Appendix A

Traffic Calming Toolbox

TRAFFIC CALMING TOOLBOX

This toolbox was developed to provide guidance on the use of various traffic calming measures acceptable in the Village of Mount Prospect. It is intended to be used in conjunction with the Friendly Neighborhood Streets Program that outlines the goals, policies and processes for addressing traffic concerns in the Village. Various traffic calming measures can be combined to create the desired result. Each page provides the following information for different traffic calming measures:

Description
An illustration and written description is provided for each measure.

Application
Each traffic calming measure is designed to address specific traffic issues. The application section outlines the common uses for each measure.

Advantages
Each measure in the toolbox provides some advantages to traffic calming and to the quality of life in the neighborhood. The advantages section outlines the positive impacts associated with each traffic calming measure.

Disadvantages
Although each measure included in the toolbox provides some positive aspects to traffic calming, each has negative impacts as well. The disadvantages are outlined so that tools can be evaluated for both their positive and negative effects.

Variations
There are often several variations of specific traffic calming measures. Several of these are provided where they are appropriate.

Special Considerations
This section offers a variety of issues that should be considered for each traffic calming measure. Emergency response and operational concerns are flagged in this section.

Cost
The cost section is intended as a general guide to costs for the different measures. Costs are based on 2023 prices. Excluded is staff design time.

Information for these traffic calming measures came from various sources listed in the References Section.

TRAFFIC CALMING MEASURES INCLUDED IN THE TOOLBOX

Below are the traffic calming measures that the Village deemed appropriate for use by, and consistent with the goals of, the Friendly Neighborhood Streets Program. This list may be updated periodically as new information is released on effective traffic calming measures. Individual measures can and will be combined to develop traffic calming strategies that work for street segments and entire neighborhoods.

Non-Physical Measures

- Education
- Enforcement
- Signing
- Pavement Markings

Vehicular Measures

Maintaining Traffic Volume

- Horizontal Deflection
    - Mini Traffic Circle
    - Concrete Planters
    - Chicane
- Constriction
    - Choke Point / Neckdown
    - Midblock Median
- Textured Pavement

Changing Traffic Volume

- Turn Restrictions
- Diverter
- Intersection Median Barrier
- Street Closure

Pedestrian Safety Measures

- Curb Extension
- Pedestrian Refuge Island
- Raised Crosswalk

Bicycle Safety Measures

- Advisory Bike Lanes
- Bike Lanes and Buffered or Protected Bike Lanes
- Bike Signage and Striping at Intersections
- Protected Intersection

TRAFFIC CALMING MEASURES EXCLUDED FROM THE TOOLBOX

Below are the traffic calming measures that the Village deemed inappropriate for use by, and inconsistent with the goals of, the Friendly Neighborhood Streets Program. This list may be updated periodically as new information is released on effective traffic calming measures and through experience with traffic calming measures installed in the Village.

Stop Signs

Stop signs are not traffic calming measures. They are traffic control devices that assign right-of-way to conflicting traffic movements at intersections. They are not to be used for speed control. Traffic studies have shown there is little difference with vehicle speeds at the midblock whether there is or is not a stop sign at the adjacent intersection. In some cases, vehicular speeds after the vehicle has passed through an unwarranted stop-controlled intersection are as high, and occasionally higher, than without a stop sign, as motorists try to "make up lost time" at the stop sign.

Stop signs should be installed only at locations where conditions meet criteria established in the Manual on Uniform Traffic Control Devices. Unwarranted stop signs can have a high violation rate, create disrespect at other stop-controlled intersections and create a false sense of security for other street users and pedestrians. The village-wide Intersection Traffic Control Study was completed in 2008; it evaluated every neighborhood intersection for appropriate traffic control. All yield signs were removed and stop signs were installed only where warranted. The program resulted in a decrease in crashes and a decrease in requests for stop signs in neighborhoods.

Children at Play Signs

Children at Play signs are commonly requested in neighborhoods. However, they are not standard traffic control devices and have not been found to be effective in improving the safety of children. Residential areas commonly have children, and the presence of these signs does not necessarily have a long-term effect on driver behavior. The Village's policy is that such signs will only be installed adjacent to parks where there is an expectation on the driver's part to see a concentration of children playing.

Speed Humps

Speed Humps have previously been trialed in the Village and were removed after an evaluation period due to noise, maintenance issues and resident complaints. They were replaced with textured pavement and speed feedback signs that resulted in a similar traffic calming effect. There are currently no speed humps within Village right-of-way. Due to the above issues, the Engineering Division does not deem speed humps appropriate for the Friendly Neighborhood Streets Program.

