APPENDIX A: TRAFFIC CALMING TOOLBOX

01. Traffic Calming Toolbox Memo
02. Scoring Matrix
03. Matrix of Improvements
04. Cost Matrix
05. Summary of Improvements w/ Pictures

Traffic Calming Toolbox Memo

TRAFFIC CALMING TOOLBOX

"The primary purpose of traffic calming is to support the livability and vitality of residential and commercial areas through improvements in non-motorist safety, mobility, and comfort. These objectives are typically achieved by reducing vehicle speeds or volumes on a single street or a street network. Traffic calming measures consist of horizontal, vertical, lane narrowing, roadside, and other features that use self-enforcing physical or psycho-perception means to produce desired effects."

- Federal Highway Administration definition of traffic calming

Introduction

Having a standardized roadway system is imperative to the safety of residents and drivers alike. Predictability on a road increases safety and decreases variability when traveling to different parts of the Village. The goal of this traffic calming toolbox and scoring sheet is to assist the Village in identifying locations for further study, choose from a list of appropriate countermeasures, and maintain consistency of traffic improvements throughout the Village.

The process will begin with either an internal initiation by the Traffic and Safety Commission identifying a location with potential traffic problems, or a resident petition being presented to the Traffic and Safety Commission. From there the scoring document will be used to evaluate the location and determine what improvement categories apply. The improvement type used will be left to the discretion of the Traffic and Safety Commission in conjunction with resident and Village Staff input. In addition to the "Improvement Matrix" which lists the improvement types that may be considered, this document also includes a "Cost Matrix" to further inform the reader of potential cost implications and to identify ideal locations for each improvement type.

The improvement types are taken from the Federal Highway Administration's (FHWA) recommendations for traffic calming along with Thomas Engineering's own experience completing traffic studies around the state. The scoring sheet and matrix are meant to serve as guidelines for the Village. All improvements should rely on site specific criteria to determine the optimal countermeasures at each location. The relevant application of each improvement will ultimately be up to the Traffic and Safety Commission and Village Board.

Scoring Criteria

The Scoring Matrix will be the first step after identifying a location for potential traffic calming. The location will be analyzed based on recent crash history, vehicle speed (using speed study), average daily traffic, and nearby pedestrian traffic generators (school, library, park, church, or public transit). Additional points will be awarded for locations identified as a bike route per the Village Bicycle Plan implemented in 2019 and/or if the interest in the location was created through a resident petition.

The maximum score a location can get will be 100 points with a minimum threshold of 25 points to proceed with review and potential improvements. Points from this section will be used to determine what level of improvements can be used in the Improvement Matrix.

Scoring Process

The scoring process will utilize two intersections and one connecting segment for each scoring category. This means, for example, the crash score will utilize the total crashes at both intersections and the joining segment. While there are some intersection-specific traffic calming measures TEG assumes most studies will be based along a specific road which will then have a suitable segment chosen for study.

For full corridor studies including multiple segments along a road each segment + its two termini intersection will be used to score all segments through a corridor. In the end each segment & intersection combo will have a final score and corresponding level of improvement. In testing scores through a corridor were generally similar, but in the case of segments falling into different improvement levels TEG recommends using engineering judgement to choose the level of improvement most appropriate for the corridor.

Improvement Matrix

After scoring a location the Traffic and Safety Commission should look at the Improvement Matrix to determine what "Level" of improvements should be considered. Using the score from the Scoring Matrix, the Levels are as follows:

Level 1 = 25-39 points – Locations that may have speed and safety concerns not apparent without further review; minimal impact to traffic.

Level 2 = 40-59 points – Locations with minor speed and safety problems; no new physical barriers or traffic control.

Level 3 = 60-79 points – Locations with moderate speed and safety problems; physical barriers or new traffic control may be justified.

Level 4 = 80-100 points – Locations with major speed and safety problems; roadway may be in need of substantial improvements to correct traffic conditions on the road.

Traffic improvements are categorized by how much of an impact each improvement has on drivers using the road. As the impacts to drivers become greater, the effectiveness of the improvement also increases. For this reason, the level 3 and 4 traffic calming measures should be used sparingly to correct areas with clear deficiencies. Some of the level 3 and 4 improvements have secondary criteria that must be met prior to considering the improvement, which are listed in the "Usage Notes" column. For example, in order to install a new all-way stop sign, the intersection must first fulfill an all-way stop warrant.

In general, when considering a location for traffic calming improvements, even if there are enough points to justify a level 3 or 4 intervention, it is recommended that the Village adopt a conservative approach. Starting with a level 1 or 2 improvement is recommended to assess whether or not the existing issues are effectively resolved without significantly impacting drivers' road usage. However, if level 1 or 2 improvements are already in place, it may be appropriate to proceed with a level 3 or 4 intervention.

The Improvement Matrix includes a table which shows the primary issues addressed by each improvement. While all suggested improvements will help calm traffic on the road, each improvement type will primarily impact one to two aspects of road safety. For ease-of-use, the table lists whether the improvements primarily impact speed on the roadway, volume of vehicles, or pedestrian safety. Level 1 and 2 improvements primarily target speed and pedestrian safety. As the impact to the roadway increases

in level 3 and 4, the improvements make the roadway less appealing to travel on due to physical barriers or new traffic control. Slowing down the speed to navigate a corridor will reduce traffic coming from major routes but will also inconvenience residents.

Cost Matrix

The Village can also use the Cost Matrix to consider the approximate cost for each improvement and review a brief description of how/where the improvement should be used in order to determine what changes should be made to the studied locations.

Survey Results

As part of the Village-Wide Traffic Study Survey, Village residents were asked about their preferences for traffic calming measures. This section is intended to provide insight into the current preferences of residents in order to be able to better anticipate potential responses to proposed traffic calming measures.

The following table shows the results of a survey question in which Village residents were asked to indicate which improvements they would like to see more of in the Village:

Improvement Type	% Respondents in favor of improvement
Speed Humps	39%
Mounted Flashing Beacons	39%
Curb Extensions	34%
Driver Feedback Speed Sign	41%
Raised Intersection	26%
None	9%
Other	27%

Table 1

As shown in Table 1, only 9% of respondents did not want to see any new traffic calming in the Village. The three most-supported improvement types were driver feedback speed signs (41%), mounted flashing beacons (39%), and speed humps (39%). Overall, there was generally an even distribution of support across all listed improvement types, with the exception of raised intersections. This, however, may be due to a lack of experience with raised intersections. Therefore, if the Village ever chooses to use this improvement type it may be helpful to provide an education campaign about the benefits and effectiveness of raised intersections.

A total of 27% (238) of respondents listed other forms of traffic calming they would like to see – many of these responses were reaffirming the boxes they checked or did not check in the first portion of the question. When looking into the open-ended responses further, the following trends were identified:

1. Many residents expressed dislike for speed humps due to potential damage to vehicle undercarriages
2. Residents expressed dislike of flashing beacons because the flashing lights could shine in windows of nearby homes

3. Bicyclists complained that curb extensions are dangerous because they force bicyclists into traffic lanes at intersections
4. Driver feedback signs are seen as ineffective
5. Raised intersections were mentioned in several responses as an improvement, but one that residents are uncertain as to how they would be used

The remaining 238 open-ended survey responses were reviewed and divided into six categories of improvement:

1. Additional stop signs (35 responses)
2. Roundabouts (13 responses)
3. Street closures (16 responses)
4. Crosswalk improvements (13 responses)
5. More police enforcement (58 responses)
6. Speed cameras (19 responses)

From these initial categories the categories were further divided into 'new traffic control' and 'more enforcement' groups. Within the 'new traffic control' group the categories of additional stop signs, roundabouts, and street closures were combined with 64 total respondents preferring new traffic control. New traffic control will not be suggested unless it is warranted by existing traffic conditions. Traffic control improvements are included within the traffic calming toolbox, but these are not to be used without proper justification which is why none were included within the survey. The 'more enforcement' group includes the categories of more police enforcement and speed cameras, which total 77 responses. More police enforcement or auto-ticketing speed cameras are at the discretion of the Village and beyond the scope of this study. The 13 people who suggested some form of crosswalk improvements focused mainly on roadway features to make crosswalks more visible and their suggestions were incorporated into the Traffic Control Toolbox.

Conclusion

Ultimately, many Village residents appear to be open to traffic calming improvements. There seems to be a preference for improvements that would have low driver impact and road treatments with which residents are already familiar. This would explain why speed humps were picked 13% more than raised intersections, even though they are similar treatment types. Only 9% of respondents indicated that they would not want to see any new traffic calming measures implemented. This suggests that there is a demand for well-planned traffic calming measures, even if there is indecision on which measures would be most effective. A Village led information campaign to inform residents of the potential advantages of each improvement type, as well as, outlining how the Village will handle the concerns residents have with things like the flashing beacons or speed humps (such as restricting locations where improvements can be implemented). As the Village's road system continues to evolve with increased traffic volumes and multi-modal transportation options, residents will likely adapt and realize the benefits of introducing a wide range of traffic calming methods.

