

IMPLEMENTING SAFETY MANAGEMENT

Providing a safe environment for all road users (e.g., motorists, pedestrians, bicyclists) is important to communities and is a typical goal of all local governments. Safety management achieves safe roadways by focusing on assuring that the various modes of a transportation system operate safely on an individual basis and together as an interlinked transportation system. An unsafe system results in multiple crashes, the impacts of which are felt by everyone, including medical facilities, police and other public and private institutions, in addition to the physical and emotional sufferings of the victims and their families.

KEEPING IT CONNECTED

Traffic calming is an important element of many other transportation and land use issues. It is especially useful in designing communities for elderly mobility and to improve safety.

Planning and Regulatory Considerations

The U.S. Department of Transportation has recommended that cities with a population greater than 50,000 employ at least one full-time traffic engineer and cities with a population of 25,000 to 50,000 have access to traffic engineering services through consultants or other governmental agencies.

In the instance that a traffic engineer is not employed (full or part-time), or the services of a consultant are not contracted, the Michigan Vehicle Code requires traffic



Roundabout in Rochester Hills.

engineering issues be addressed by the local government's chief of police (Michigan Department of State, Michigan Vehicle Code, 2000-2001, Act 300 of 1949). In some instances local public works personnel might also be asked to fill in on occasion. While these substitutes for a traffic engineer often do well at addressing traffic safety issues, it is not the primary focus of their jobs.

Tools for Implementing Safety Management

Improving highway safety results from an effective safety management process. There are several tools that aid in successfully analyzing and implementing highway safety plans. That process and some specific tools for developing a good safety management process are described below:

- Develop a safety management process.
- Use road safety audits for highway safety improvement.
- Implement a safe communities program to promote a safer transportation system.
- Use the SEMCOG's Traffic Safety Manual and Comprehensive Analysis Safety Tool (CAST) software for analyzing highway safety strategies.
- Initiate traffic calming techniques.

Developing a safety management process

The ultimate goal of highway safety management is to reduce the number and severity of highway-related crashes. Developing a safety management process is the first step toward identifying highway safety problems and implementing effective solutions. An effective safety management process uses a variety of tools that provide the information necessary for making efficacious decisions.

Safety management is built on a solid foundation of stakeholders, who care about safety by working together. It brings together all interested parties intent on improving highway safety. When these diverse safety interests work together, there is an integrated approach to safety planning and programs. This ensures that safety is given adequate consideration in transportation decision making.

An effective safety management process should include, at a minimum, the following elements:

- Communication, coordination, and cooperation among the organizations responsible for the roadway, human,

and vehicle safety elements (both public and private).

- A focal point for coordination of the development, establishment, and implementation of safety management among agencies responsible for these major safety elements.
- Short and long-term highway safety goals to address identified safety problems.
- Collection, analysis, and linkage of highway safety data.
- Identified safety responsibilities of units and positions
- Public information and education activities.
- Identified skills, resources, and training needs to implement highway safety programs.

Use road safety audits for highway safety improvement

Road Safety Audit (RSA) is a program sponsored by the United States Department of Transportation. It is, according to their web site “the formal examination of an existing or future road or traffic project by an independent team of trained specialists. Its main objective is to address the safe operation of a roadway and to ensure a high level of safety for all road users. The RSA team assesses the crash potential and safety performance of a roadway project and prepares a report that identifies potential safety problems. RSA’s can identify deficiencies before they are built into the project and espouse quality improvement by building in safety from the beginning. Project officials or managers can then evaluate, select, and justify appropriate project changes.” Please see their web site for further information about Road Safety Audits.

Source: U.S. Department of Transportation. safety.fhwa.dot.gov/programs/rsa.htm.

Implement a Safe Communities program to promote a safer transportation system

The Safe Communities program is a program designed to “promote and implement a safer national transportation system by combining the best injury prevention practices into the Safe Communities approach to serve as a model throughout the nation.” Please visit the Safe Communities Web page at www.nhtsa.dot.gov for detailed information about the program. Or visit the Michigan Safe Communities Web site at www.michigan.gov

Source: National Highway Traffic Safety Administration.

Use SEMCOG’s Traffic Safety Manual and Comprehensive Analysis Safety Tool (CAST) software for analyzing highway safety strategies

The manual describes a comprehensive approach to traffic safety analysis, from collecting potentially useful information to ranking tentative solutions. Individual chapters can also be consulted and applied independently, such as to check a location’s crash ranking (Chapter 3), alternative crash countermeasures (Chapter 4), or the relative safety benefits and costs of a specific countermeasure (Chapter 5). The CAST software was developed to provide communities in Southeast Michigan a tool, complimenting the manual, that provides users with the most current three years of crash data. Both the manual and software prescribe a step-by-step manner to identify, evaluate, and suggest solutions for high-crash locations.

