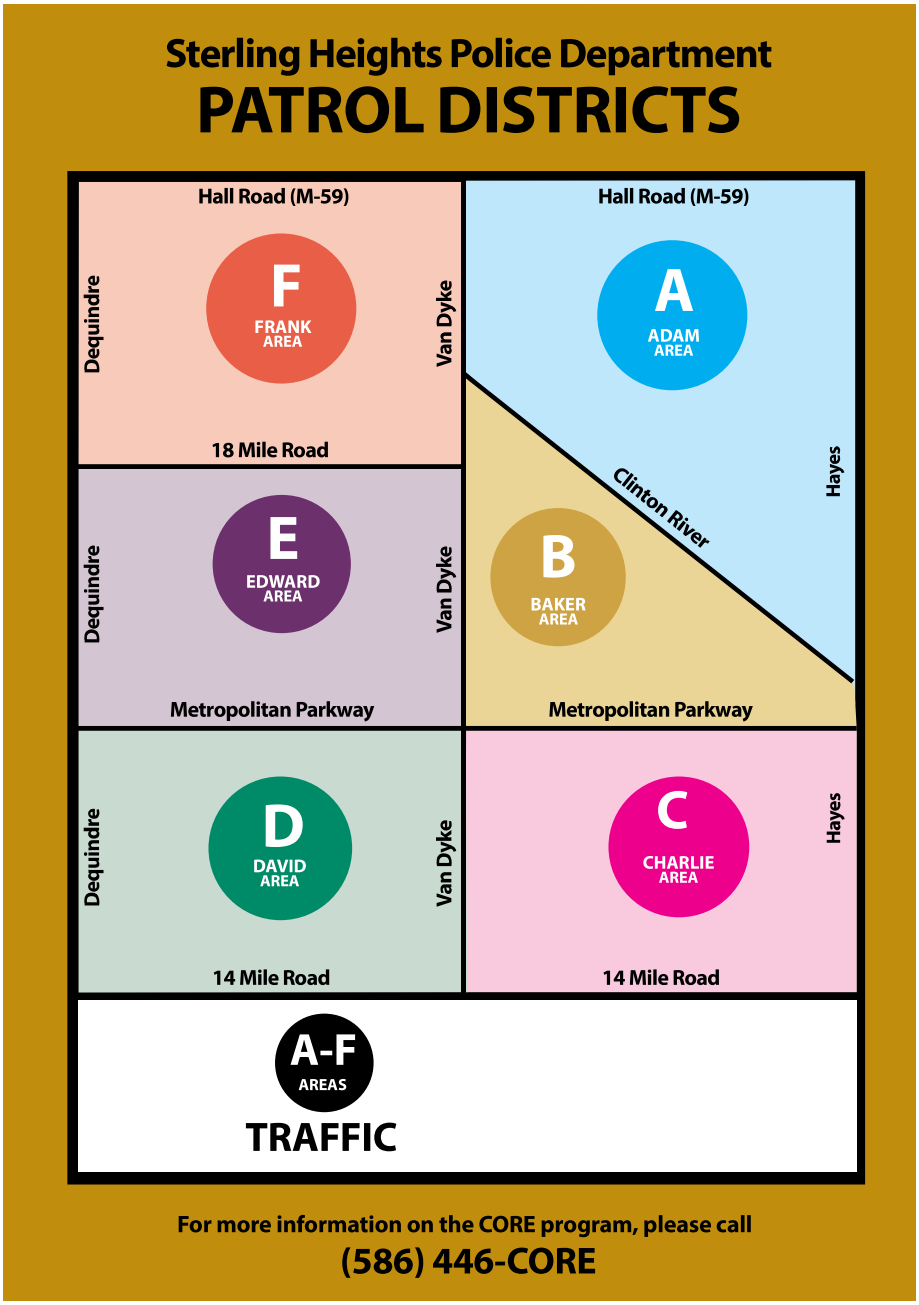
A blue icon indicates that this traffic calming measure is effective in addressing the topic. A grey icon indicates the traffic calming measure is not directly effective in addressing the topic.

THE TOOLKIT

PAGE	EDUCATION AND ENFORCEMENT	Reduce Vehicle Speeds	Manage Traffic Volumes	Improve Non-Motorized Safety	Enforce Traffic Safety	Educate the Community	Reduce Cut-Through Traffic	Reduce Crashes
13	The CORE Program	✓			✓	✓		
14	Sterling Heights Magazine					✓		
15	Speed Radars	✓		✓		✓		
16	Traffic Enforcement	✓	✓	✓	✓	✓	✓	✓

PAGE	MODIFYING STREETSCAPE	Reduce Vehicle Speeds	Manage Traffic Volumes	Improve Non-Motorized Safety	Enforce Traffic Safety	Educate the Community	Reduce Cut-Through Traffic	Reduce Crashes
17	Brush and Tree Trimming	✓		✓	✓			✓
18	Chicane	✓					✓	
19	Choker	✓		✓			✓	
20	Curb Extensions and Bulbouts	✓		✓				
21	Diagonal Diverter	✓	✓	✓			✓	✓
22	Full Closure	✓	✓	✓			✓	✓
23	Lateral Shift	✓		✓			✓	
24	Lighting	✓		✓		✓		✓
25	Median Barrier/Forced Turn Island		✓	✓			✓	✓
26	Median Island			✓			✓	✓
27	Mini Roundabout/Traffic Circle	✓						✓
28	Parking Zones and Restrictions	✓		✓		✓		
29	Partial Closure	✓	✓	✓			✓	
30	Pavement Striping	✓		✓	✓	✓		✓
31	Raised Crosswalk	✓	✓	✓			✓	✓
32	Raised Pavement Markings	✓		✓		✓		
33	Realigned Intersection	✓		✓				
34	Rectangular Rapid Flashing Beacons	✓		✓	✓	✓		
35	Road Diet	✓	✓	✓		✓		✓
36	Roundabout	✓	✓	✓			✓	✓
37	Signage	✓		✓	✓	✓		✓
38	Speed Cushions	✓	✓	✓			✓	✓
39	Tree Canopy	✓						

THE CORE PROGRAM



DESCRIPTION

The CORE Program (Community Outreach and Resident Engagement Program) gives each of the six districts of the City its own CORE officer assigned to serve as a community relations resource to residents of the region. Each district's officer serves as the region's advocate and neighborhood expert. These six officers work to promote traffic safety and neighborhood issues to Sterling Heights Police Department leadership.