Scoring Matrix

Scoring Matrix

RIVER FOREST
Proud Heritage • Bright Future

Measure	Criteria for assigning a numerical score to traffic problems	Points
Crash History	1-3 crashes in a 5 year period = 5 points 4-10 crashes in a 5 year period = 10 points More than 10 crashes in a 5 year period = 15 points any crash involving a pedestrian/cyclist = +5 points	0-20 pts. **Score:**
Vehicle Speed	85th percentile speed is not over the speed limit = 0 points 85th percentile speed is 2 mph over the speed limit = 3 points 85th percentile speed is 4 mph over the speed limit = 6 points 85th percentile speed is 6 mph over the speed limit = 9 points 85th percentile speed is 8 mph over the speed limit = 12 points 85th percentile speed is 10 mph over the speed limit = 15 points Outlier Speed 20+ mph above posted speed limit = +5 points	0-20 pts. **Score:**
Vehicle Volume	ADT < 750 = 0 points ADT = 751 - 1,350 = 5 points ADT = 1,351 - 1,950 = 10 points ADT = 1,951 - 2,550 = 15 points ADT > 2,550 = 20 points	0-20 pts. **Score:**
Pedestrian Traffic Generators	Any school, park, library, church, CTA station more than 2 blocks (1,320 ft.) away = 0 points Any school, park, library, church, CTA station 1-2 blocks (1,320 ft.) away = 5 points Any school, park, library, church, CTA station 1 block (660 ft.) or less away = 10 points Three or more overlapping 1-block areas = +10 points Three or more overlapping 2-block areas = +5 points	0-20 pts. **Score:**
Bike Routes / Non-Bike Routes	Not identified as a proposed bike route = 0 points Identified as a Marked Shared Lane = 5 points Identified as a Dedicated Bike Lane = 10 points *Per Village Bicycle Plan published in 2019	0-10 pts. **Score:**
Community Interest*	No Petition = 0 points Local Petition (0-75% residents on block) = 5 points Local Petition (75%+ of residents on block) = 10 points Village Petition (0-10% of Village population) = 5 points Village Petition (10%+ of Village population) = 10 points	0-10 pts. **Score:**

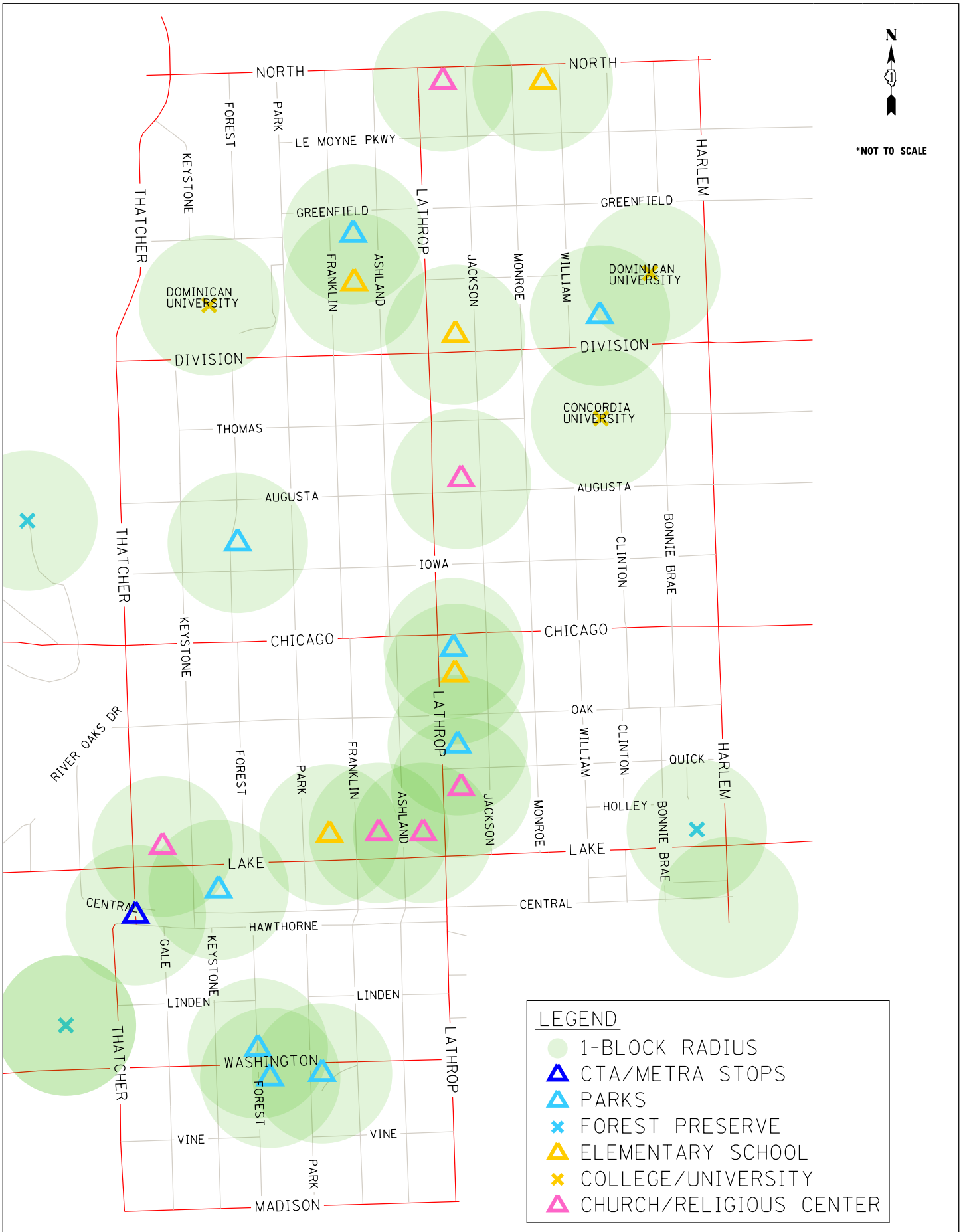
Intersection 1: _____

Segment: _____

Intersection 2: _____

Total:

* Members of the Traffic & Safety Commission may assign community interest points as deemed applicable.

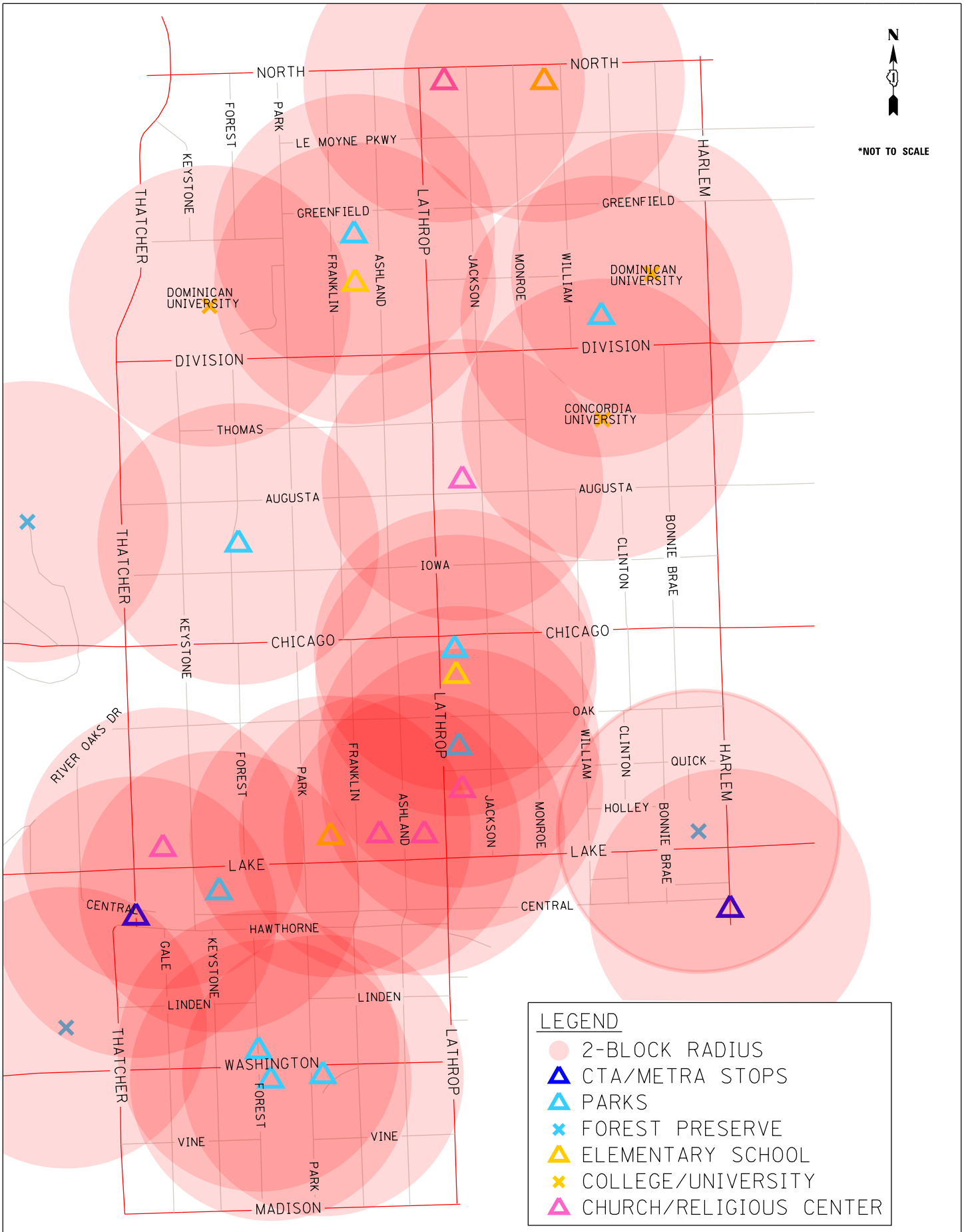


thomas engineering group, llc
2625 butterfield road
suite 209w
oak brook, il 60523
phone: 855-533-1700

RIVER FOREST
Proud Heritage • Bright Future

PEDESTRIAN TRAFFIC GENERATORS
ONE-BLOCK RADIUS

SHEET NO. 02
DRAWING NO. 02 OF 03



thomas engineering group
service at the highest grade

thomas engineering group, llc
2625 butterfield road
suite 209w
oak brook, il 60523
phone: 855-533-1700