EDUCATION

Non-Physical Measure

KEEP KIDS ALIVE DRIVE 25®

Description
Using different media such as written material, the Village web site, meetings and one-on-one conversations, Village-generated information is provided to residents. Can include programing at schools to teach children safe ways to bike around the Village.

Application
- Streets identified by residents as experiencing excessive speeding, volume or stop sign violations
- Streets near schools
- Resident groups that wish to play an active role in easing traffic concerns along residential streets such as participation in the Keep Kids Alive – Drive 25 campaign

Advantages
- Opportunity to discuss extent of problem and appropriate course of action
- Staff able to explain program as well as criteria to qualify for traffic calming measures
- Staff and residents partner to determine appropriate solutions
- Village resources used to communicate Staff's perspective
- Solicit resident involvement to ease traffic concerns
- Educate students on proper biking procedures

Disadvantages
- Residents may not agree with Staff's perspective or recommendations

Variations: None

Special Considerations: None

Cost: Staff Time

ENFORCEMENT

Non-Physical Measure

Description
Enforcement relies on the Police Department to be a presence in neighborhoods and enforce existing speed limit and traffic control ordinances.

Application
- Streets identified by residents as experiencing excessive speeding or stop sign violations
- Streets that have a history of excessive speeding or stop sign violations

Advantages
- Effective while officer present
- Radar speed trailer and drone vehicle can lower vehicle speeds with no officer present
- Use of radar speed trailer and drone vehicle offers flexibility to implement on short notice
- Extent of problem can be discussed with residents and Engineering Division after enforcement period

Disadvantages
- Requires periodic enforcement to have long-term effect
- Staffing limitations stretches Police Department personnel and resources

Variations: None

Special Considerations
- Often helpful in school zones
- May be used during learning period when new measures or signs are first installed

Cost: Staff Time

SIGNING

Non-Physical Measure

Description
Regulatory, warning and guide signs are used to provide guidance to motorists to enhance the safety or motorists, bicyclists and pedestrians in a neighborhood. Signs can be enhanced through in-sign lighting or using speed feedback displays.

Application
- Streets identified by residents as experiencing excessive speeding or sign violations
- To promote alternative modes of transportation

Advantages
- Provides definition of traffic ordinances
- Assists Police Department in enforcement efforts
- Inexpensive approach to address a traffic problem
- Providing safe facilities may encourage more residents to walk and bike in neighborhoods
- Feedback signs help to bring awareness to actual speed of traffic on the street

Disadvantages
- Requires periodic enforcement to have long-term effect
- Unrealistic or unwarranted signs tend to be disregarded
- Use of a lot of signs can detract the look of a neighborhood

Variations: None

Special Considerations
- Consistency from street-to-street increases expectation on motorists' part

Cost: $200 per standard sign, up to $4,000 each for enhanced signs

Pavement Markings

Non-Physical Measure

Description
Pavement Markings define uses for different sections of the street and enhances bike and pedestrian facilities.

Application
- Streets identified by residents as experiencing excessive speeding or conflicts between motorists and alternative forms of transportation
- To promote alternative modes of transportation

Advantages
- Provides defined spaces for street users
- Visually narrows travel lanes which reduce speed
- Enhances visibility for alternative modes of transportation

Disadvantages
- Requires bi-yearly maintenance to refresh pavement markings
- Striped parking lanes may require disallowing parking on one side of a street to maintain two-way traffic
- Does not force vehicles to comply with pavement markings

Variations: Can be used on bike routes to define spaces for bikes, see Bike Safety Measures. On street speed limit, pedestrian, or school zone markings.

Special Considerations
- Consistency from street-to-street increases expectation on motorists' part

Cost: $2 per foot, plus ongoing maintenance

HORIZONTAL DEFLECTION – MINI TRAFFIC CIRCLE

Vehicular Measure – Maintaining Traffic Volume

Description
A mini traffic circle is a raised circular median in an intersection with counterclockwise traffic flow. Vehicles must change their travel path to maneuver around the circle. They are typically landscaped and have appropriate signage to safely guide motorists.

Application
- Streets where speed control is desired
- Intersections where there is a high rate of right angle collisions

Advantages
- Reduces vehicle speeds through intersection
- Breaks up sight lines on straight streets
- Landscaping improves aesthetics at intersection
- Can reduce right angle collisions
- No drainage issues
- Minimal curb impacts at 4-way intersections

Disadvantages
- May impede left turns by large vehicles (requiring left turns in front of the circle)
- Creates physical obstruction in the travel way
- Can slow emergency vehicle response

Variations: Can include diverter islands

Special Considerations
- Fire Department and Police Department input necessary with design

Cost: Greater than $5,000 when constructed on its own

HORIZONTAL DEFLECTION - CONCRETE PLANTERS

Vehicular Measure – Maintaining Traffic Volume

Description
Circular concrete planters are placed at intersections on approach legs (not in the middle of the intersection) as a traffic calming measure forcing vehicles to navigate around them as they enter the intersection. Planters can be filled with flowers or concrete.