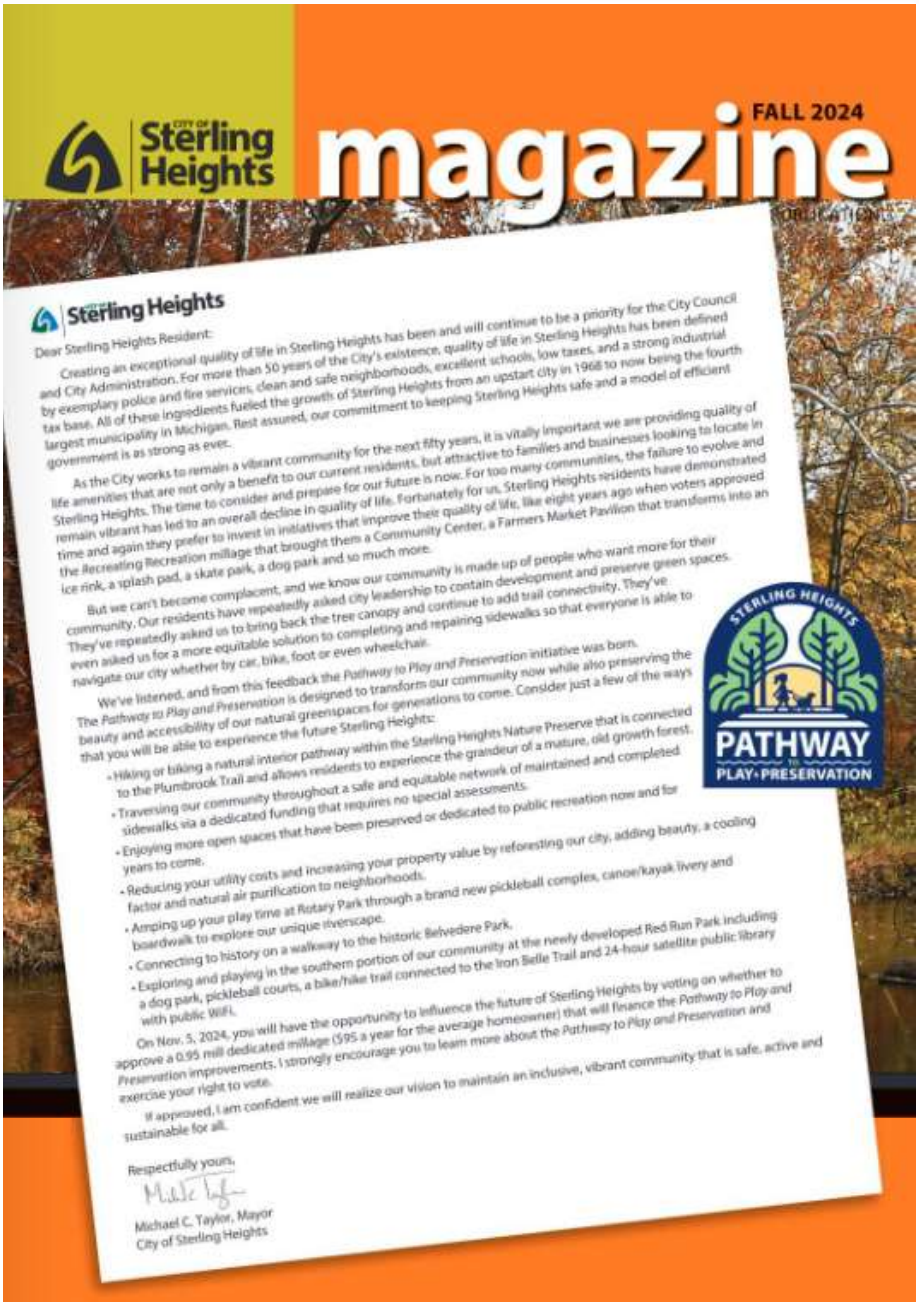
ADVANTAGES

- Reduces vehicle speeds
- Educates the community
- Increases compliance
- Increases public awareness
- Provides opportunity for focused enforcement directed toward problem areas or behaviors

DISADVANTAGES

- Effective enforcement requires a substantial allocation of law enforcement resources
- Heavily enforced areas can cause drivers to take alternate routes

STERLING HEIGHTS MAGAZINE



DESCRIPTION

In the Sterling Heights Magazine, there is a dedicated column focusing on traffic safety issues and reporting for the City. This section is a valuable resource for residents seeking the most current traffic updates and information. It provides a comprehensive overview of recent traffic developments and serves as an educational tool to enhance community awareness about traffic safety measures. By consulting this column, community members can stay informed about traffic conditions and learn about best practices for promoting safety on local roads.

SPEED RADARS

DESCRIPTION

Speed radar units are used to detect the speed of passing vehicles and display the speed on a reader board. The goal of speed radar units is to heighten drivers' awareness of both the speed at which they are traveling and the posted speed limit. This encourages drivers to adjust their speeds, if needed. The City of Sterling Heights has four radar speed trailers and two dynamic speed feedback signs.

ADVANTAGES

- Educates the community
- Reduces vehicle speed
- Opportunity to utilize traffic enforcement in conjunction with speed radar units
- Does not require personnel

DISADVANTAGES

- May not encourage all drivers to follow speed limit
- Does not enforce the speed limit

APPLICATIONS

Street Type: All (Arterials, Collectors, and Local Streets)

Traffic Volume: No Limit

Speed Limit: No Limit

Installation Type: Temporary

Location: Intersection and Segment

COST
$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

ENFORCE TRAFFIC SAFETY

EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

TRAFFIC ENFORCEMENT

DESCRIPTION

The Transportation Department works closely with the Sterling Heights Police Department to enforce speed limits and other traffic laws in the City. Using traffic data that is collected by City staff, officers focus their scheduled patrols on the times and places where speeding most often occurs. Traffic enforcement is applicable in areas described as but not limited to, high-crash and high-speed roads/intersections, school zones, residential neighborhoods, and high-risk areas for impaired driving.

ADVANTAGES

- Increases compliance
- Provides opportunity for focused enforcement directed toward problem areas or behaviors
- Increases public awareness

DISADVANTAGES

- Effective enforcement requires a substantial allocation of law enforcement resources
- Heavily enforced areas can cause drivers to take alternate routes

APPLICATIONS

Street Type: All (Arterials, Collectors, and Local Streets)

Traffic Volume: No Limit

Speed Limit: No Limit

Installation Type: Temporary

Location: Intersection and Segment

COST

$$$$

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REDUCE CRASHES

BRUSH AND TREE TRIMMING

DESCRIPTION

Overgrown brush and trees at intersections, sidewalks, and along roadways limit motorists' ability to safely navigate neighborhood streets. Overgrown brush can block important signage and limit a driver's ability to see oncoming traffic at intersections. Brush trimming focuses on these trouble areas and increases the visibility of motorists and non-motorists alike.

ADVANTAGES

- Provides clear sight line
- Improves sign visibility
- Enhances visibility for safe driving

DISADVANTAGES

- Regular maintenance is required as growth continues
- Invasive plant species may require more robust removal efforts

APPLICATIONS

Street Type: All (Arterials, Collectors, and Local Streets)

Traffic Volume: No Limit

Speed Limit: No Limit

Installation Type: Temporary

Location: Intersection and Segment

COST

$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

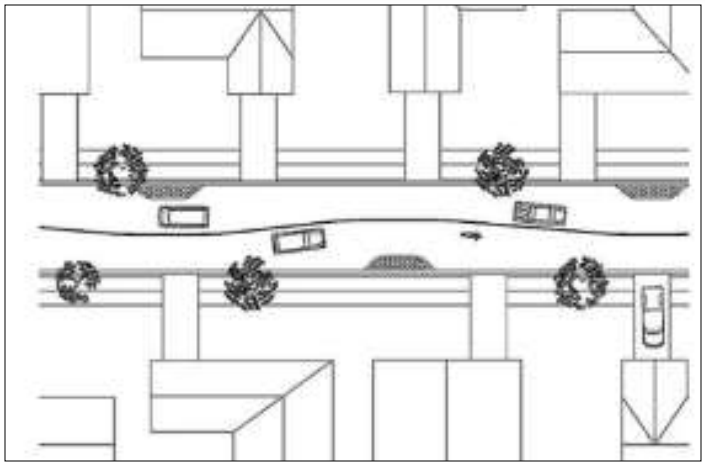
ENFORCE TRAFFIC SAFETY

EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

CHICANE



DESCRIPTION

Chicanes are S-shaped curb extensions that alternate from one side of the road to the other. These curb extensions restrict drivers from driving in a straight line, forcing vehicles to slow down through the curves. Chicanes generally involve medians and are used at mid-block locations in a series of three curb extensions. Chicanes are appropriate for one-lane one-way and two-lane two-way roadways. Chicanes are not suitable for crosswalks.