RIVER FOREST
Proud Heritage • Bright Future

PEDESTRIAN TRAFFIC GENERATORS
TWO-BLOCK RADIUS

SHEET NO. 03
DRAWING NO. 03 OF 03

Matrix of Improvements

Improvement Matrix

RIVER FOREST
Proud Heritage • Bright Future

Available Traffic Calming Measures	Primary Issue Addressed			Usage Notes
	Speed	Volume	Pedestrian Safety	
Level 1 - No Traffic Flow Changes (25-39 points)				
Targeted Speed Enforcement	X			
Speed Radar Trailer	X			
Speed Feedback Sign	X			
Centerline/Edgeline Markings	X			
Updated Signage (New/Larger/Refreshed)	X		X	
Speed Limit Signage	X			If not already existing
Flashing Signs	X		X	
Pavement Legend	X		X	
High Visibility Crosswalks			X	
Education/Community Outreach	X		X	
Level 2 - Some Traffic Flow Changes (40-59 points)				
Sign Turn Restrictions/Turn Movement Restrictions		X		
On-street Parking Strategies	X			
Parking Lane Markings	X			
Textured Pavement	X			
Rumble Strip	X			
Rapid Rectangular Flashing Beacon			X	Motion Activated - Less intrusive
Left-turn Improvements			X	
Level 3 - Significant Traffic Flow Changes (60-79 points)				
Curb Extensions	X		X	Intersections
Mid-Block Chokers	X		X	Segments
Center Island Narrowing/Pedestrian Refuge			X	
Stop Signage		X		If stop sign warrant is met
Traffic Circle	X	X		
Roundabout	X	X		
Realigned Intersection	X	X		
Speed Hump/Speed Cushion	X	X		Segments
Speed Table/Raised intersections	X	X		Intersections
Level 4 - Street Closures (80-100 points)				
Median & Partial Medians	X			
Median Barrier		X		Cut-through traffic
Forced Turn Island		X		Cut-through traffic
One-Way to Two-Way Street Conversion		X		
Two-Way to One-Way Street Conversion		X		

* The list of traffic calming measures above is not exhaustive. While many of the most common traffic calming measures are listed it is possible the Village will want to use improvements not previously considered. In these cases the new improvement type should be reviewed by a Village engineer who will then classify the level of the improvement consistent with the table above. Scoring will then be conducted at the study location normally.

Cost Matrix

Cost Matrix

Available Traffic Calming Measures	Approximate Cost			Notes on Implementation
	Low (<$6k)	Medium ($6k-$15k)	High (>$15k)	
Level 1 - No Traffic Flow Changes (25-40 points)				
Targeted Speed Enforcement	X	X		This can involve 1-2 officers posted at select locations with high rates of speeding. Generally this is best if there are certain time frames where speeding is occurring.
Speed Radar Trailer	X			A temporary movable option for the Village to discourage speeding. The village can use the speed data collected by the trailer to determine the effectiveness of the measure.
Speed Feedback Sign	X			A more permanent version of the speed trailer. If success is seen with the usage of the speed trailer along a route then this may be justified. Can be set up to give tickets automatically combining the effectiveness of targeted speed enforcement and a speed radar trailer.
Centerline/Edgeline Markings	X			Centerline and edgeline markings can be used to clearly delineate where a vehicle should be driving. They can be used alongside on-street parking to visually narrow the lane a driver has access to. This is effective in areas where drivers consistently use parking lanes as through lanes.
Updated Signage (New/Larger/Refreshed)	X			In areas with old faded signs a simple signing upgrade may be enough to get drivers attention who may not have seen the older signs.
Speed Limit Signage	X			Used in cases where speeding is an issue and no speed limit sign is existing.
Flashing Signs	X			An improvement for locations with existing signs that are being ignored. Motion activated to cause as little disturbance for residents as possible.
Pavement Legend	X			Should be used sparingly to help combat inattentional blindness. Best used in locations where off-street signage is already present and being ignored. Using consistently at locations like schools will create a consistent roadway and make It clear to drivers to be cautious in those areas.
High Visibility Crosswalks	X			Any location with pedestrian accidents or high volumes of pedestrian crossings is a good candidate. Can be used with mid-block crossing to make it more visible to drivers not expecting to see a crosswalk away from an intersection.
Educations Community Involvement	X	X		Community education programs will passively improve the roadway by teaching drivers, bicyclists, and pedestrians how best to use the road together.

Cost Matrix

Available Traffic Calming Measures	Approximate Cost			Notes on Implementation
	Low (<$6k)	Medium ($6k-$15k)	High (>$15k)	
Level 2 - Some Traffic Flow Changes (41-60 points)				
Sign Turn Restrictions/Turn Movement Restrictions	X			Restricting who can turn onto or off of routes is an effective way of reducing traffic volumes. Whenever this improvement is implemented the Village should consider whether nearby roadways can handle the increase traffic volumes on neighboring roads. Restricting turns can be used strategically to funnel drivers away from pedestrian areas and towards larger roads capable of handling increased volumes.
On-street Parking Strategies	X	X		Adding parking along a residential route can create a visually narrower lane which forces drivers to slow down. One concern is that if parking is added along a route without any demand for street parking the lane may be left open for drivers to use it as a second through lane or use the road as if it was one wide lane.
Parking Lane Markings	X			This can be implemented along street parking to delineate the parking zone from the through lane. On routes with unused street parking this may be effective.
Textured Pavement	X	X		Textured pavement indicates to drivers to pay more attention to the roadway. Best used with pavement legends or near crosswalks. Helps combat inattentional blindness in drivers.
Rumble Strip	X			Used along rural routes as a physical indication a driver is leaving the travel lane.
Rapid Rectangular Flashing Beacon	X			Rapid flashing beacons activated by a push button to help pedestrians cross. This is best used at busy roadways with high rates of pedestrian crossings. Also applicable in locations with pedestrian related accidents or locations with mid-block crossings.
Left-turn Improvements	X	X		A newer traffic calming technique being used in Chicago at signalized intersections with high rates of left turners and pedestrians. Forces drivers to take a wider left turn giving all parties at the intersection more time to react to the turn.

Cost Matrix

Available Traffic Calming Measures	Approximate Cost			Notes on Implementation
	Low (<$6k)	Medium ($6k-$15k)	High (>$15k)	
Level 3 - Significant Traffic Flow Changes (61-80 points)				
Curb Extensions		X	X	Best used at locations with on-street parking where pedestrians have difficulty being seen at intersections. This improvement prevents cars from using the parking lane as a through lane.
Mid-Block Chokers		X	X	Similar to curb extensions, but used mid-block. Best for mid-block crossings to get pedestrians within drivers line of sight.
Center Island Narrowing/Pedestrian Refuge		X	X	Best suited to larger roads with high volumes. Gives pedestrians the opportunity to cross in two stages and puts a physical hazard near drivers through lanes causing slowdown.
Stop/Yield Signage	X			Should only be used when justified by a stop sign warrant. Creates an additional stopping point along a corridor and may make the road less appealing to traffic coming from primary routes. Can also increase pedestrian safety by making a safe crossing point along a route without any other stop locations.
Traffic Circle		X	X	Can be added to locations to help reduce the number of angle or turning collisions. Forces drivers to slow down without any other traffic control device. Due to the obstruction drivers are forced to take a longer left turn route to negotiate the intersection giving oncoming traffic more time to react.
Roundabout			X	Can be used in a variety of locations. Generally best when applied to high volume stop control locations or signalized intersections. The improvement requires a larger footprint than a normal intersection to accommodate the circular movement of vehicles.
Realigned Intersection		X		Best used on T-intersections on residential roads. By placing an obstruction in the path of vehicles that would be continuing straight drivers are forced to slow down to evaluate the area around them.
Speed Hump/Speed Cushion	X			Used on low volume segments to regulate speed. Spacing should follow FHWA criteria. Should only be used along residential roads experiencing high volumes of through traffic not associated with residents along the road.
Speed Table/Raised intersections		X	X	Best used at intersections with high pedestrian volumes or mid-block crossings. The longer the flat portion of the speed table the gentler the effect on a vehicle will be.

Cost Matrix

Available Traffic Calming Measures	Approximate Cost			Notes on Implementation
	Low (<$6k)	Medium ($6k-$15k)	High (>$15k)	
Level 4 - Street Closures (81-100 points)				
Median & Partial Medians		X	X	Can be used to narrow certain turn movements at intersections. Causes drivers to navigate the intersections at a slower rate. Best used in conjunction with pedestrian islands at locations with large numbers of pedestrian crossings.
Median Barrier		X	X	Used to prevent cars on the minor road from going straight through an intersection. Results in a forced right turn for the minor road and makes left turns from the major road. Used to prevent cut-through traffic.
Forced Turn Island		X		Physically blocks drivers from performing other turn movement (generally left turns). Should only be used in areas where drivers have disregarded signs. Can be more dangerous if the illegal turn movement is attempted.
One-Way to Two-Way Street Conversion		X	X	This can be implemented along wide one-way streets with speeding issues. Introducing a second direction of traffic and narrower lanes results in a speed reduction. The roadway may become more hazardous for pedestrians who are now looking for traffic in both directions.
Two-Way to One-Way Street Conversion		X	X	An extreme measure that creates a safer street for pedestrians reducing the number of directions cars can approach from, but drivers tend to drive faster on one-way streets. The potential to introduce new speed problems should be considered prior to conversion. Access for safety vehicles and convenient access for residents is another potential concern.

Summary of Improvements w/ Pictures

Level 1

Targeted Speed Enforcement

Overview

Targeted speed enforcement is best used in areas with persistent speed problems during certain parts of the day i.e. morning or evening rush hour, or in areas where speeding has already been identified as an issue as a first measure to see if targeted enforcement could mitigate the problem without more costly improvements. In areas where speeding is likely to be a recurring issue it is not recommended to use this traffic calming measure on its own.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

Speed Radar Trailer

Overview

Speed monitoring trailers - sign boards on trailers that display the speed of passing vehicles - are used by police departments as educational tools that can enhance enforcement efforts directed at speed compliance. Speed radar trailers are best used in residential areas and may be used in conjunction with Neighborhood Speed Watch or other neighborhood safety education programs. They can help raise residents' awareness of how they themselves are often those speeding, not just "outsiders." Speed trailers are not substitutes for permanent actions such as traffic calming treatments to address neighborhood speeding issues.