Application
- Streets where speed control is desired
- Bike routes where alternative forms of transportation are prevalent

Advantages
- Reduces vehicle speeds through intersection
- Reduces turning vehicle speeds
- Breaks up sight lines on straight streets
- No drainage issues
- No curb impacts

Disadvantages
- May impede left turns by large vehicles (requiring left turns into oncoming traffic lanes)
- Creates physical obstruction in the travel way
- Can slow emergency vehicle response
- May be unsightly when not landscaped

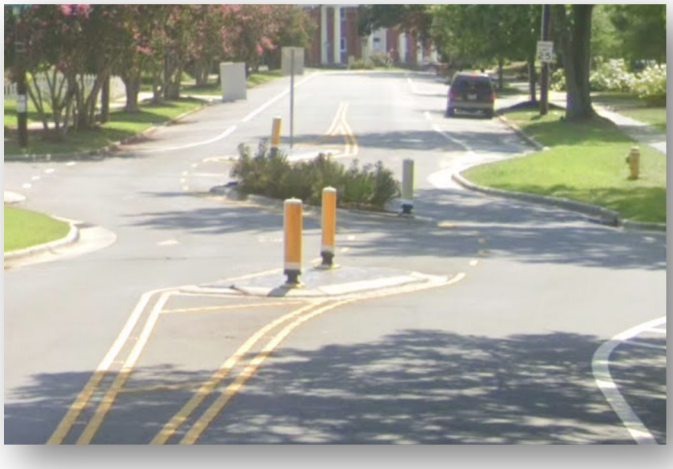
Variations: None

Special Considerations
- Fire Department and Police Department input necessary with design

Cost: $1,000 per planter

HORIZONTAL DEFLECTION - CHICANE

Vehicular Measure – Maintaining Traffic Volume



Description
Chicanes create a curved street alignment that is designed to fit in existing rights-of-way. The curvilinear alignment requires additional maneuvering and reduces motorists' sight line. They can be landscaped and have appropriate signage or striping to safely guide motorists.

Application
- Streets where speed control is desired
- Straight streets where reduced sight line is desired

Advantages
- Reduces vehicle speeds along street
- Breaks up sight lines on straight streets
- Landscaping improves aesthetics along street
- Minimal impact on emergency vehicle response (without median)

Disadvantages
- Requires on-street parking removal
- Snow removal, leaf pick-up and street sweeping operations may be more difficult
- Existing driveways and parkway trees may be difficult to design around
- Vehicles can still travel straight through chicane by using the oncoming travel lane

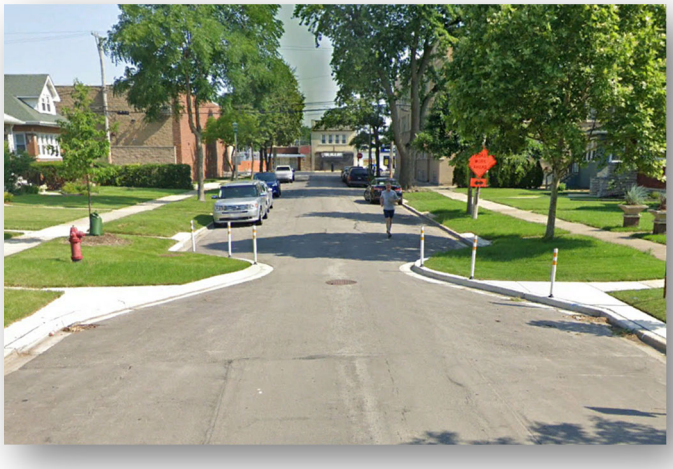
Variations: When space allows, a center island can be installed to further slow traffic to force vehicles to follow the chicane instead of driving down the middle

Special Considerations
- Curbs need to be moved so drainage will need to be considered
- Will take away some parkway space and add parkway in different areas

Cost: Greater than $10,000 per chicane when constructed on its own

CONSTRICTION – CHOKE POINT / NECKDOWN

Vehicular Measure – Maintaining Traffic Volume



Description
Choke points or neckdowns are a location on a street where existing street edges or curbs are extended towards the center of the street. These are designed so that only one vehicle can pass through the choke point at one time. They are typically landscaped and have appropriate signage to safely guide motorists.