ADVANTAGES

- Reduces vehicle speeds
- Discourages cut-through traffic
- Provides an opportunity for landscaping

DISADVANTAGES

- May reduce on-street parking
- May require manual street sweeping
- May force bicyclists to share travel lanes with vehicles
- May confuse drivers at night if there is insufficient lighting, striping or signage

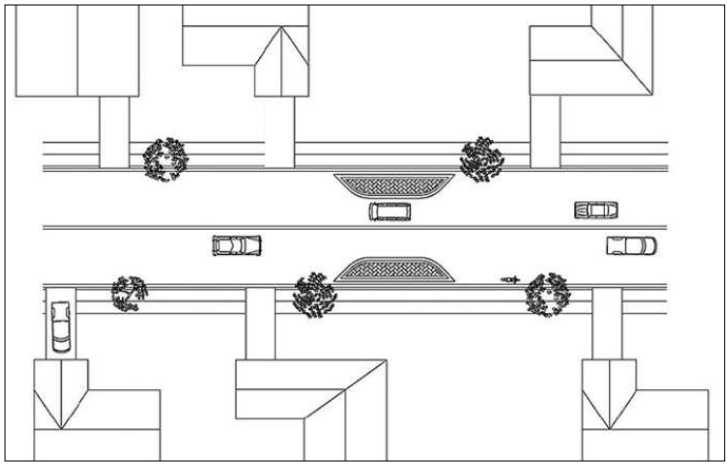
APPLICATIONS

Street Type: Local Streets
Traffic Volume: Less than 3,500 Daily Vehicles
Speed Limit: 35 MPH or Less
Installation Type: Temporary or Permanent
Location: Segment
Design Guidelines: To be installed on a crest vertical curve only if there is adequate stopping sight distance or warning signs. Maximum acceptable grade should be based on local standards and experience.

COST
$$$$

REDUCE VEHICLE SPEEDS | MANAGE TRAFFIC VOLUMES | IMPROVE NON-MOTORIZED SAFETY | ENFORCE TRAFFIC SAFETY | EDUCATE THE COMMUNITY | REDUCE CUT-THROUGH TRAFFIC | REDUCE CRASHES

CHOKER



DESCRIPTION

Chokers are curb extensions used at mid-block locations to narrow the roadway, thereby reducing vehicle speeds. Chokers leave the street more narrow than the normal cross section. The intent of the choker is to slow down impeding traffic by increasing awareness and avoiding the curb. Locations near streetlights are preferable.

ADVANTAGES

- Reduces vehicle speeds
- May improve non-motorist safety by reducing street crossing distance
- Provides an opportunity for landscaping
- Discourages cut-through traffic

DISADVANTAGES

- May cause speeding after choker
- May reduce on-street parking
- May confuse drivers at night if there is insufficient lighting, striping or signage

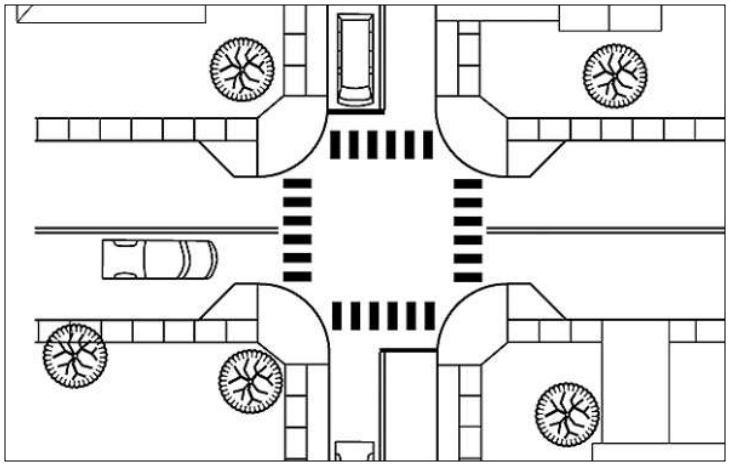
APPLICATIONS

Street Type: Collector and Local Streets
Traffic Volume: Up to 15,000 Daily Vehicles
Speed Limit: 40 MPH or Less
Installation Type: Temporary or Permanent
Location: Segment
Design Guidelines: Width of 6 - 8 feet; Minimum Length of 20 feet; Offset from Through Traffic by Approximately 1.5 feet

COST
$$$$

REDUCE VEHICLE SPEEDS | MANAGE TRAFFIC VOLUMES | IMPROVE NON-MOTORIZED SAFETY | ENFORCE TRAFFIC SAFETY | EDUCATE THE COMMUNITY | REDUCE CUT-THROUGH TRAFFIC | REDUCE CRASHES

CURB EXTENSIONS AND BULBOUTS



DESCRIPTION

Curb extensions and bulbouts are considered a horizontal extension of the sidewalk into the street, resulting in a narrower roadway section. This creates a shorter and safer crossing distance for pedestrians. Curb extensions and bulbouts are appropriate for one-way and two-way roadways. Corner radii must accommodate full lane width for passing motor vehicles.

ADVANTAGES

- Reduces vehicle speeds
- Non-motorized safety improves by reducing street crossing distance
- Provides an opportunity for landscaping
- Retains sufficient width for ease of emergency vehicle access

DISADVANTAGES

- Shortened curb radii may require large turning vehicles to cross centerlines
- Temporary installations may be run over more frequently

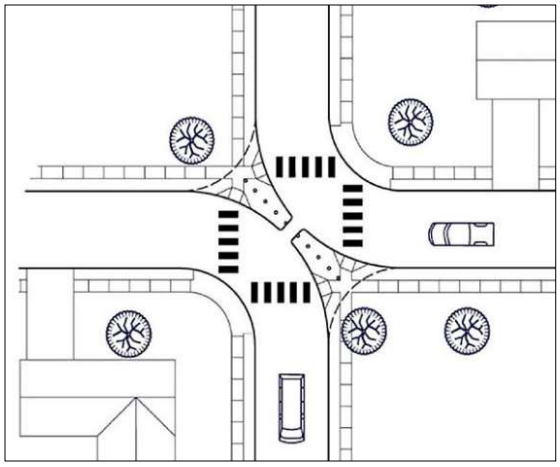
APPLICATIONS

Street Type: Collector and Local Streets
Traffic Volume: Up to 15,000 Daily Vehicles
Speed Limit: 40 MPH or Less
Installation Type: Temporary or Permanent
Location: Segment
Design Guidelines: Typical width is 6 - 8 feet; Offset from travel lane at least 1.5 feet

COST
$$$$

REDUCE VEHICLE SPEEDS
MANAGE TRAFFIC VOLUMES
IMPROVE NON-MOTORIZED SAFETY
ENFORCE TRAFFIC SAFETY
EDUCATE THE COMMUNITY
REDUCE CUT-THROUGH TRAFFIC
REDUCE CRASHES

DIAGONAL DIVERTER



DESCRIPTION

A diagonal diverter is a median barrier at an intersection designed to restrict through traffic. The diverter is placed diagonally to force drivers to make a one directional turn rather than proceeding. The design leaves space for non-motorized individuals to cross through. A diagonal diverter is appropriate for one-way and two-way roadways. Corner radii must accommodate full lane width for passing motor vehicles.

