TRAFFIC CALMING

PLANNER'S PORTFOLIO

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Planner's Portfolio Series

The Planner's Portfolio Series is an outreach effort developed by Delaware County Council in order to explore the planning concepts available for communities to take advantage of the unique opportunities across Delaware County.

The pattern on the cover page, and found throughout this series, represents the importance of each individual component in the larger network. The Planner's Portfolio Series explores several of these components and how they can support community character in Delaware County.

For more information, contact the Delaware County Planning Department at 610-891-5200 or visit www.co.delaware.pa.us/planning to see the complete Planner's Portfolio series.

OVERVIEW

Traffic Calming is a transportation planning tool used to address high traffic volumes and speeding; reduce collision frequency and severity; reduce cut-through traffic; and increase access for all modes of transportation. The term traffic calming refers to three activities known as, "the three Es:" Education, Enforcement, and Engineering. Education refers to the dissemination of safety information to the public. Enforcement is police enforcement of speed limits and other traffic control devices. Engineering involves changes in roadway design that sustain safer driving.

The goals of traffic calming are to encourage "self-policing" and make streets safe for a variety of users. This issue of the Planner's Portfolio series focuses on the most common and effective *engineered* traffic calming measures in Delaware County. Although not examples of engineered traffic calming measures, traffic control devices such as signs, signals, and pavement markings can be incorporated in roadway design or function in a similar way.

Appropriate Application:

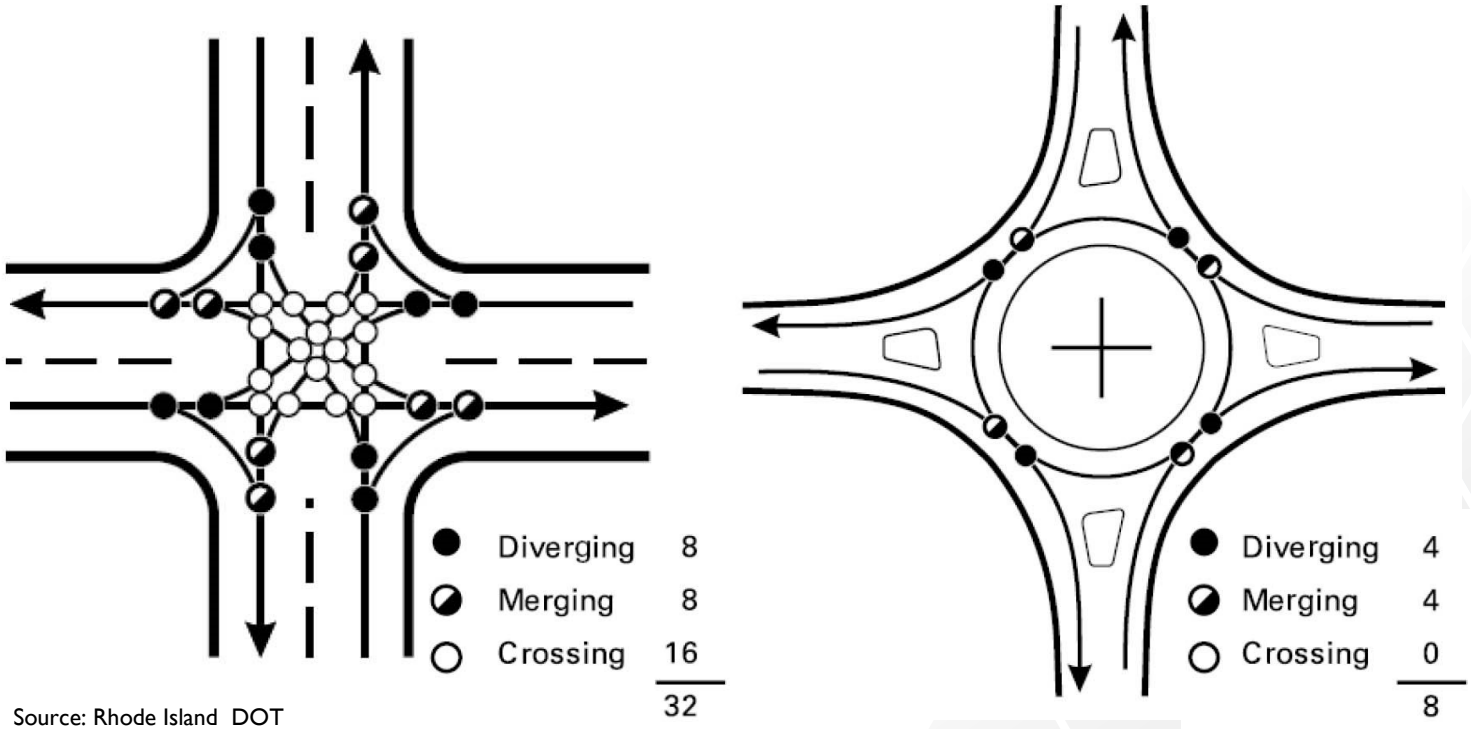
Traffic calming measures are not an appropriate solution for all roadways. Traffic calming is best applied in areas where non-motorist travel, or bicyclists and pedestrians, must be accommodated.

Engineered traffic calming measures are appropriate on local residential streets, collector streets with predominantly residential land uses, and arterial roads within downtown districts or commercial areas with speeds of up to 40 miles per hour (*Traffic Calming Handbook*, PennDOT, 2012).

CONFLICT POINTS:

Many accidents occur at intersections. Intersections are the junctions at which motor vehicles, pedestrians, and cyclists cross paths. Conflict points are those points at an intersection where collision is possible, based on the variety of directions in which vehicles can go.