Application
- Streets where speed control is desired
- Straight streets where reduced sight line is desired
- Entrances to neighborhood streets off arterial roads

Advantages
- Reduces vehicle speeds along street
- Breaks up sight lines on straight streets
- Landscaping improves aesthetics along street
- Minimal impact on emergency vehicle response

Disadvantages
- Requires on-street parking removal
- Snow removal, leaf pick-up and street sweeping operations may be more difficult
- Potential for bicycle conflicts when not specifically designed with bicycle accommodations

Variations: Can include crosswalk at high pedestrian crossing areas

Special Considerations
- Drainage will need to be considered as the curb lines are shifting

Cost: $5,000 per choke point when constructed on its own without drainage improvements

CONSTRICTION – MIDBLOCK MEDIAN

Vehicular Measure – Maintaining Traffic Volume

Description
A Midblock median is a raised island in the center of a two-way street. They are typically landscaped.

Application
- Streets where speed control is desired
- Straight streets where reduced sight line is desired
- Entrances to neighborhood streets off arterial roads

Advantages
- Reduces vehicle speeds along street
- Breaks up sight lines on straight streets
- Landscaping improves aesthetics along street
- Minimal impact on emergency vehicle response
- Minimal drainage impact

Disadvantages
- Requires on-street parking removal
- Need for ongoing maintenance
- Potential for bicycle conflicts when not specifically designed with bicycle accommodations

Variations:
- Can include crosswalk at high pedestrian crossing areas
- Small median islands can be used at intersection while maintaining on-street parking

Special Considerations
- Sight obstruction issues at intersections

Cost: $5,000 to $10,000 per median when constructed on its own depending on size

TEXTURED PAVEMENT

Vehicular Measure – Maintaining Traffic Volume

Description
Textured Pavement can be textured asphalt, textured concrete or brick pavers. This creates a different driving environment for motorists that can alert them to pay attention to their surroundings.

Application
- Streets where speed control is desired
- Entrances to neighborhood streets off arterial roads
- Streets where pedestrian activity is common

Advantages
- Minimal impact on emergency vehicle response
- No drainage impact
- Improved aesthetics

Disadvantages
- Minimal speed impact once drivers are used to them
- Potential for increased street noise
- Need for ongoing maintenance

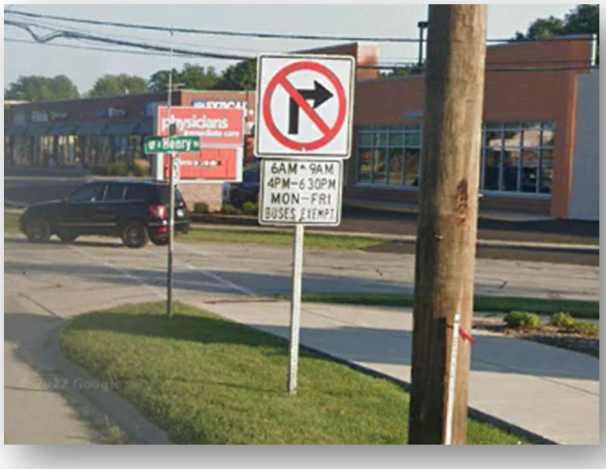
Variations: None

Special Considerations: None

Cost: **$**10,000 plus per installation depending on size and material

TURN RESTRICTIONS

Vehicular Measure – Changing Traffic Volume



Description
Turn restrictions limits or prohibits specific turning movements by way of signage

Application
- Streets where volume control is required
- Prevent cut through traffic by eliminating access onto a residential street

Advantages
- Reduces traffic volume on street
- Inexpensive to install
- Can be tailored to be time of day and day of week

Disadvantages
- Limits access to local homeowners
- Requires enforcement since there is no physical barrier
- Traffic may shift to an adjacent street or neighborhood

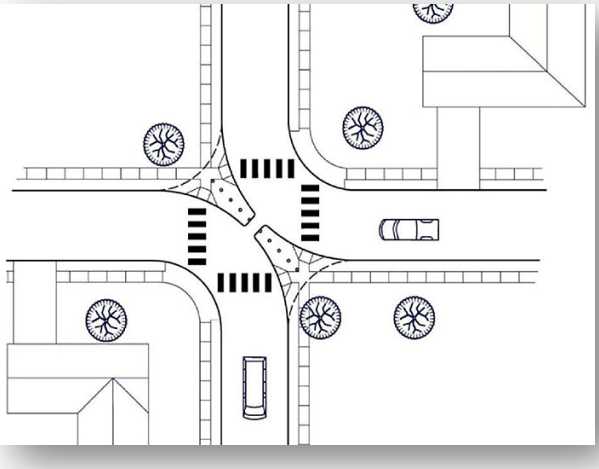
Variations:
- Can use striping, pavement markings and/or a physical barrier to emphasize turn restrictions