ADVANTAGES

- Reduces vehicle speeds
- Discourages cut-through traffic
- Provides an opportunity for landscaping
- Non-motorized safety improves by reducing street crossing distance

DISADVANTAGES

- May divert street traffic to an adjacent neighborhood street
- Inconvenient for local residents and emergency vehicles
- Shortened curb radii may require large turning vehicles to cross center lines
- May confuse drivers at night if there is insufficient lighting, striping or signage

APPLICATIONS

Street Type: Local Streets

Traffic Volume: Less Than 3,500 Daily Vehicles

Speed Limit: 35 MPH or Less

Installation Type: Temporary or Permanent

Location: Intersection

COST

$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

ENFORCE TRAFFIC SAFETY

EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

FULL CLOSURE

DESCRIPTION

Full closures involve the installation of temporary or permanent barriers across a street to completely close off traffic. The closures can be placed at intersections or mid-block locations and the barriers typically include gaps to allow for bicycle and pedestrian access. These barriers may consist of landscaped islands, walls, gates, or side-by-side bollards. Common places to install full closures are in areas with high non-motorized activity or access management problems. Full closures need appropriate signing at entrances.

ADVANTAGES

- Creates a very safe area for non-motorists and residents
- Can be used to assist crime prevention
- Eliminates cut-through traffic

DISADVANTAGES

- May divert traffic to an adjacent neighborhood street
- May delay emergency vehicles

APPLICATIONS

Street Type: Local Streets

Traffic Volume: Less than 3,500 Daily Vehicles

Speed Limit: 35 MPH or Less

Installation Type: Temporary or Permanent

Location: Intersection and Segment

COST

$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

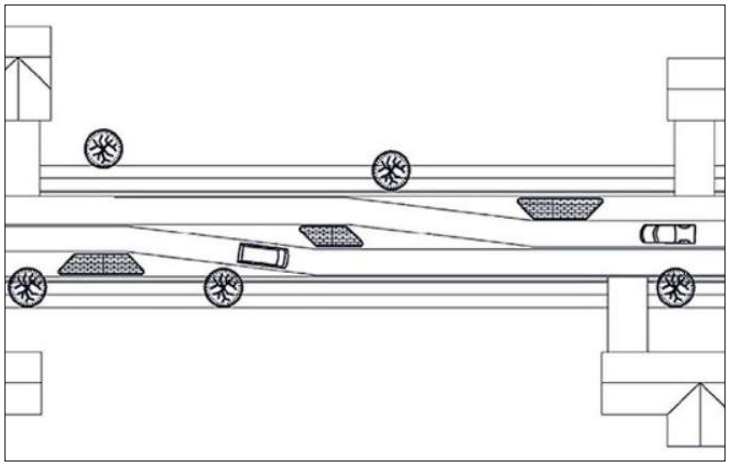
ENFORCE TRAFFIC SAFETY

EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

LATERAL SHIFT



DESCRIPTION

A lateral shift is a realignment of a straight section of road with pavement markings or curb extensions to create a curve. Lateral shifts increase a driver's awareness and effectively reduce their operating speed. This design is similar to a chicane. Lateral shifts are generally used at mid-block location. Medians are generally installed with lateral shifts. A lateral shift is appropriate for one-lane one-way and two-lane two-way roadways.

ADVANTAGES

- Reduces vehicle speed
- Discourages cut-through traffic
- Provides an opportunity for landscaping
- Provides location for crosswalks

DISADVANTAGES

- Motorists may cross centerline for straight path
- May reduce on-street parking
- Snow removal may be more difficult

APPLICATIONS

Street Type: Collector and Local Streets
Traffic Volume: Up to 15,000 Daily Vehicles
Speed Limit: 40 MPH or Less
Installation Type: Temporary or Permanent
Location: Segment
Design Guidelines: To be installed on a crest vertical curve only if there is adequate stopping sight distance or warning signs. Maximum acceptable grade should be based on local standards and experience.

COST
$$$$

REDUCE VEHICLE SPEEDS | MANAGE TRAFFIC VOLUMES | IMPROVE NON-MOTORIZED SAFETY | ENFORCE TRAFFIC SAFETY | EDUCATE THE COMMUNITY | REDUCE CUT-THROUGH TRAFFIC | REDUCE CRASHES

LIGHTING

DESCRIPTION

The addition of lighting can improve visibility and safety for motorists and non-motorized travelers. Lighting also discourages street crime. Strategic placement of lighting at crosswalks, intersections, driveways, tunnels or bridges can improve visibility aiding with vehicular navigation and detection of barriers or hazards. The City does not provide neighborhood-wide street lighting, but may choose to add lighting to strategic locations near schools, trails or other high non-motorized activity locations.

ADVANTAGES

- Reduces crash occurrence when dark
- Increases safety by reducing crime
- Reduces vehicle headlight glare
- Enhances sight distance and increases visibility at night

DISADVANTAGES

- Can increase cut-through traffic and speeds by providing visibility
- May require underground utility work

APPLICATIONS

Street Type: All (Location Specific)

Traffic Volume: No Limit

Speed Limit: No Limit

Installation Type: Permanent

Location: Intersection and Segment

COST

$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

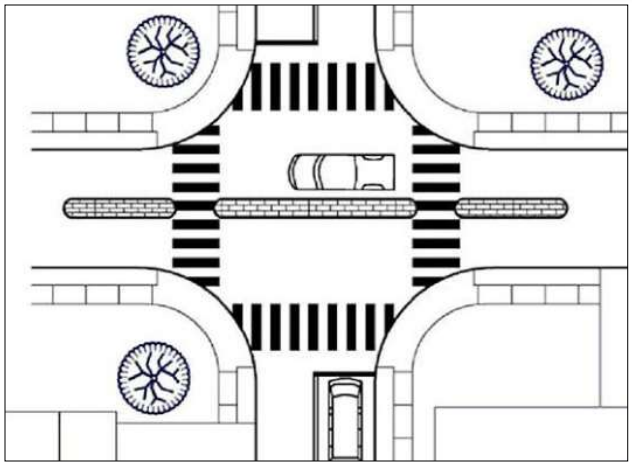
ENFORCE TRAFFIC SAFETY

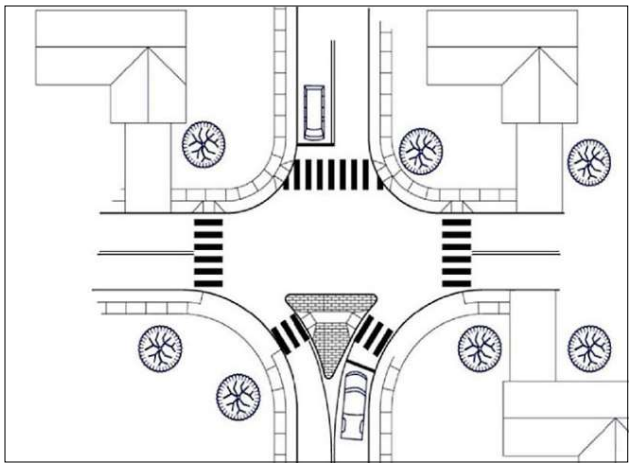
EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

MEDIAN BARRIER/FORCED TURN ISLAND





DESCRIPTION

Median barriers/forced turn islands are two variations of physical turn restrictions at an intersection, used to eliminate specific traffic flows (particularly cut-through traffic) from entering or exiting a side street. They involve the construction of raised islands at intersections which prohibit certain turning movements. The islands generally serve as a full closure for one direction of traffic. Similarly, a median barrier is designed to create a right turn only movement and block left turns and through movements from all intersection approaches. Islands are typically installed where turns are not wanted. The barrier should extend beyond the intersection.