Speed trailers can be used at several locations and should have occasional police monitoring and enforcement to maintain driver respect.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

Speed Feedback Sign

Overview

Where a speed radar trailer is more suitable for temporary enforcement, data collection, and community engagement purposes, a speed feedback sign is more appropriate for addressing persistent speeding issues in specific areas and promoting ongoing speed limit compliance. The choice between the two depends on the specific goals and conditions of the location where they will be deployed. To maintain driver respect for the sign it is necessary to periodically place police enforcement in the area.

Photo Example

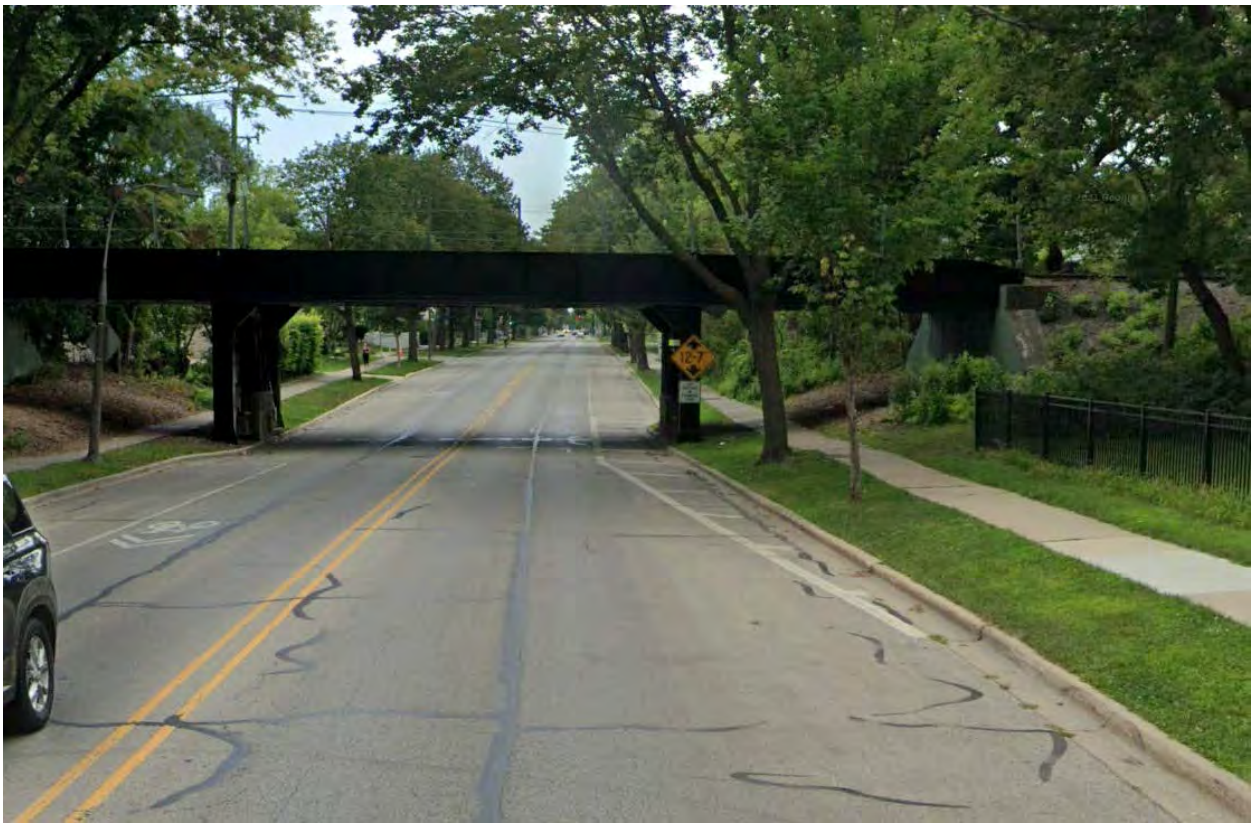
RIVER FOREST
Proud Heritage · Bright Future

Centerline/Edgeline Markings

Overview

Centerline/Edgeline markings help to direct drivers to follow the path of the road. Striping the centerline of the road helps to reduce head on and sideswipe same direction collisions by keeping vehicles from drifting into oncoming traffic. Edgelines define the edge of the road and help to prevent run-off road crashes. Edgelines can also be used to visually narrow a road and affect driver behavior.

Photo Example



RIVER FOREST
Proud Heritage · Bright Future

Updated Signage (New/Larger/Refreshed)

Overview

Locations where visibility of signs may be a concern or locations with existing faded signs should consider updating signs. Either replacing old, faded signs with new retro-reflective signs, installing larger signs, or installing new signs (when applicable) creates a safer roadway by being more visible to drivers.

Consistent use of signs throughout the Village creates a predictable roadway for drivers – all new sign installations should conform with MUTCD requirements.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

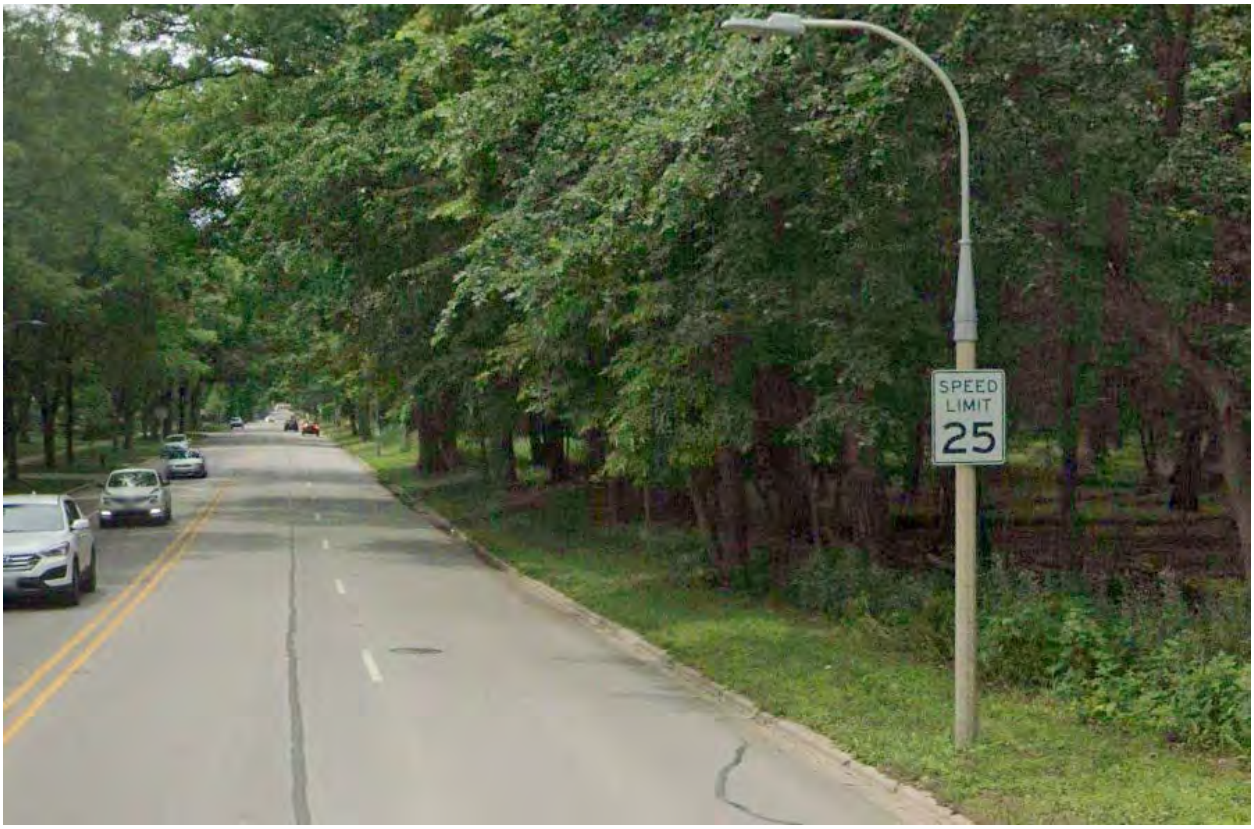
Speed Limit Signage

Overview

The purpose of speed limit signs is to maintain compliance and make the speed limits enforceable. These signs should be located where there are noticeable changes in the roadside development.

In some cases placing a speed limit sign is enough to remind drivers the speed is reduced or lower than the road the driver may have come from. Adequate signing is the first step in making drivers more aware of the speed they are traveling.

Photo Example



Flashing Signs

Overview

This treatment can be applied on regulatory and warning signs. The improvement involves installing signs that contain flashing LED's around the outline of the sign. This helps to grab the attention of the driver and they can be seen from a greater distance.

Can be implemented at locations where sign visibility is a concern or where drivers are not obeying existing signs. All new signs should conform with MUTCD criteria.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

Pavement Legend

Overview

A pavement legend refers to the various symbols, markings, and notations that are painted or applied onto the pavement or roadways to convey specific instructions, information, or warnings to drivers, pedestrians, and other road users.