Special Considerations:
- Care must be taken not to shift problem to an adjacent street or neighborhood

Cost: $200 per sign

DIVERTER

Vehicular Measure – Changing Traffic Volume



Description
A diverter is a physical barrier that prevents access to specific legs of an intersection. They may or may not be landscaped but have appropriate signage to safely guide motorists

Application
- Streets where volume control is desired
- Prevent cut through traffic by eliminating entry onto a residential street

Advantages
- Reduces traffic volume on street
- Bicycle and pedestrian access still provided

Disadvantages
- Prohibits or limits access to local homeowners
- Prohibits or limits access to emergency vehicles
- Traffic may shift to an adjacent street or neighborhood

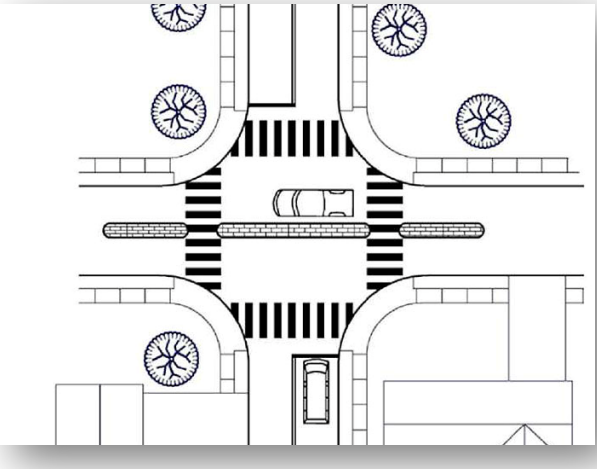
Variations:
- Full diagonal diverter bisects an intersection
- Semi-diverter prohibits access into a residential area but allows vehicles to exit

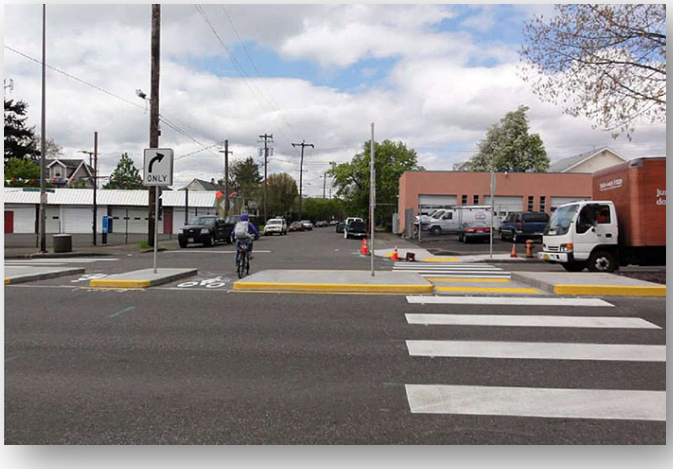
Special Considerations:
- Care must be taken not to shift problem to an adjacent street or neighborhood
- Fire Department and Police Department input necessary with design

Cost: $5,000 to $10,000 depending on design

INTERSECTION MEDIAN BARRIER

Vehicular Measure – Changing Traffic Volume





Description
An intersection median barrier is a raised island along the center of a two-way street extending through an intersection to prevent specific turning movements with appropriate signage

Application
- Streets where volume control is desired
- Prevent cut through traffic by controlling left-turn and side street through movements

Advantages
- Reduces traffic volume on street
- Reduces potential for collisions at intersection by eliminating left-turns
- Landscaping improves aesthetics along street
- Breaks up sight lines on straight streets

Disadvantages
- Limits access to local homeowners and emergency vehicles
- Increase in U-turns at ends of medians
- May require some on-street parking removal
- Creates physical obstruction in the travel way
- Traffic may shift to an adjacent street or neighborhood