ADVANTAGES

- Discourages cut-through traffic
- Provides an opportunity for landscaping
- Non-motorized safety improves by reducing street crossing distance

DISADVANTAGES

- May divert traffic to an adjacent neighborhood street
- May reduce on-street parking

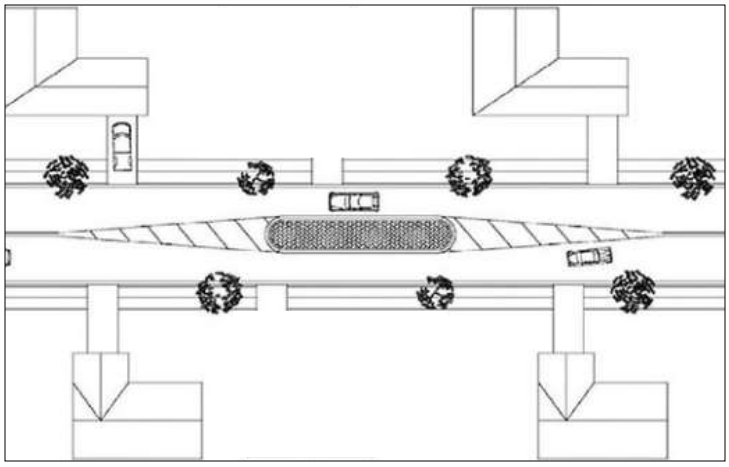
APPLICATIONS

Street Type: Collector and Local Streets
Traffic Volume: Up to 15,000 Daily Vehicles
Speed Limit: 40 MPH or Less
Installation Type: Temporary or Permanent
Location: Segment
Design Guidelines: The median barrier typically extends 15 to 25 feet beyond the intersection

COST
$$$$

REDUCE VEHICLE SPEEDS
MANAGE TRAFFIC VOLUMES
IMPROVE NON-MOTORIZED SAFETY
ENFORCE TRAFFIC SAFETY
EDUCATE THE COMMUNITY
REDUCE CUT-THROUGH TRAFFIC
REDUCE CRASHES

MEDIAN ISLAND



DESCRIPTION

A median island is a raised island that can be placed at a mid-block location or on the approach to an intersection. A median island is generally installed to restrict drivers from crossing the lane. The islands may also serve as designated pedestrian refuge islands. Median islands should be a minimum of 6 feet wide. For high pedestrian volumes, islands should be a minimum of 8 feet wide. The refuge is ideally 40 feet long and not less than 12 feet in length.

ADVANTAGES

- May improve non-motorist safety by reducing street crossing distance
- Provides an opportunity for landscaping

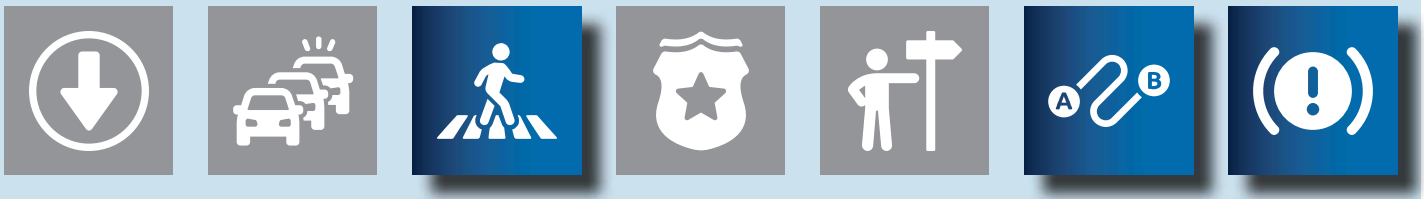
DISADVANTAGES

- May be difficult for snow removal
- May affect emergency vehicle access
- May impact access to properties
- May reduce on-street parking

APPLICATIONS

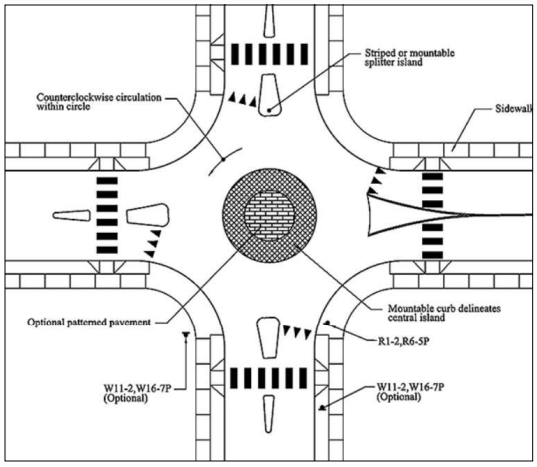
Street Type: All (Arterials, Collectors, and Local Streets)
Traffic Volume: Up to 15,000 Daily Vehicles
Speed Limit: 40 MPH or Less
Installation Type: Temporary or Permanent
Location: Segment
Design Guidelines: Median islands should be a minimum of 6 feet wide; High pedestrian volumes have minimum of 8 feet; The refuge is ideally 40 feet long and not less than 12 feet in length.

COST
$$$$



REDUCE VEHICLE SPEEDS | MANAGE TRAFFIC VOLUMES | IMPROVE NON-MOTORIZED SAFETY | ENFORCE TRAFFIC SAFETY | EDUCATE THE COMMUNITY | REDUCE CUT-THROUGH TRAFFIC | REDUCE CRASHES

MINI ROUNDABOUT/TRAFFIC CIRCLE



DESCRIPTION

Similar to a roundabout, a mini roundabout/traffic circle provides a horizontal deflection and requires every vehicle to follow a circuitous path no matter which departure leg of the intersection is the destination. Its defining feature is a traversable center and splitter islands to accommodate larger vehicles. The center island is typically raised and forces a motorist to use reduced speed when entering and passing through an intersection. The community can be creative in what objects they install in the center island. YIELD signs are recommended at all approaches.

ADVANTAGES

- Reduces vehicle speed
- Expected to reduce the number of angle and turning collisions
- Can be applied on a roadway with on-street parking
- Provides an opportunity for landscaping

DISADVANTAGES

- May require additional lighting
- May confuse drivers at night if there is insufficient lighting, striping or signage
- Forces bicyclists to share travel lanes with vehicles

APPLICATIONS

Street Type: Collector and Local Streets
Traffic Volume: Up to 2,500 Vehicles per Hour for a Single Lane
Speed Limit: 35 MPH or Less
Installation Type: Temporary or Permanent
Location: Intersection
Design Guidelines: Inscribed diameter between 42.6 and 78.7 feet; Circular roadway width between 14.8 and 19.7 feet; Central island maximum height of 4.7 inches & minimum curb height of 1.6 or 1.9 inches.

COST
$$$$

REDUCE VEHICLE SPEEDS | MANAGE TRAFFIC VOLUMES | IMPROVE NON-MOTORIZED SAFETY | ENFORCE TRAFFIC SAFETY | EDUCATE THE COMMUNITY | REDUCE CUT-THROUGH TRAFFIC | REDUCE CRASHES

PARKING ZONES AND RESTRICTIONS

DESCRIPTION

Parking zones are designated areas where on-street parking is permitted and encouraged. Parking restrictions may be enforced in these areas if there are times where vehicles cannot safely be parked. This may include school hours, refuse pickup days or during winter maintenance. Other parking restrictions may be installed in other areas for a variety of reasons, such as sight distance issues, limited roadway widths or proximity to intersections or destinations.