The diagram to the right compares the number of conflict points at a typical four-leg intersection with the number of conflict points in a roundabout. A four-way roundabout has only eight conflict points, proving it to be a much safer alternative to the standard four-way intersection.



Source: Rhode Island DOT

ENGINEERED TRAFFIC CALMING MEASURES

Narrowing the width of a travel lane or creating a curve in the travel lane makes it necessary for a driver to slow down, which increases the safety for vehicles, bicyclists, and pedestrians. See the examples listed below of methods for narrowing roadways.

Curb Extension/Bulbout:

A curb extension or bulb-out is an area of expanded curbing that extends across a parking lane.

This measure does not reduce traffic volume or the rate of emergency response. It has a moderate effect on speed reduction and conflict reduction, but it does reduce pedestrian crossing distances.

City of Chester

On-street Parking:

On-street parking narrows the roadway by default. Narrow roadways help to reduce speeding because drivers slow down to avoid collisions with traffic going in the opposite direction or vehicles parked on the side of the road.

Upper Darby Township

Traffic Circle or Roundabout:

Traffic circles and roundabouts differ in design and regulation. Traffic circles have smaller radii. As a result, they lead to only a slight reduction in speed. Roundabouts are much larger, forcing drivers to take the roundabout at speed between 10 and 20 miles per hour.

Swarthmore Borough
Source: W.S. Cumby; cumby.com/news

Changing the height of the roadway helps reduce speeds, but has only a minor effect on traffic volumes. This measure can help improve pedestrian safety at crossings and intersections.

Speed Humps:

Speed humps are raised surfaces that extend across the width of the roadway. In Pennsylvania, the Watts speed hump is the preferred design. This design is twelve feet in length. This type of speed hump is best for local streets with posted speeds of 30 miles per hour or less and low traffic volumes (*Traffic Calming Handbook*, PennDOT, 2012).

Speed humps are between 3 and 4 inches in height. They reduce traffic volumes, conflicts, and speeds.

Media Borough

Brick Paver Crosswalks:

Brick pavers allow crosswalks to be more visible to both pedestrians and vehicles. In some instances, brick paver crosswalks are slightly elevated. They discourage pedestrians from crossing mid-block where there are no crosswalks, and they help increase driver awareness.

Raised crosswalks help reduce speeds, mostly because they are more visible to drivers.

Swarthmore Borough

Raised Intersections:

Raised intersections are intersections that are raised three to six inches above street level. Raised intersections are great calming tools for business districts or commercial corridors where pedestrian traffic is more common and encouraged.

They are effective in reducing speeds and reducing conflicts between drivers and pedestrians.

Cambridge, Massachusetts
Source: City of Cambridge; cambridgema.gov

SIGNS AND PAVEMENT MARKINGS

Signs and pavement markings are a more affordable way to help reduce speeding; however, they are not as effective as physical roadway improvements and do not encourage self-policing to the same degree.

Stop Signs:

Stop signs are law enforcement tools. While effective at coordinating traffic circulation at intersections, they do not necessarily reduce speeds. Furthermore, too many stop signs can render them a nuisance or even increase traffic congestion.

Speed Limit Signs:

Speed limit signs are an important traffic control measure. These signs are most successful in reducing speeds when actively regulated by law enforcement officials. Reduced speeds can make it easier for a vehicle to stop abruptly in case of an emergency (for a pedestrian or bicyclist that has suddenly entered the roadway).

Flashing Signs:

Flashing signs are also law enforcement signs. They are used at pedestrian crossings near schools or other destinations that are not near urbanized centers but have high levels of pedestrian activity. These signs are effective in attracting drivers' attention, particularly at night.

Some flashing signs may be found mid-block accompanied by a posted speed limit, and the regulation may be enforced only during certain times of day (e.g., during school hours).

City of Chester

Radnor Township


Media Borough

EMERGENCY RESPONSE DELAYS

Traffic calming measures are meant to slow down vehicles on the roadway. As a result, they also slow down emergency vehicles. This increases emergency response times.

Delay 1—Traffic Circle/ Roundabout:

Traffic circles/roundabouts can delay emergency service vehicles by 1 to 11 seconds. Most delays fall between 5 and 8 seconds.

Furthermore, roundabouts increase the risk of emergency vehicle rollovers because the vehicles cannot maintain control in a roundabout at such high speeds.

Source: Radnor Fire Company. radnorfire.com.

Delay 2—Speed Humps:

Watts speed humps are inappropriate for emergency response routes. A 22-foot speed hump can cause between 0 and 9 seconds of delay, while a 14-foot speed hump can cause 1-9 seconds of delay.

Municipalities across the country have addressed the issue of delays in emergency response times in areas where traffic calming measures are appropriate. See the best practices below for implementing traffic calming measures with minimal emergency response delays.

Traffic Calming Best Practices:

- Draft and adopt traffic calming design guidelines that include on what roadways traffic calming measures are allowed or prohibited.
- Include emergency service providers in the planning process for traffic calming design and implementation.
- Conduct a primary emergency response route study. Work with emergency service providers to identify which routes are primarily used in emergencies.
- Consider traffic calming measures that allow emergency service vehicles to maneuver safely and avoid the reduction of travel time.

OTHER PLANNER'S PORTFOLIOS:

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March 2016

COMPLETE STREETS
April 2016

FUNDING SOURCES
April 2016

Court House and Government Center
201 West Front Street
Media, Pennsylvania 19063

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