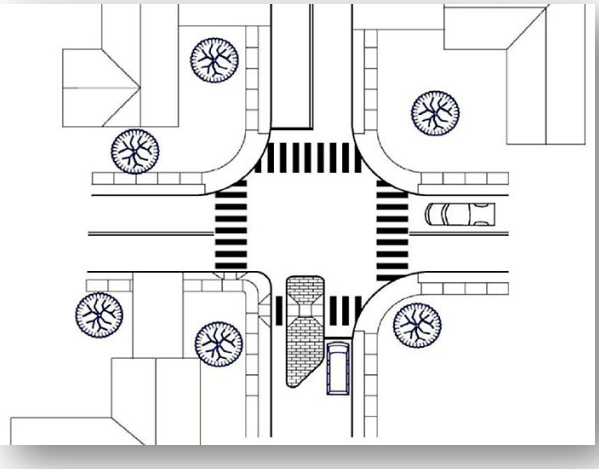
Variations: None

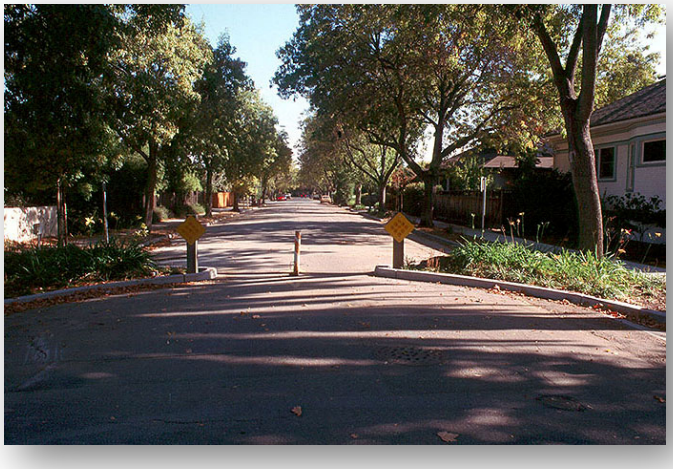
Special Considerations:
- Care must be taken not to shift problem to an adjacent street or neighborhood
- Fire Department and Police Department input necessary with design
- Important to maintain pedestrian and bicycle access

Cost: $5,000 to $10,000 depending on design

STREET CLOSURE

Vehicular Measure – Changing Traffic Volume





Description
A street closure is a physical barrier across a street eliminating all vehicle access. Appropriate signage is used to warn motorists of condition

Application
- Streets where volume control is desired
- Prevent cut through traffic by eliminating access onto a residential street

Advantages
- Reduces traffic volume on street
- Reduces noise associated with vehicles

Disadvantages
- Prohibits access to local homeowners
- Prohibits access to emergency vehicles
- Traffic may shift to an adjacent street or neighborhood

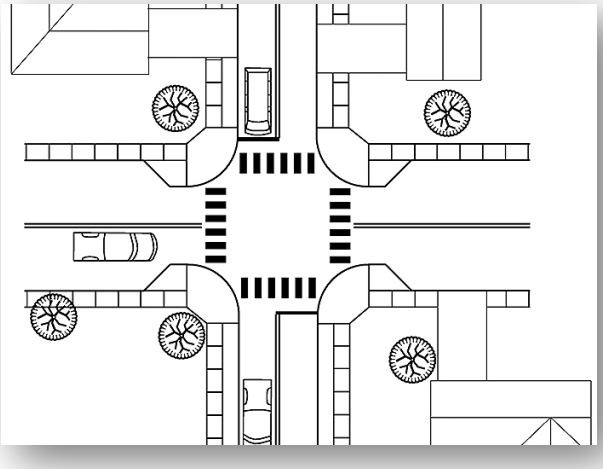
Variations:
- Midblock closure creating a dead-end street
- Half Closure

Special Considerations:
- Care must be taken not to shift problem to an adjacent street or neighborhood
- Fire Department and Police Department input necessary with design
- Important to maintain pedestrian and bicycle access

Cost: $5,000 to $10,000 depending on design

CURB EXTENSION

Pedestrian Safety Measure



Description
A curb extension is a segment of street narrowing at an intersection where existing street edges or curbs are extended toward the center of the street. They have appropriate signage to safely guide motorists

Application
- Wide streets with a significant amount of traffic
- Intersections where a pedestrians do or could cross the street

Advantages
- Reduces pedestrian crossing distance and time
- Makes pedestrian crossing points more visible to motorists
- Prevents on-street parking near intersection
- Minimal impact on emergency vehicle response

Disadvantages
- Snow removal, leaf pick-up and street sweeping operations more difficult
- Narrowed travel lanes may cause bicycle / vehicle conflict