A Pavement Legend is generally used in conjunction with other traffic calming measures and appropriate signage. In the provided example a speed limit legend is provided to reinforce the existing speed limit sign (not pictured). Drivers are more likely to follow the speed seeing it in a unique place, or slow down to assess the area and potential reasoning for the pavement marking.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

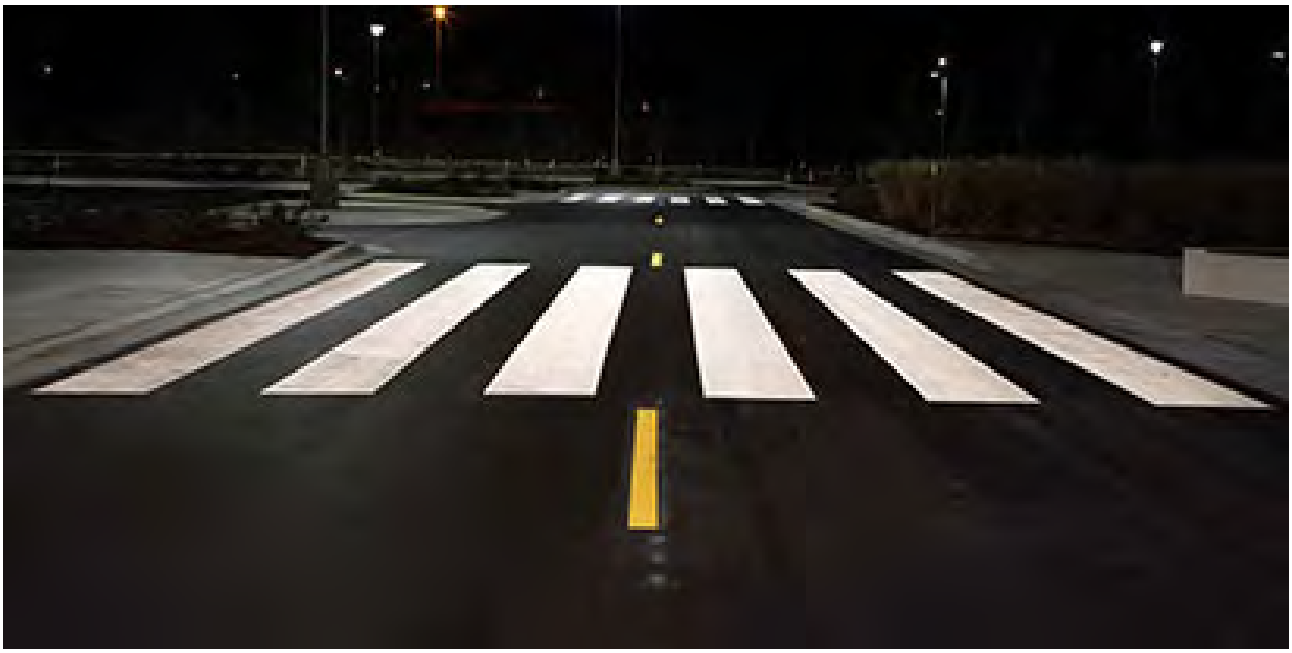
High Visibility Crosswalks

Overview

High-visibility crosswalks use patterns (i.e., bar pairs, continental, ladder) that are visible to both the driver and pedestrian from farther away compared to traditional transverse line crosswalks. They should be considered at all midblock pedestrian crossings and uncontrolled intersections. High pedestrian areas such as schools and parks should consider installing crosswalks at common mid-block crossing locations

High visibility crosswalks are best used with enhanced signing ("Stop here for pedestrians" signs 20'-50' in advance of a marked crosswalk or pedestrian/school crossing signs at the crosswalk). Drivers will generally drive slower when there is the possibility of pedestrians crossing.

Photo Example



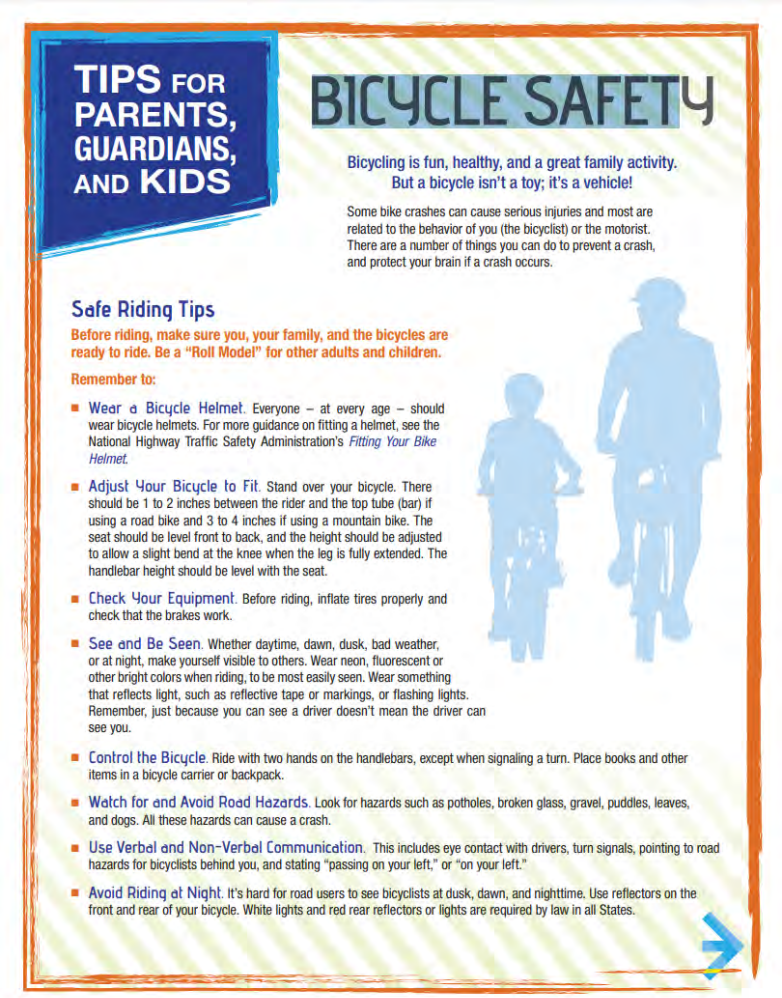
Education/Community Involvement

Overview

Increasing resident knowledge about plans for the road network and how traffic calming measures are meant to operate increases the chances of success. Oftentimes residents are unknowingly guilty of behaviors that amplify the roadway behaviors they don't want to see in the Village.

Teaching drivers, pedestrians, and cyclists how to best navigate multi-modal roads in the Village will create a safer road system for all users. Road features like traffic circles may be completely new to some drivers/residents and proactive education campaigns using flyers and Village information meetings can prevent drivers from being surprised and panicking when faced with a new road feature. This also applies to older drivers who may not know what rules of the road have changed since their driver's education class.

Photo Example



TIPS FOR PARENTS, GUARDIANS, AND KIDS

BICYCLE SAFETY

Bicycling is fun, healthy, and a great family activity. But a bicycle isn't a toy; it's a vehicle!

Some bike crashes can cause serious injuries and most are related to the behavior of you (the bicyclist) or the motorist. There are a number of things you can do to prevent a crash, and protect your brain if a crash occurs.

Safe Riding Tips

Before riding, make sure you, your family, and the bicycles are ready to ride. Be a "Roll Model" for other adults and children.

Remember to:

- Wear a Bicycle Helmet. Everyone – at every age – should wear bicycle helmets. For more guidance on fitting a helmet, see the National Highway Traffic Safety Administration's *Fitting Your Bike Helmet.*
- Adjust Your Bicycle to Fit. Stand over your bicycle. There should be 1 to 2 inches between the rider and the top tube (bar) if using a road bike and 3 to 4 inches if using a mountain bike. The seat should be level front to back, and the height should be adjusted to allow a slight bend at the knee when the leg is fully extended. The handlebar height should be level with the seat.
- Check Your Equipment. Before riding, inflate tires properly and check that the brakes work.
- See and Be Seen. Whether daytime, dawn, dusk, bad weather, or at night, make yourself visible to others. Wear neon, fluorescent or other bright colors when riding, to be most easily seen. Wear something that reflects light, such as reflective tape or markings, or flashing lights. Remember, just because you can see a driver doesn't mean the driver can see you.
- Control the Bicycle. Ride with two hands on the handlebars, except when signaling a turn. Place books and other items in a bicycle carrier or backpack.
- Watch for and Avoid Road Hazards. Look for hazards such as potholes, broken glass, gravel, puddles, leaves, and dogs. All these hazards can cause a crash.
- Use Verbal and Non-Verbal Communication. This includes eye contact with drivers, turn signals, pointing to road hazards for bicyclists behind you, and stating "passing on your left," or "on your left."
- Avoid Riding at Night. It's hard for road users to see bicyclists at dusk, dawn, and nighttime. Use reflectors on the front and rear of your bicycle. White lights and red rear reflectors or lights are required by law in all States.

Level 2

Sign Turn Restrictions/Turn Movement Restrictions

Overview

Turning movement restrictions serve as an access management strategy to enhance the safety of stop-controlled intersections and driveways. By restricting specific turn movements, the number of turning conflict points at intersections is reduced, which lowers the risk of crashes.

This improvement is specifically intended to reduce cut-through traffic or traffic from specific roads from entering smaller routes. Restricting a turning movement will impact the entire road system as drivers who weren't cutting- though find new paths to get to their destinations.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

On-street Parking Strategies

Overview

On-street parking provides road uses access to locations along a street, increases friction between vehicles parked along the street and drivers which aids in speed reductions, and provides a barrier between moving traffic and the sidewalk edge. This can create an increase in pedestrians using the roadway.

