City of Spokane Traffic Calming Program

2020

What is Traffic Calming?

The Institute of Transportation Engineers (ITE) definition of traffic calming is:

> *"Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users."*

By design, traffic calming is a self-enforcing traffic management approach that forces motorists to alter their speed or direction of travel. The purpose of traffic calming is to improve safety, especially for pedestrians and bicyclists, and to improve the environment or 'livability'' of streets for residents and visitors.

Objectives of Traffic Calming

- Slow vehicular travel speeds where appropriate
- Reduce the frequency and severity of certain types of collisions
- Enhance the street environment
- Reduce cut-through motor vehicle travel patterns
- More carefully consider safety for non-motorized street users

Traffic Calming techniques may include education, enforcement, or engineering to shift traffic patterns and/or reduce speeds. Most traffic calming measures focus on engineering changes to alter driver behavior. Traffic calming techniques may include physical changes such as roadway narrowing, traffic circles, and signage, among other things. Education and enforcement efforts should be considered prior to engineering alternatives and as a complement to engineering efforts.

There is not a single tool to solve all traffic issues and one tool that may work well in one area for a particular issue may not be effective in another situation. Keys to successful traffic calming is community acceptance and municipal support/maintenance.

Effective traffic calming should be designed with a systematic approach with appropriate and frequent enough spacing of measures and consideration for secondary effects of the installations.

Traffic Calming Measures:

- Landscaping/Street Trees
- Flashing School Zone signs
- On-street Parking
- Stationary radar speed signs
- Signage
- Marked Crosswalks
- Traffic Circles
- Traffic Islands/Medians
- Bike Lanes
- Etc.

Included in the toolbox:

In addition to describing the measures for traffic calming, a list of general pros and cons associated with each measure is also presented. The intent is to provide the reader with a quick indication of what might be expected if this measure is implemented. Remember, certain measures may or may not realize their full advantage or drawbacks depending on site specific conditions or circumstances. Also included for each measure is a rough estimated cost which is not binding and may vary significantly depending on economic conditions and project details. The costs as presented do not include maintenance of the measures after they are installed.

There is also a statement of whether a study needs to be done. For example, there could be a more complex traffic analysis for a traffic circle as opposed to a less complex analysis for a bump out. This is important to acknowledge due to the fact that the traffic analyses can be expensive and time consuming.

Finally, applicants must remember that these are just some of the many potential solutions for identified traffic calming needs. Some issues/projects submitted may not be approved for funding. The applications must present an identifiable and substantiated reason for needing traffic calming measures. The submitted identified issues will be analyzed to determine the need for the project, whether traffic calming is "warranted." Not all projects submitted may be warranted.

Note: 2020 Traffic Calming applications ask you to identify issues where traffic calming measures are needed. Moving to a problem-focus will allow engineers to do an analysis to find the most appropriate solution for the identified issue.

On-Street parking: Parallel & Angled Parking Where Safe and Reasonable

Description:
On-street Parking, both parallel and angles (where it is warranted and can fit within City of Spokane standards) helps to narrow roadways and calm traffic. The proximity of parked vehicles and necessity to watch for exiting vehicles and opening doors slows traffic.

Pros:
On-street parking creates a buffer between pedestrians and motorists, improving the walking environment. On-street parking in business districts is generally welcomed.

Cons:
On-street parking impedes traffic flow. Angle parking creates more right-of-way impacts. Drivers have reduced visibility backing out of angled parking spots, posing a greater risk to bicyclists. Angle parking is required by City of Spokane standards to be signed and have on street painted parking stalls to identify where angle parking can occur.

Costs:

- $15.00 per linear foot
- $200 per sign
- Perpetual maintenance to keep the pavement painted and the signs installed
- Purchase for additional right-of-way could be very expensive.

Study:

- Traffic Study

Traffic Circles

Description:
Traffic circles are used to slow driving speeds approaching intersections. Motorists must reduce speed to maneuver around the circle which can help reduce the frequency and severity of crashes as well as discourage neighborhood cut-through traffic

Pros:
Permanent installation forces reduced speeds at subject intersection. Can be used as a gateway or to identify a neighborhood.

Cons:
A single traffic circle used in isolation will not significantly calm traffic and can in fact create another traffic problem on adjacent intersections. A coordinated system of multiple traffic circles or other calming measures is required. Motorists may ignore painted traffic circles, and drive right over them. Raised traffic circles may interfere with snow plowing operations.

Costs:

- $35,000.00-$70,000 depending on location

Study:

- Traffic Study

Neckdown/Bulb Out/Curb Extension

Description:
Neckdowns or bulb outs narrow the roadway by extending the curb at intersections and at warranted and appropriate mid-block locations.

Pros:
Neckdowns and bulb outs can potentially slow traffic, reduce turning speeds, and can enhance pedestrian safety by reducing crossing distance.

Cons:

- Relatively high initial costs
- Loss of on-street parking
- Increased maintenance costs
- Complicates plowing and street sweeping operations
- Requires new and additional catch basins to mitigate drainage

Costs:

- $30,000 to $45,000 per bumpout

Study:

- Traffic Study

Traffic Islands & Medians

Description:
Concrete or landscaped islands typically located down the center of a roadway or at a roadway entrance.