ADVANTAGES

- Parking zones may influence drivers to reduce speeds
- May help manage traffic flow by preventing overcrowding
- May reduce the instances of illegal or improper parking
- Parking fees and fines can generate revenue for municipalities

DISADVANTAGES

- Restrictions may be inconvenient for drivers
- Vehicles legally parked in parking zones could be damaged by distracted drivers or errors made by individuals who are parking

APPLICATIONS

Street Type: All (Arterials, Collectors, and Local Streets)

Traffic Volume: No Limit

Speed Limit: No Limit

Installation Type: Temporary or Permanent

Location: Intersection and Segment

COST
$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

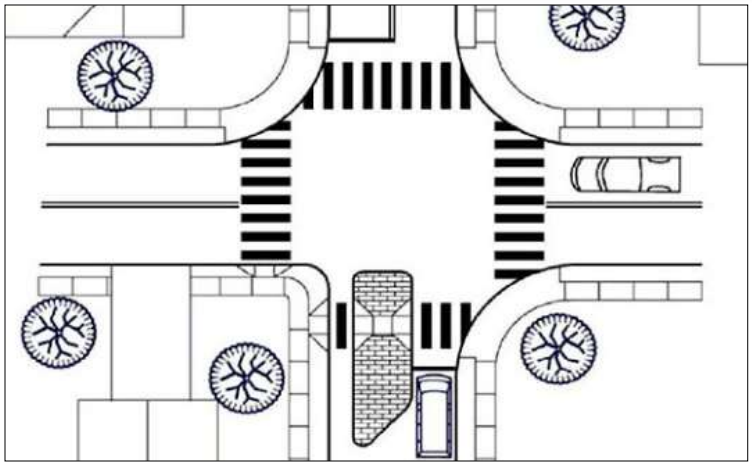
ENFORCE TRAFFIC SAFETY

EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

PARTIAL CLOSURE



DESCRIPTION

A partial closure is a physical barrier that blocks vehicle travel in one direction (i.e., creates a one-way street) for a short distance on an otherwise two-way street. It is placed at an intersection with the intent to obstruct selected traffic movements to or from the intersection. These barriers may consist of landscaped islands, walls, gates, or side-by-side bollards. Advanced warning signage and directional signage at the closure is critical.

ADVANTAGES

- Safety improves for non-motorized travelers
- Provides an opportunity for landscaping

DISADVANTAGES

- May encourage split/cut-though traffic
- Not applicable along a bus route
- Not applicable along a primary emergency vehicle route

APPLICATIONS

Street Type: Local Streets

Traffic Volume: Less than 3,500 Daily Vehicles

Speed Limit: 35 MPH or Less

Installation Type: Temporary or Permanent

Location: Intersection

COST
$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

ENFORCE TRAFFIC SAFETY

EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

PAVEMENT STRIPING

DESCRIPTION

Pavement striping consists of lines and icons applied to road surfaces to assist drivers in identifying lane boundaries and other roadway features. These markings serve as a traffic calming measure by narrowing lanes to promote slower driving speeds and delineating areas designated for bike lanes, pedestrian crossings, bus stops, parking, etc. Additionally, integrating public art into pavement striping enhances the aesthetic appeal of the roadway, fostering a sense of place and community. This approach not only serves as a traffic calming measure but also encourages safer interactions among pedestrians, cyclists, and vehicles, transforming streets into vibrant spaces that reflect local identity. This is commonly known as asphalt art.

ADVANTAGES

- Does not effect emergency vehicles
- Can be used to enhance other traffic calming devices

DISADVANTAGES

- Can be ignored by drivers, and offers no physical barrier impeding traffic
- Regular maintenance is required as lines fade

APPLICATIONS

Street Type: All (Arterials, Collectors, and Local Streets)

Traffic Volume: All

Speed Limit: All

Installation Type: Temporary

Location: Intersection and Segment

COST

$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

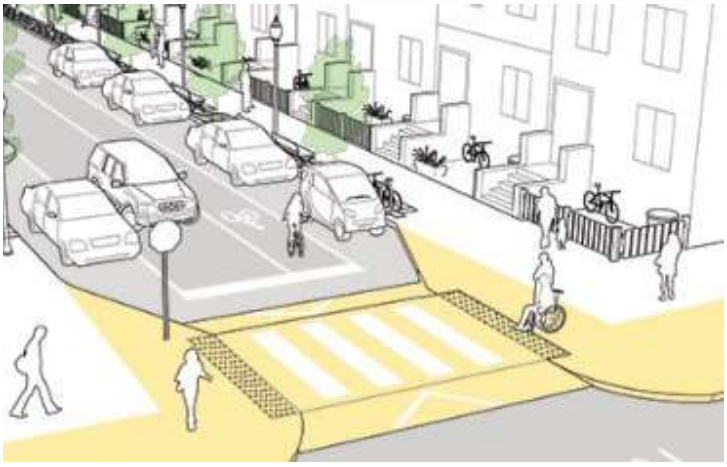
ENFORCE TRAFFIC SAFETY

EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

RAISED CROSSWALK



DESCRIPTION

Raised crosswalks are long, raised speed humps with a flat section in the middle and ramps on the end. Unlike speed cushions, raised crosswalks do not have cut-outs but are preferred over speed humps for emergency vehicles. Aesthetic enhancements such as brick work, tinted or stamped pavement can be applied.

ADVANTAGES

- Allows for safer pedestrian crossings
- May increase motorist yielding rates up to 98%

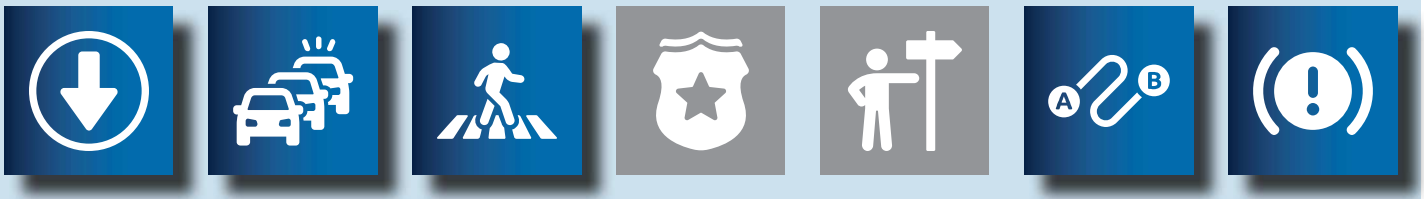
DISADVANTAGES

- May cause speeding before and after cushions
- May increase noise levels as vehicles decelerate and accelerate
- May delay emergency vehicles

APPLICATIONS

Street Type: Local Streets
Traffic Volume: Less than 3,000 Daily Vehicles
Speed Limit: 30 MPH or Less
Installation Type: Temporary or Permanent
Location: Segment
Design Guidelines: Speed tables are typically elevated 3 - 6 inches high with ramps 6 - 10 feet long and placed before crosswalks

COST
$$$$



REDUCE VEHICLE SPEEDS | MANAGE TRAFFIC VOLUMES | IMPROVE NON-MOTORIZED SAFETY | ENFORCE TRAFFIC SAFETY | EDUCATE THE COMMUNITY | REDUCE CUT-THROUGH TRAFFIC | REDUCE CRASHES

RAISED PAVEMENT MARKINGS

DESCRIPTION

Raised pavement markings are used to warn drivers of a change in the roadway. These markings can act as rumble strips when driven over, but also as visible reflectors for the driver. They are typically paired with signage and other traffic calming devices indicating a variation in road operation or design. Raised pavement markings extend above the road surface to create a physical and tactile alert for drivers departing their lane.