Parallel and angle are two types of on street parking that have different operational effects. On street parking can be on one or both sides of the road.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

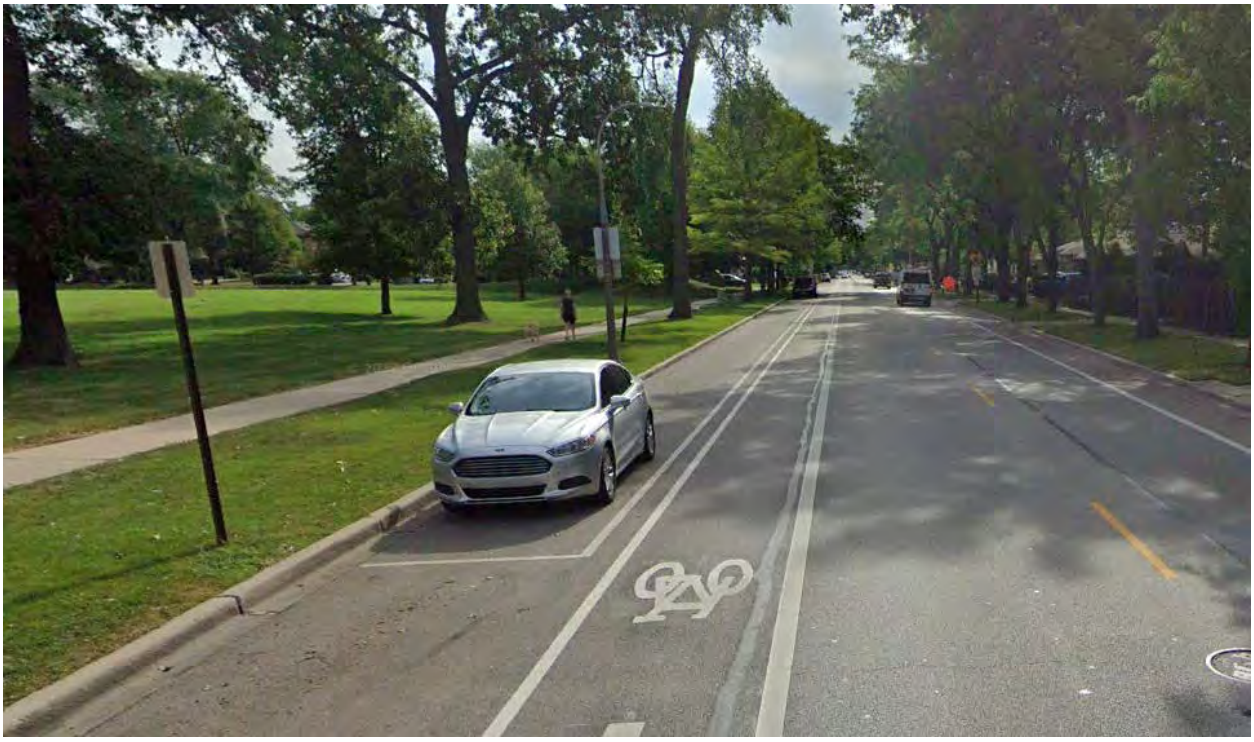
Parking Lane Markings

Overview

Parking lane markings on urban roads are designed to optimize parking efficiency and prevent encroachment on critical areas such as fire hydrant zones, bus stops, loading/unloading zones, and other parking locations that are undesirable.

This can be used in conjunction with on-street parking strategies to designate the locations drivers should use when parking.

Photo Example



Textured Pavement

Overview

A textured surface such as brick or pavers may be used to emphasize pedestrian crossing movement. Substituting this for the normal roadway surface material may also help to impress upon motorists that lower speeds are intended.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

Rumble Strip

Overview

Rumble strips prove effective in reducing roadway departure crashes. Rumble strips create both noise and vibration, warning road users when they veer off the road. When they are coated with retroreflective material, they are called “rumble stripes,” which enhances the pavement edge’s visibility at night and during inclement weather conditions. To reduce head-on collisions and opposite direction sideswipe, center line rumble strips are often used. They warn vehicle users whose vehicles are crossing the center lines of roads.

Transverse rumble strips are placed in the travel lane perpendicular to the direction of travel. Transverse rumble strips are used to notify drivers to slow down, come to a stop, or anticipate other upcoming changes that might catch an inattentive driver off guard. Locations where they are most often used are on approaches to intersections, toll plazas, horizontal curves, and work zones.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

Rapid Rectangular Flashing Beacon

Overview

Rapid Rectangular Flashing Beacons (RRFBs) are pedestrian-actuated enhancements designed to improve safety at uncontrolled, marked crosswalks. The device consists of two rectangular-shaped yellow indications, featuring LED-array-based light sources that flash with a high frequency when activated. When there is a high number of traffic lanes, this can create many challenges for pedestrians crossing at unsignalized locations. RRFBs prove to enhance visibility at a marked crosswalk.

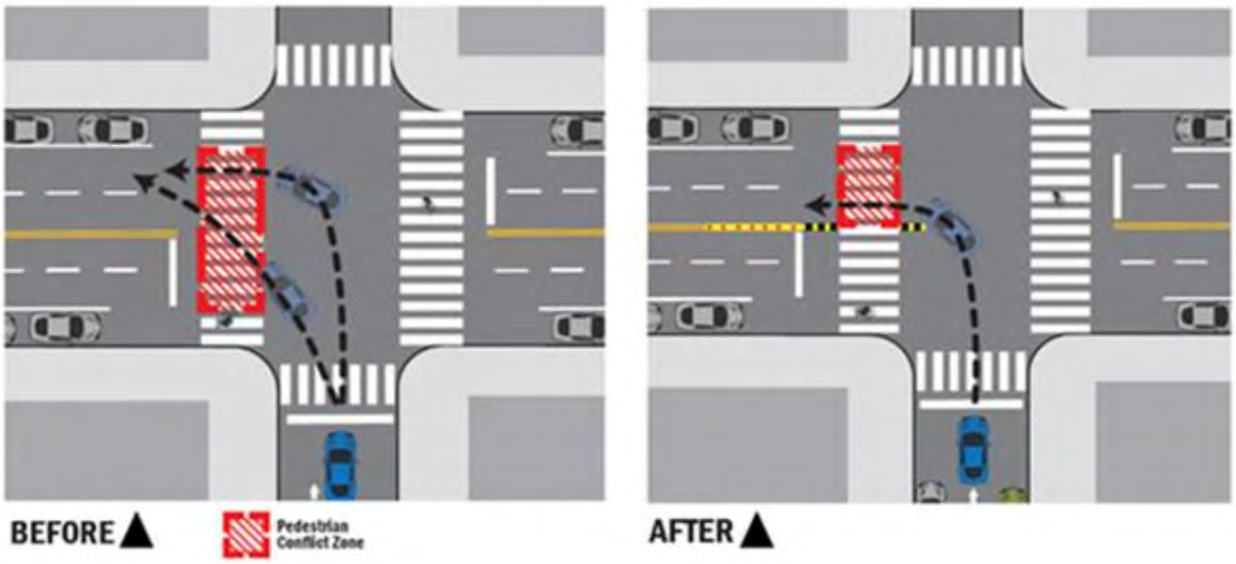
Photo Example

Left-turn Improvements

Overview

Left turn improvements are a more recent improvement type that had their pilot program in Chicago in 2019. To prevent drivers from taking a diagonal path across crosswalks rubber speed bumps, vertical posts, and hardened centerlines are installed along the centerline at intersections that encourage drivers to take turns at safer speeds. This is best used at locations with pedestrian crashes or areas where drivers speeding through turns is seen as a prominent issue.

Photo Example



Level 3

Curb Extensions

Overview

Curb extensions, also referred to as bulb-outs or neckdowns, involve extending the sidewalk or curb line into the parking lane, initially narrowing the street width. Curb extensions play a vital role in improving pedestrian crossings by reducing the distance pedestrians need to traverse, improving visibility, and minimizing the time pedestrians spend in the street. When placed at an intersection, curb extensions prove to prevent motorists from parking in or too close to a crosswalk or from blocking a curb ramp. Vehicles that are parked at corners are a threat to pedestrian safety since they block sight lines, hide pedestrian visibility, and can create a challenge for emergency vehicles when turning. Curb extensions prove to reduce turning speeds at intersections. Curb extensions are only suitable in areas where there is an on-street parking lane and it is essential that they do not extend into travel lanes, bicycle lanes, or shoulders.

This improvement is also suitable for areas where drivers may attempt to use the parking lane as a second through lane.

Photo Example

Mid-Block Chokers

Overview

Mid-Block chokers are curb extensions designed to narrow a street by expanding the sidewalks or planting strips, creating a pinch point along the roadway. This can be achieved by bringing in both curbs, or by widening one side, especially at midblock locations. Chockers can be used at intersections, creating a gateway effect when entering a street. They can also yield a striking impact as they transform a two-lane street into a single lane at the choker point, making motorists yield to each other.

Creating a visually and physically narrower roadway will cause drivers to slow down to assess the new cross section. Drivers will generally lower their speed when the travelled lane becomes narrower.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

Center Island Narrowing/Pedestrian Refuge

Overview

A median island narrowing refers to a raised island positioned along the centerline of a street which allows the travel lanes to narrow at that specific point. The visual effect of these narrowed lanes encourages a motorist to slow down. This specific type of median separates opposing vehicle travel lanes, creates opportunities for landscaping or visual enhancements, and offers a safe place for pedestrians to cross a multi-lane street. These features that a median island possesses are designed to enhance and ensure a safer traffic flow.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

Stop Signage

Overview

Stop signs are an effective form of traffic calming when used properly. Forcing vehicles to fully stop while navigating a corridor limits the maximum speed they can travel due to acceleration and deceleration times. Since stop signs are a form of traffic control they should not be used unless a stop sign warrant is met. Overuse of traffic control may result in drivers no longer respecting the signage and either 'rolling' stop signs or not stopping at all.

Modifier plaques should be placed below stop signs to give drivers additional information about the intersection such as "Cross Traffic does Not Stop" or "ALL-WAY".

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

Traffic Circle

Overview

Traffic circles are used at unsignalized intersections, creating a circular movement within traffic. While they appear similar to roundabouts they are different in that they create a circular traffic movement at a much smaller scale and roundabouts utilize yield signs on all legs. The design allows road users to reduce speed when crossing an intersection. A traffic circle can either have stop signs or yield signs. The primary purpose of a traffic circle is a reduction of angle and turning collisions as well as reducing speeds at the intersection. The design of one can be a painted area but it is recommended for it to be a raised curb and landscaped.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

Roundabout

Overview

The modern roundabout is a circular intersection designed to direct safe movement of traffic. Its features include channelized, curved approaches that slow down vehicles, entry yield control that grants right-of-way to circulating traffic, and counterclockwise flow around a central island, which minimizes conflict points. The design results in lower speeds and fewer conflicts, creating an environment where injuries or fatalities are significantly reduced.

Roundabouts stand out as a safer and more efficient type of intersection, maintaining traffic flow. They can also reduce delays and queues compared to other intersection options. The lower vehicle speeds and reduced potential for conflicts make roundabouts a more suitable environment for walking and bicycling.

Roundabouts can replace signals, two-way stop controls, and all-way stop controls. They are often used for managing speed and transitioning traffic from high speed to low-speed environments.