Pros:
Landscaped or concrete traffic islands and medians can potentially reduce speeds by narrowing drivable travel lane widths. They can improve pedestrian accommodation by providing a mid-block pedestrian refuge at crossings. They complement improved crosswalks and reduce pedestrian crossing width. They can be used to provide a visual enhancement or gateway to promote neighborhood identity.

Cons:

- Traffic islands and medians may reduce parking and driveway access, and also narrower road may increase motor vehicle/bicycle conflicts.
- Impedes Left turns
- Landscaping must be perpetually maintained
- Landscaping must meet the City of Spokane standards as to not create an unsafe visual barrier

Costs:

- $20,000 to $40,000.

Study

- Traffic Study

Landscaping:

Description:
Landscaping is used in conjunction with other traffic calming measures such as roadway narrowing, traffic islands, and sidewalk improvements to improve the pedestrian environment, define pedestrian and vehicle areas, and provide separation between motor vehicles and pedestrians.

Pros:
Landscaping increases motorists' awareness and can help define a neighborhood identity. Its installation is long term and increases the quality of life of a community.

Cons:
Depending on the design, the installation and maintenance costs can be high. Right-of-way impacts may be significant as well.
Landscaping must be perpetually maintained and meet the City of Spokane standards as to not create an unsafe visual barrier.

Costs:

- Trees: $500.00each
- Shrubs (5 gal.):-$55.00 each
- Sod: $10.00 Square Yard

Study:

- Sight Triangle analysis
- None needed unless impeding right-of-way

Speed Feedback Signs

Description:

Radar signs are interactive signs that draw motorists' attention to their speed and the road's legal speed limit. They alert motorists when they are exceeding the speed limit. They can be used in residential areas, school zones, construction zones, and other safety zones. Radars can be permanently mounted on signposts or temporary installations using self-contained trailers (*see Mobile Speed Feedback trailers program).*

Pros:
Radar signs have proven to slow down traffic, even years after their initial installation. They are particularly effective on high volume arterials and highways, where physical measures would restrict traffic flow.

Cons:
Radar signs do not slow traffic as much as physical measures. Motorists' compliance is voluntary. Enforcement is necessary. Signs require long sight lines to be effective.

Costs:

- $30,000-50,000 per pair of signs

Study:

- Warrant Analysis

Signage

Description:
Traffic signs can be used to alert or inform motorists of a condition or a potential situation. Signs need to be selected and place in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).
Pedestrian/bicycles/school crossing signs and in-street pedestrian crossing signs have been used by municipalities to warn motorists of high pedestrian activity, and help to reduce speeds. Signs are also used in conjunction with other measures such as pavement markings.

Pros:

- Low cost
- Increases awareness

Cons:

- Can be considered to clutter the roadway especially on residential streets
- Overall effectiveness can vary

Costs:

- Varies, depending on type and amount of signage, vertical signs typically are $500 per sign
- Any school crossing signs must be endorsed by the school

Study:

- Depends on type of sign and placement

In-fill Sidewalks

Description:
Sidewalks are not generally seen as a traffic calming mechanism. However, they do improve pedestrian safety, but they do not generally calm traffic on a stretch of road.

Pros:

- Increases pedestrian safety

Cons:

- Does not calm or slow traffic

Costs:

- $125 - $200 linear foot
- $250.00 linear foot for separated sidewalks
- Add $2,000 each driveway
- Add $2,500to $5,000eachADAramp

Study:

- Warrant Analysis

Bike Lanes

Description:
Designing a portion of the existing roadway cross-section exclusively for bicycle use. Bike lanes are used only on arterial streets and where constant.

Pros:

- Potentially help to slow speed of vehicles
- Provides for bicycle access

Cons:

- Reduces roadway capacity
- If not designed well, they can create safety concerns

Costs:

- $20 Linear Foot for thermoplastic (heat applied)
- $500 per sign (2 min. per block, 8 blocks per mile)

Study:

- Must be in the City of Spokane Master Bike Plan

Crosswalks

Description:

Marked crosswalks are a tool for helping pedestrians move safely, conveniently, and predictably across roadways. Marked crosswalks alert drivers to expect crossing pedestrians and to direct pedestrians to desirable crossing locations. Marking crosswalks at every intersection is not necessary or desirable.

Although many motorists are unaware of their precise legal obligations at crosswalks, it is required that drivers yield to pedestrians in a crosswalk, whether marked or unmarked. Streetscape design should recognize crosswalks as a part of the pedestrian streetscape. Marked crosswalks are typically used on arterial streets.

Pros:

- Communicates to the pedestrian where the preferred crossing is.

Cons:

- Does not accomplish traffic calming
- May give pedestrians false sense of safety
- ADA ramps must be present before a marked crosswalk can be installed which can significantly increase costs

Costs:

- $500 for painted parallel bars
- $2,000 for thermoplastic parallel bars (last longer)
- $3,000 for thermoplastic piano style bars (last longer)
- $2,500 to $5,000 each ADA ramp installed

Study:

- Warrant analysis

For questions on the Traffic Calming Toolbox or the program itself, please reach out to Annica Eagle with the Office of Neighborhood Services, aeagle@spokanecity.org.