ADVANTAGES

- May reduce vehicle speed
- Has no effect on emergency vehicles
- High visibility
- Can be used to enhance other traffic calming devices

DISADVANTAGES

- Need to be replaced frequently
- Can be unintentionally removed or damaged due to street sweeping or snow plowing

APPLICATIONS

Street Type: All (Arterials, Collectors, and Local Streets)

Traffic Volume: No Limit

Speed Limit: No Limit

Installation Type: Temporary or Permanent

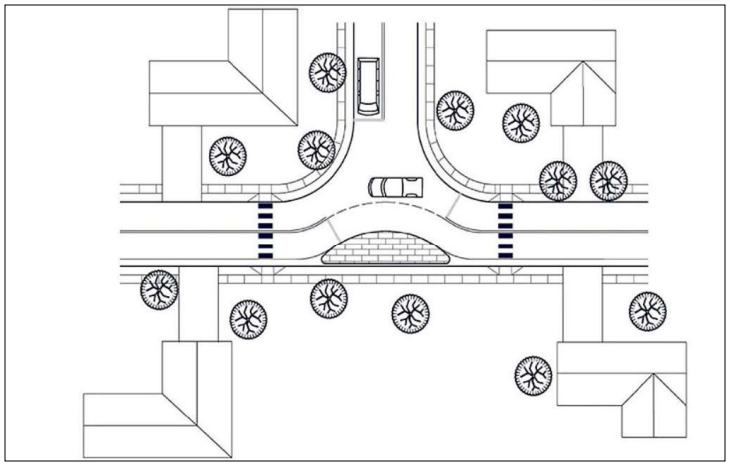
Location: Intersection and Segment

COST

$$$$

REDUCE VEHICLE SPEEDS | MANAGE TRAFFIC VOLUMES | IMPROVE NON-MOTORIZED SAFETY | ENFORCE TRAFFIC SAFETY | EDUCATE THE COMMUNITY | REDUCE CUT-THROUGH TRAFFIC | REDUCE CRASHES

REALIGNED INTERSECTION



DESCRIPTION

Realigned intersections have been reconfigured from an existing straight intersection with perpendicular angles to have skewed approaches that aim to reduce speeds. The realignments are designed to slow down drivers by adding curves. The most common application is the conversion of a T-intersection with straight approaches into curving streets meeting at right angles. Realigned intersections are appropriate for one-way and two-way roadways.

ADVANTAGES

- Reduces vehicle speeds
- Provides an opportunity for landscaping
- May improve non-motorist safety by reducing street crossing distance

DISADVANTAGES

- May confuse drivers at night if there is insufficient lighting, striping or signage
- May force bicyclists to share travel lanes with vehicles

APPLICATIONS

Street Type: Collector and Local Streets

Traffic Volume: Less than 3,500 Daily Vehicles

Speed Limit: 25 MPH or Less

Installation Type: Temporary or Permanent

Location: Intersection

COST

$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

ENFORCE TRAFFIC SAFETY

EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

RECTANGULAR RAPID FLASHING BEACONS

DESCRIPTION

Rectangular Rapid Flashing Beacons (RRFBs) consist of two, rectangular-shaped yellow indications, each with a light emitting diode (LED)-array-based light source. Typically accompanied by a pedestrian, school, or trail crossing sign, RRFBs emit a high-frequency alternating flash when activated with pushbuttons or passive (video or infrared) pedestrian detection. RRFBs are placed on both sides of a crosswalk below the pedestrian crossing sign and above the diagonal downward arrow sign pointing at the crossing. This design significantly enhances the visibility of pedestrians and non-motorized users to drivers at crosswalks.

ADVANTAGES

- Allows for safer pedestrian crossings
- May reduce pedestrian crashed by 47%
- May increase motorist yielding rates up to 98%

DISADVANTAGES

- Warning device
- Over use of RRFB treatments may diminish effectiveness

APPLICATIONS

Street Type: All (Arterials, Collectors, and Local Streets)

Traffic Volume: No Limit

Speed Limit: 40 MPH or Less

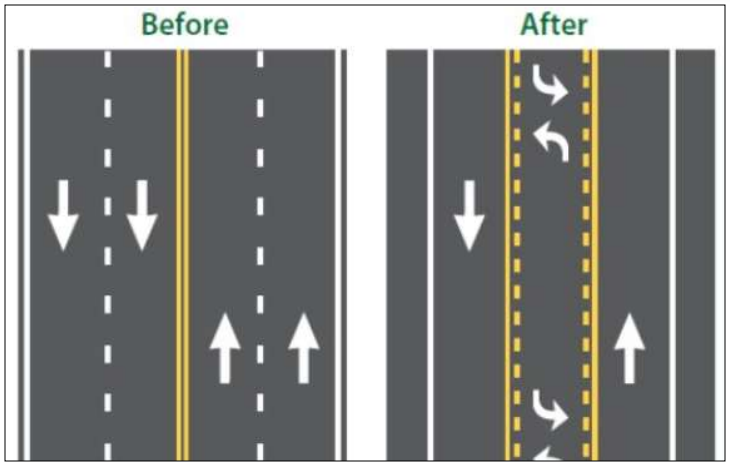
Installation Type: Permanent

Location: Intersection and Segment

COST

$$$$

ROAD DIET



DESCRIPTION

A road diet, or roadway reconfiguration, typically involves converting an existing four-lane undivided roadway to a three-lane roadway consisting of two through lanes and a center two-way left turn lane (TWLTL). A key feature of a road diet is that it allows reclaimed space to be allocated for other uses, such as turn lanes, bus lanes, pedestrian refuge islands, bike lanes or sidewalks. When planned in conjunction with reconstruction or overlay projects, safety and operational benefits are achieved essentially for the cost of restriping.

ADVANTAGES

- Reduces vehicle speeds
- Reduced pedestrian crossing lanes
- Can reduce crash rates by 47%

DISADVANTAGES

- Reducing lanes can lead to slower traffic flow and increased congestion
- May delay emergency vehicles

APPLICATIONS

Street Type: All (Arterials, Collectors, and Local Streets)
Traffic Volume: Up to 1,000 vehicles per direction per peak hour (Up to 25,000 daily vehicles)
Speed Limit: Can be appropriate for any common urban speed limit
Installation Type: Temporary or Permanent
Location: Segment

COST
$$$$

REDUCE VEHICLE SPEEDS
MANAGE TRAFFIC VOLUMES
IMPROVE NON-MOTORIZED SAFETY
ENFORCE TRAFFIC SAFETY
EDUCATE THE COMMUNITY
REDUCE CUT-THROUGH TRAFFIC
REDUCE CRASHES

ROUNDABOUT

DESCRIPTION

A roundabout provides a horizontal deflection with a raised island at the entry point and requires every vehicle to follow a circuitous path no matter which departure leg of the intersection is the destination. The circular concept is designed to reduce conflict points and vehicle speeds at intersections. YIELD signs are recommended at all approaches. Key physical elements are center islands, truck aprons, and splitter islands. Roundabouts require special attention to landscaping, non-motorized facilities, and turning radius designs.

ADVANTAGES

- Creates a safer intersection with less conflict points, reduced crash severity
- Less expensive operating costs than traffic signals
- Provides an opportunity for landscaping

DISADVANTAGES

- May reduce on-street parking

APPLICATIONS

Street Type: All (Arterials, Collectors, and Local Streets)
Traffic Volume: Up to 2,500 Vehicles per Hour for a Single Lane
Speed Limit: 45 MPH or Less
Installation Type: Permanent
Location: Intersection
Design Guidelines: For a single-lane roundabout, the minimum inscribed circle diameter is 100 feet; Double-lane roundabout minimum inscribed circle diameter is 150 feet.

COST
$$$$

REDUCE VEHICLE SPEEDS
MANAGE TRAFFIC VOLUMES
IMPROVE NON-MOTORIZED SAFETY
ENFORCE TRAFFIC SAFETY
EDUCATE THE COMMUNITY
REDUCE CUT-THROUGH TRAFFIC
REDUCE CRASHES

SIGNAGE

DESCRIPTION

Traffic signs alert drivers of incoming road information. Signage provides notification of roadway vertical or horizontal deflections, crossings, speed limits, turn prohibitions, etc. Signs are typically sized and placed based on the characteristics of the roadway in order to allow for quick comprehension by the approaching road user. Signage materials and reflectivity can be enhanced to improve visualization at night.