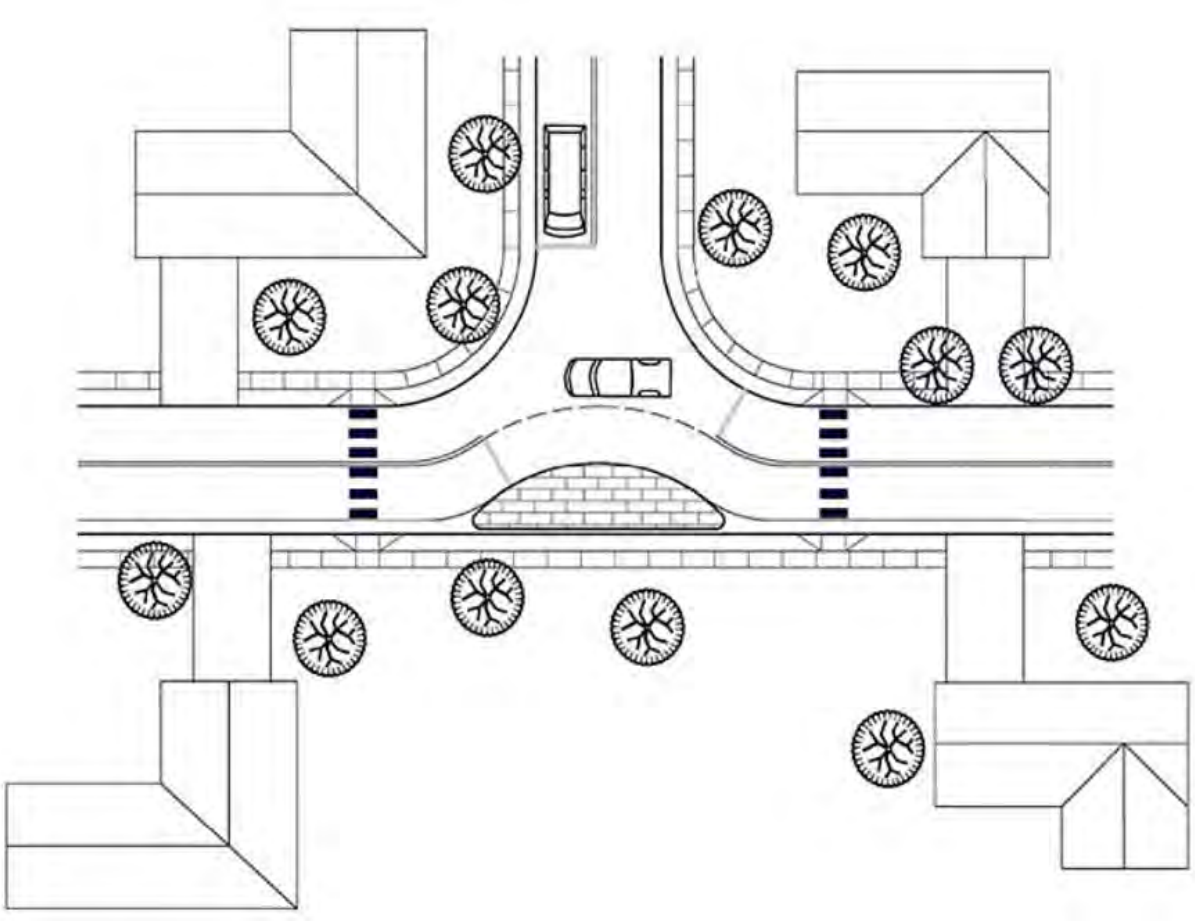
Photo Example

Realigned Intersection

Overview

A realigned intersection involves reconfiguring an intersection with perpendicular angles, transforming it into one with skewed approaches or travel paths. Realigned intersections help to deter or completely remove fast vehicle movements through the intersection by introducing new physical features. The typical approach is to convert a T-intersection with straight approaches into curving streets meeting at right angles. This removes all straight paths through the intersection, creating a slower traffic flow.

Photo Example



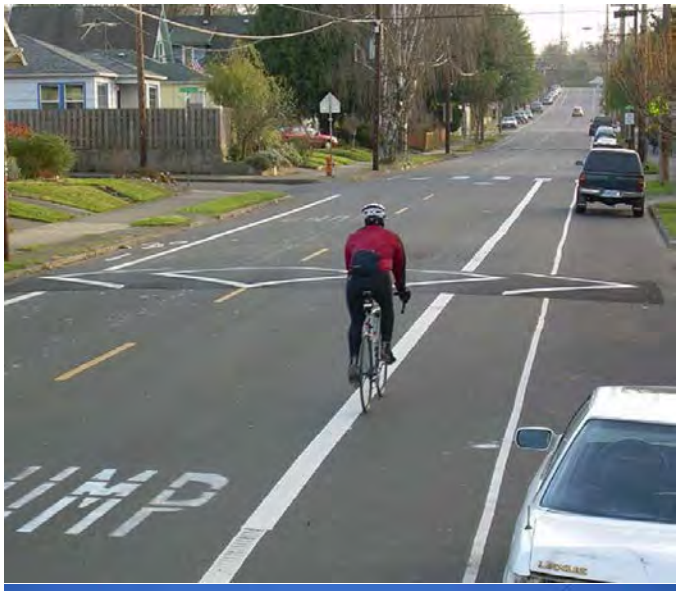
RIVER FOREST
Proud Heritage · Bright Future

Speed Hump/Speed Cushion

Overview

A speed hump is a raised elongated mound on the pavement, positioned across the travel way at a right angle to the traffic flow. When road users drive over the speed limit in residential areas, a speed hump can help reduce speeds by creating discomfort for the user. Speed humps cause drivers to move at slower speeds both before and after passing over the speed hump. A speed cushion is two or more raised areas placed across a road. There are cutouts positioned that allow the driver to travel over a portion of the raised pavement.

Photo Example



RIVER FOREST
Proud Heritage · Bright Future

Speed Table/Raised Intersections

Overview

A speed table is a raised area on top of a road to physically limit the speed of a vehicle. It can be installed away from intersections and consists of two ramps leading up to a raised section of road. Crosswalks may be installed on top of a speed table.

A raised intersection is a flat, elevated area that spans the entire intersection with ramps on all approaches. It functions as a speed table covering an entire intersection and crosswalks (if applicable). The objective of a raised intersection is to reduce vehicle speed and to enhance pedestrian safety. They are commonly installed at signal-controlled or all-way stop-controlled intersections with high numbers of street-crossing pedestrians.

Photo Example

RIVER FOREST
Proud Heritage · Bright Future

Level 4

Median & Partial Medians

Overview

A center median prevents left turns while creating a narrower lane for drivers. A partial median serves the same purpose but may have gaps where drivers can turn left either from the through-lane or a dedicated turn lane. A median can help separate traffic to prevent head on collisions and depending on width can be used by drivers as a refuge from oncoming traffic while turning left.

Medians operate similar to a median island or pedestrian refuge listed above but tend to extend further along a corridor. Medians may be used as pedestrian refuges at crossings if width allows.

Photo Example

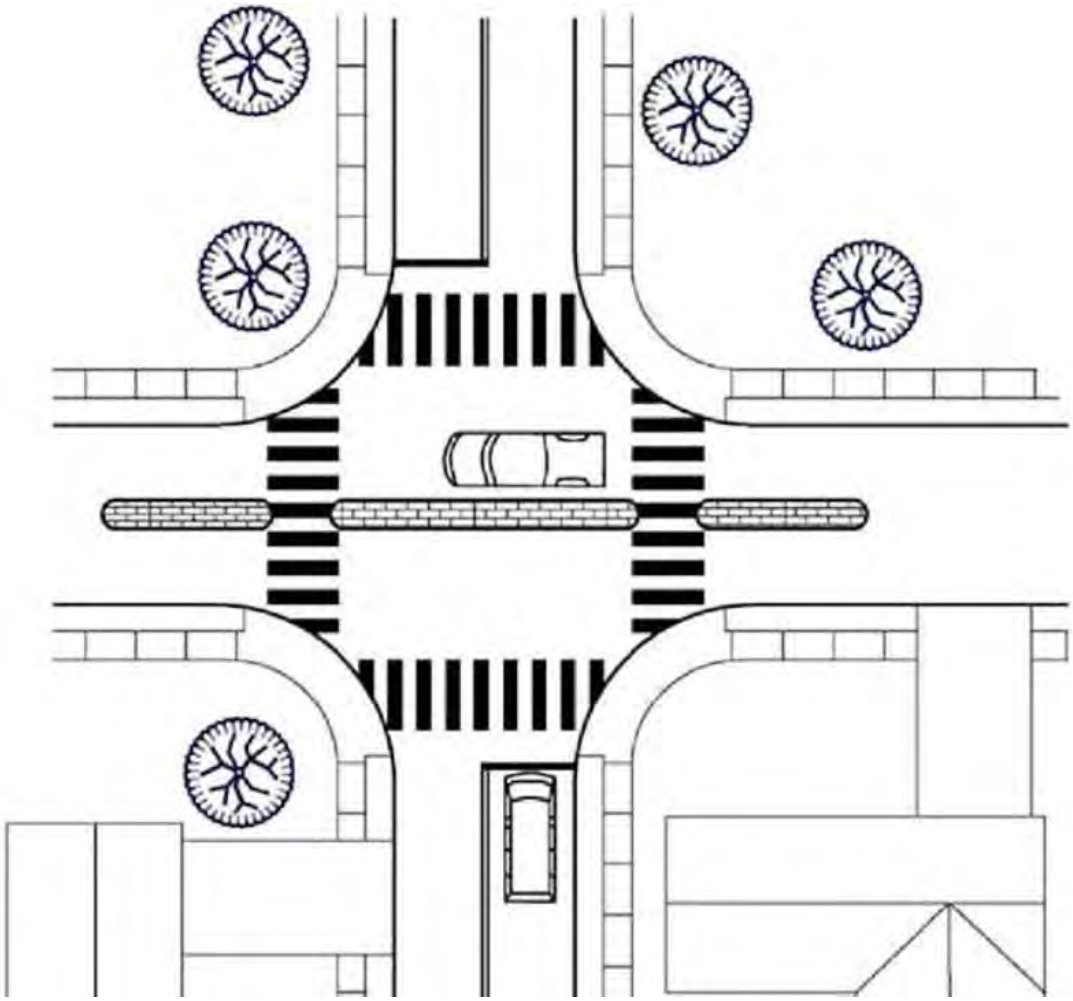
RIVER FOREST
Proud Heritage · Bright Future

Median Barrier

Overview

A median barrier, a raised island, is placed throughout an intersection, near the centerline of a road which prevents road users from moving straight through the intersection on the side street. Median barriers prevent side street traffic from crossing the main roadway, prevent left turn movements, but allow right turns to and from the main street.