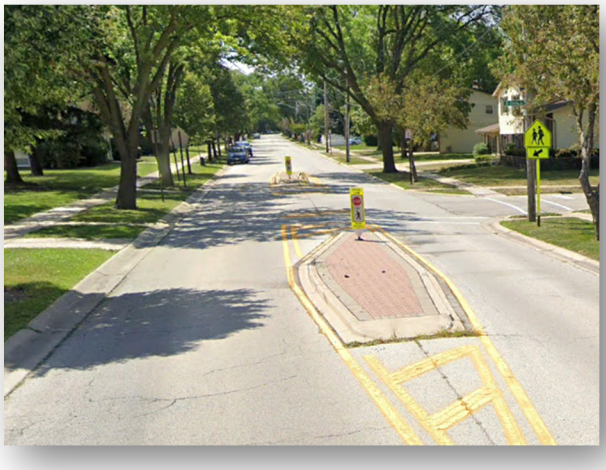
Variations:
- Install on one or both intersecting streets
- Extend edge or curb on one or both sides of streets
- Decreasing radius returns size (narrowing intersection)

Special Considerations:
- Should not be used on existing narrow streets
- Drainage will need to be considered as the curb lines are shifting

Cost: $5,000 to $10,000 depending on design, more with drainage impacts

PEDESTRIAN REFUGE ISLAND

Pedestrian Safety Measure



Description
A pedestrian refuge is a raised island in the center of a two-way street. The island has a gap in the curb creating two segments allowing passage for pedestrians.

Application
- Wide streets with a significant amount of traffic
- Intersections or midblock locations where pedestrians do or could cross the street

Advantages
- Allows pedestrians to cross half the street at a time
- Makes pedestrian crossing points more visible to motorists
- Minimal impact on emergency vehicle response
- Minimal drainage impacts

Disadvantages
- Requires some on-street parking removal
- Narrowed travel lanes may cause bicycle / vehicle conflict
- Creates physical obstruction in the travel way

Variations:
- Use brick or textured pavement as landscaping alternative

Special Considerations:
- Should not be used on existing narrow streets without widening at the crossing
- Would not include Rectangular Rapid Flashing Beacons except on very high-volume streets

Cost: $5,000 to $10,000 depending on design and length of the island

RAISED CROSSWALK

Pedestrian Safety Measure

Description
A raised crosswalk is a variation of a flat-topped speed table. A raised crosswalk is marked and signed as a pedestrian crossing.

Application
- Side streets to slow turning vehicles turning off arterial roads
- Midblock locations near large pedestrian generators and schools

Advantages
- Requires cars to slow down at crosswalks
- Increases visibility of pedestrians
- No impact to on-street parking

Disadvantages
- Impacts to emergency vehicle response
- Possible drainage issues
- Increased vehicle noise
- Snow removal, leaf pick-up and street sweeping operations more difficult