ADVANTAGES

- Signs have no effect on emergency vehicles
- Some signs can be enforceable
- Can be used to enhance other traffic calming devices

DISADVANTAGES

- Overuse of signs can create visual cluster
- Drivers are used to seeing signs and sometimes ignore them
- Signs generally need to be replaced every 8 - 10 years

APPLICATIONS

Street Type: All (Arterials, Collectors, and Local Streets)

Traffic Volume: No Limit

Speed Limit: No Limit

Installation Type: Temporary

Location: Intersection and Segment

COST

$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

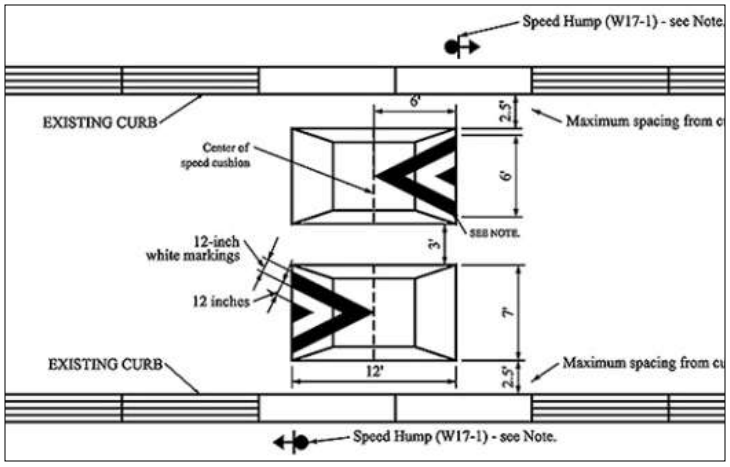
ENFORCE TRAFFIC SAFETY

EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

SPEED CUSHIONS



DESCRIPTION

Speed cushions are two or more raised areas placed laterally across a roadway with gaps between the raised areas. The square design allows cars to pass without slowing as significantly as with speed humps. The spacing of the gaps allow emergency vehicles to pass at higher speeds. Each location needs a minimum of two cushions and there should be a series of at least two locations. Speed cushions can be installed within crosswalks and made from asphalt or rubber. Their shape can range from parabolic, circular or sinusoidal.

ADVANTAGES

- Reduces vehicle speeds
- Limited to no delay to emergency vehicles

DISADVANTAGES

- May cause speeding before and after cushions
- May increase noise levels as vehicles decelerate and accelerate

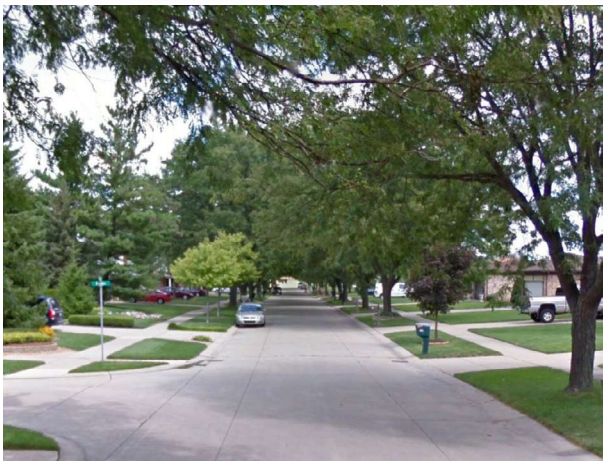
APPLICATIONS

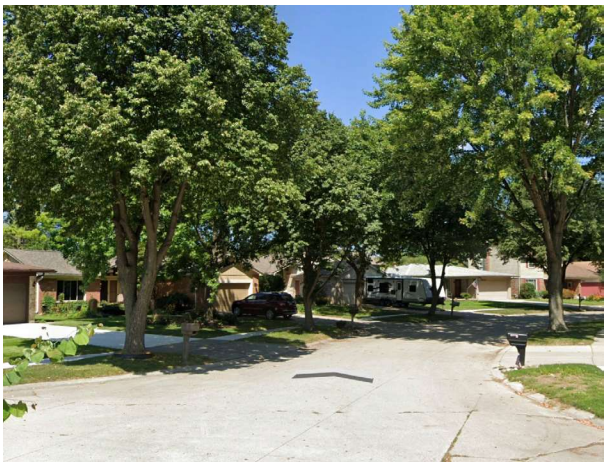
Street Type: Collector and Local Streets
Traffic Volume: Less than 3,500 Daily Vehicles
Speed Limit: 30 MPH or Less
Installation Type: Temporary or Permanent
Location: Segment
Design Guidelines: 12 - 14 feet long; 7 feet wide; 3 - 4 inches in height; placed 260 - 500 feet apart

COST
$$$$

REDUCE VEHICLE SPEEDS
MANAGE TRAFFIC VOLUMES
IMPROVE NON-MOTORIZED SAFETY
ENFORCE TRAFFIC SAFETY
EDUCATE THE COMMUNITY
REDUCE CUT-THROUGH TRAFFIC
REDUCE CRASHES

TREE CANOPY





DESCRIPTION

Open space along a road gives drivers the illusion they have more control and can increase their speeds. Tree Canopy has been shown to calm traffic down and reduce vehicle speeds by creating the appearance of a narrow road with potential conflicts. When a street is lined with trees, they act as a visual barrier between drivers and what is ahead of them. The effect slows drivers down and enhances awareness of road adjacent activity.

ADVANTAGES

- Reduces vehicle speeds up to 8 MPH
- Provides an opportunity for landscaping
- Can reduce the effects of environmental factors on the condition of the pavement
- Can reduce traffic noise by ten decibels
- Reduces urban heat island effect by providing shade and supports the quality of life for residents

DISADVANTAGES

- Increased concentration of objects within the clear zone
- Takes time for trees to mature once planted Regular maintenance is required as growth continues

APPLICATIONS

Street Type: Collector and Local Streets

Traffic Volume: Up to 15,000 Daily Vehicles

Speed Limit: 40 MPH or Less

Installation Type: Permanent

Location: Segment

COST

$$$$

REDUCE VEHICLE SPEEDS

MANAGE TRAFFIC VOLUMES

IMPROVE NON-MOTORIZED SAFETY

ENFORCE TRAFFIC SAFETY

EDUCATE THE COMMUNITY

REDUCE CUT-THROUGH TRAFFIC

REDUCE CRASHES

TRAFFIC CALMING ANALYSIS AND ASSESSMENT

NEIGHBORHOOD TRAFFIC CALMING PROGRAM

Appendix B

TRAFFIC CALMING ANALYSIS REPORT

LOCATION:

REQUEST:

DATE SUBMITTED:

CRITERIA	RANGE	POINTS	SCORE
Percentage of Drivers Exceeding the Speed Limit	Less than 15%	1	
	15-25%	3	
	More than 25%	5	
Non-Motorized Connectivity Needs Based on Existing Activity or Destinations	No	1	
	Yes	5	
Traffic Volume	Less than 400 Vehicles a Day	0	
	400-800 Vehicles a Day	2	
	More than 800 Vehicles a Day	5	
Crashes with Contributing Factors Related to Traffic Concern	No	0	
	Yes	3 for each	
TOTAL SCORE			

SUMMARY OF RECOMMENDATIONS:

☐ REDUCE VEHICLE SPEEDS

☐ MANAGE TRAFFIC VOLUMES

☐ IMPROVE NON-MOTORIZED SAFETY

☐ ENFORCE TRAFFIC SAFETY

☐ EDUCATE THE COMMUNITY

☐ REDUCE CUT-THROUGH TRAFFIC

☐ REDUCE CRASHES