Photo Example

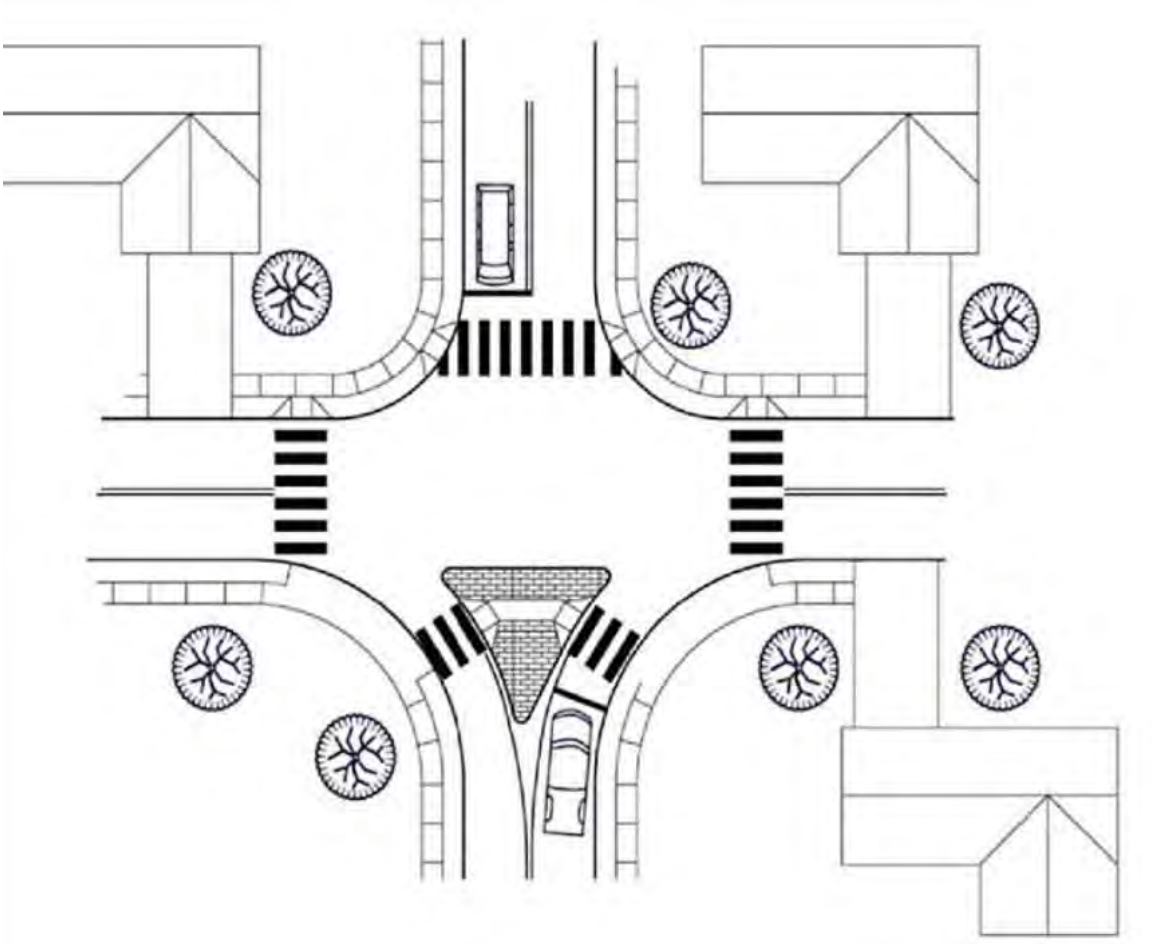


Forced Turn Island

Overview

A forced turn island is placed at the mouth of an intersection, usually seen triangular. It restricts specific movements on approaches to an intersection. It forces a road user to turn right from the side street and blocks any left turn/through movements.

Photo Example



RIVER FOREST
Proud Heritage · Bright Future

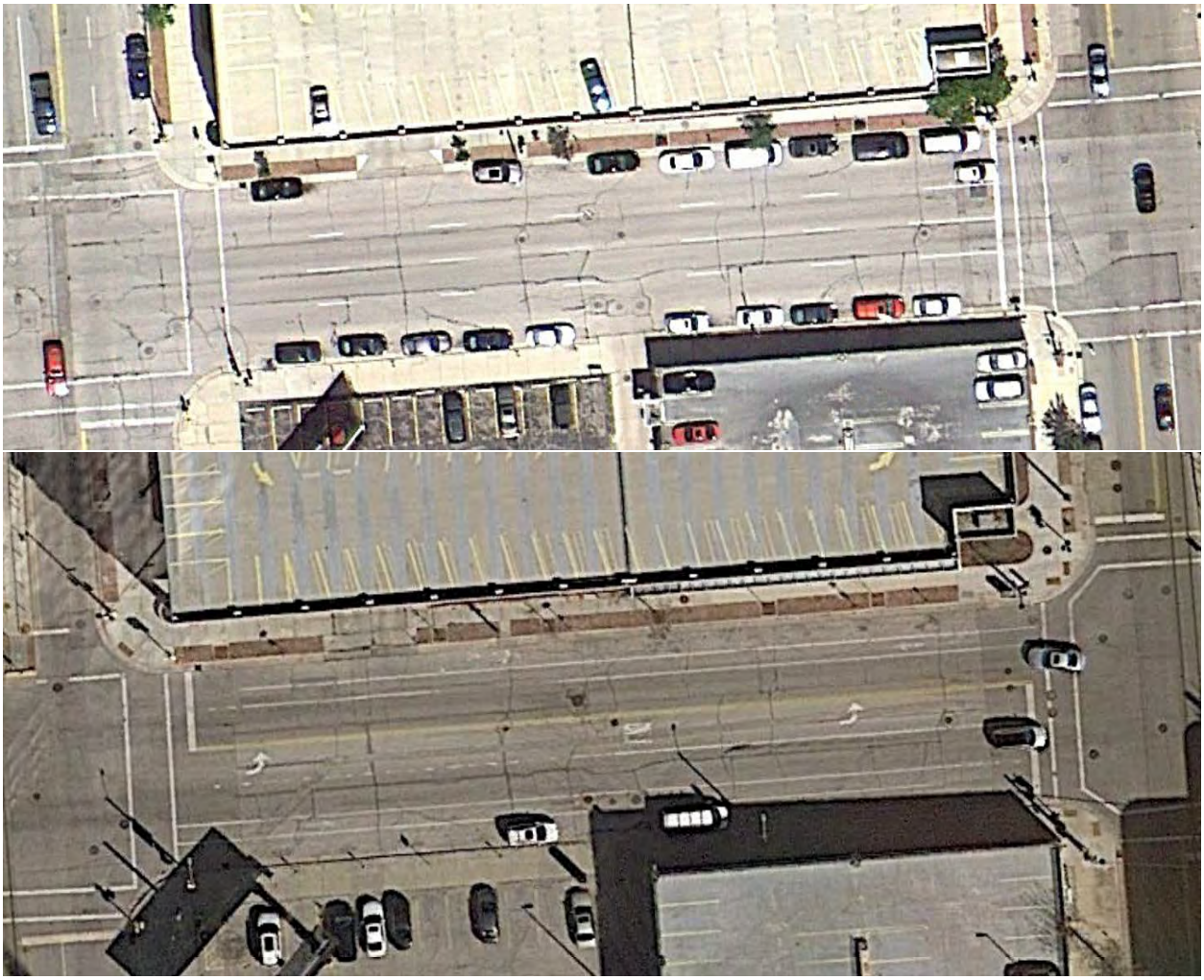
One-Way to Two-Way Street Conversion

Overview

Converting a one-way street back to two-way will allow better local access and slow traffic. Two-way streets tend to be slower due to driver "friction", especially on residential streets without a marked center line. This improvement is best for streets where speeding is a common issue and there are complaints from drivers about the distance to access certain properties or businesses.

This is also a good solution to roads that are far too wide for a single lane of traffic in one direction. A narrower lane controls driver speed and raises driver awareness while on the road. The example below shows how a 4-lane cross section with parking was converted into a 2-lane cross section with a left turn lane, bike facilities, and parking.

Photo Example



RIVER FOREST
Proud Heritage · Bright Future

Two-Way to One-Way Street Conversion

Overview

Converting a two-way road to a one-way streets has a number of benefits, but comes with a number of challenges to the road network that need to be considered prior to any action.

One-way streets can simplify crossings for pedestrians, who must look for traffic in only one direction. While studies have shown that conversion of two-way streets to one-way generally reduces pedestrian crashes, one-way streets tend to have higher speeds which creates new problems. If a street is converted to one-way, it should be evaluated to see if additional changes should be made, especially if the street or lanes are overly wide. Also, traffic circulation in the broader area must be carefully considered before conversion to one-way streets.

One-way streets can be implemented as a system where neighboring streets are both converted to one-ways in opposite directions. This is called a one-way couplet and helps to resolve some of the volume issues caused by removing a direction of traffic from one road. One-way couplets operate best in "pairs", separated by a block to no more than one-quarter mile.

Photo Example