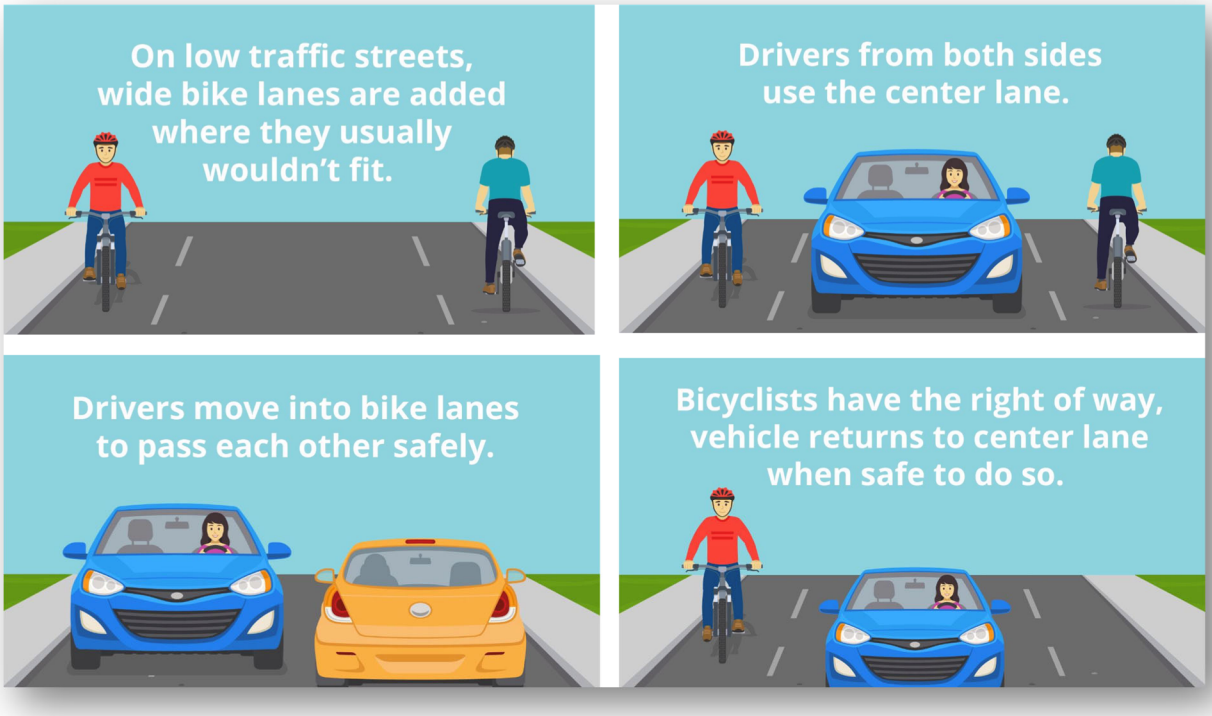
Variations:
- Raised Intersections

Special Considerations:
- Fire Department and Police Department input necessary with design

Cost: $10,000 plus depending on design and drainage impacts

ADVISORY BIKE LANES

Bicycle Safety Measure



Description
Dashed advisory bike lanes where bicyclists have the right of way and vehicles share a center lane.

Application
- Signed bicycle routes with relatively low volume

Advantages
- Provides dedicated space for bicyclists
- No impact on emergency response
- Visually narrows the street slowing traffic

Disadvantages
- On most streets requires removal of on street parking on at least one side

Variations: None

Special Considerations:
- Education required prior to implementation of design
- Street functions similarly to when cars are parked on both sides of narrow streets

Cost: $2 per foot for striping

BIKE LANES

Bicycle Safety Measure

Description
Bike lanes, buffered bike lanes and protected bike lanes. Buffered bike lanes include a painted buffer zone, protected bike lanes include concrete protection to separate bikes and vehicles.

Application
- Signed bicycle routes with wide street widths and high traffic volumes

Advantages
- Provides dedicated space for bicyclists
- No impact on emergency response
- Visually narrows the street slowing traffic

Disadvantages
- May require removal of on street parking depending on street width
- Requires wide streets or streets with limited parking to provide enough space for two-way traffic
- Protected bike lanes may make snow removal, leaf pick-up and street sweeping operations more difficult

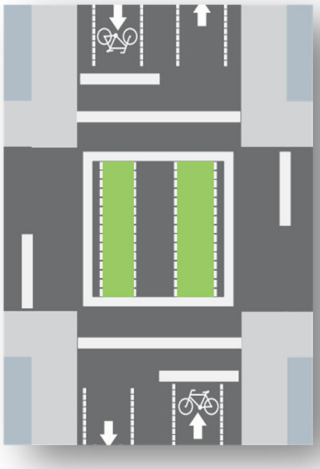
Variations:
- Combined parking and bike lanes
- Two-Way Cycle Tracks
- Counterflow bike lanes

Special Considerations:
- Driveway access with protected bike lanes

Cost: $4 per to $10 per foot for standard and buffered bike lanes, an additional $40 a foot for protected bike lanes

BIKE PAVEMENT MARKINGS AND SIGNAGE AT INTERSECTIONS

Bicycle Safety Measure



Description
Bike pavement markings and signage at intersections where a street crosses a signed bike route without traffic control. Many of the Village's on street signed bike routes cross streets with stop control on the bike route street only. Additional signage and pavement markings through the intersection will increase visibility and awareness for bicyclists.

Application
- Streets that intersect a bike route that does not have traffic control
- Intersections where two signed bike routes cross

Advantages
- Provides dedicated space for bicyclists
- Raises awareness to drivers that bicyclists may be present
- No impact on emergency response
- Visually narrows the street slowing traffic

Disadvantages
- Requires bi-yearly maintenance to refresh pavement markings

Variations:
- Can be combined with other intersection traffic calming measures

Special Considerations: None

Cost: $200 per sign, $500 - $4000 for pavement marking

PROTECTED INTERSECTION

Bicycle Safety Measure

Description
Protected Intersections physically separate bicyclists from motor vehicles at the corner of intersections. Concrete islands are installed at the corners providing space for bicyclists to wait and safely navigate the intersection.

Application
- Large intersections where signed bike routes meet
- Intersections with a signed bike route where traffic calming is desired

Advantages
- Provides dedicated space for bicyclists
- Separates bicyclists from pedestrians
- Slows cars by reducing the size of the intersection
- No impact on emergency response

Disadvantages
- Drainage impacts
- Potential to affect truck turning movements
- Snow removal, leaf pick-up and street sweeping operations may be more difficult
- Expensive
- Requires large amount of space to implement

Variations: None

Special Considerations: None

Cost: Greater than $50,000 depending on design and drainage requirements