Specific tools used to implement safety management include tools covered in other sections of this book. They include access management (development along transportation corridors), buffering, screening, landscaping, parking, and lighting standards, and the use of traffic impact analysis (development along transportation corridors).

Initiate traffic calming techniques

Traffic calming techniques, when used correctly, are an integral part of creating a walkable and bikeable community and safety management. Traffic calming is

Figure 34
Using Bulbouts for Traffic Calming



Source: SEMCOG.

Figure 35
Traffic Calming Design Treatments






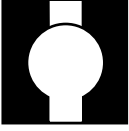
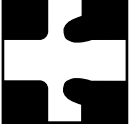
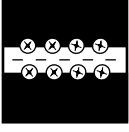
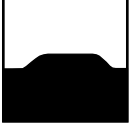
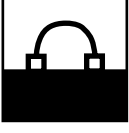
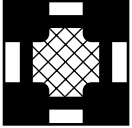

Drawing	Technique	Description
	Traffic	Circular raised islands centered within intersections. Circles can be landscaped or surfaced with special paving. Landscaping can be maintained by the local jurisdiction or by neighborhood volunteers.
	Chicanes	Alternately placed curb extensions into the street that force motorists to drive in a serpentine pattern. Chicanes are offset from each other in mid-block locations and can be used to keep through-trucks versus local delivery off residential streets.
	Curb Bulbouts Chokers/ Neckdowns	Curb extensions placed at mid-block locations or intersections which narrow the street to provide visual distinction to and reduce pedestrian crossing distances. Bulb-outs help to provide a clear visual signal to drivers that a crossing is approaching and makes waiting pedestrians more visible. Neckdowns are often longer than bulb-outs and often line-up with and help to define parallel street parking areas. They narrow the appearance of the street and can be attractive, especially when landscaped.
	Diagonal Diverters	Eliminates through traffic while providing partial access in opposite directions; island can become amenity and provide refuge for pedestrians.
	Forced Turns and Partial Diverters	Truncated diagonal diverters (one end remains open) and other types of partial diverters discourage commuter traffic by forcing turns but provides local access opportunities.
	Cul-de-Sac/ Street Closures	Street is closed and turned into a cul-de-sac; end of street becomes a neighborhood amenity and focal point (landscaped mini park); the ongoing provision of pedestrian and bicycle access is important.
	One Way Entry and Exit	Curb bulbs/extensions are used to close one lane of traffic at intersections; stops through traffic but allows ingress or egress depending on the direction and location of the closure.
	Narrower Streets	Narrower streets limit the expanse of pavement visible to the driver and can be effective in slowing traffic, especially when lined with trees or on-street parking.
	Speed Humps/ Tables	A speed hump is wider and smoother than a speed bump, and effective in slowing cars as they approach pedestrian zones. These are most appropriately used on neighborhood streets.
	Signs and Neighborhood Gateways	Signs such as "residential street", "local access only", or monuments that identify neighborhood districts can be effective, especially when used in conjunction with other techniques, including those listed above and others, such as pavement markings and textured warning strips.

Figure 35
Traffic Calming Design Treatments

Drawing	Technique	Description
	Special Paving	Alternative road surfaces, such as brick, colored concrete or special pavers, can be used at crossings, intersections or along the sides of the street to break up the visual expanse of pavement and define areas of pedestrian travel.
	Speed Watch Programs	Citizens and organizations can utilize a radar device and electronic sign board to measure speeds of passing vehicles in their neighborhoods. Letters of warning can be sent to the registered owners of offending vehicles. The programs promote neighborhood cooperation.

Source: Seattle Engineering Department, *Making Streets that Work*. Seattle, WA. 1996.

achieved by narrowing streets (visually, physically or both), diverting traffic, and creating obstructions. Results can include improved safety for pedestrian, bicyclists, and auto-mobile drivers. It can also reduce noise pollution, crashes, and traffic congestion. In addition, traffic calming also provides environmental benefits by reducing impervious surfaces and providing a location for storm water treatment.

Objections to the use of traffic calming tools often result from lack of familiarity with the effectiveness of traffic calming, but may also revolve around liability, slowing emergency responses, and maintenance. Educating and involving the public about the planning process can relieve many of these concerns. Appropriate application of traffic calming techniques requires careful analysis of all impacts such as unintentionally diverting traffic and safety concerns to an adjacent street. It is also important to consult with legal council to clarify liability issues.

Figure 34 and 35 illustrate different traffic calming design techniques.

CASE EXAMPLE

Local Government Engineering Assistance Study

Community: Grosse Pointe Woods

Contact: Dan Koerber, (313) 343-2400

In order to address some community traffic safety issues, Grosse Pointe Woods enlisted the services of SEMCOG as part of a grant received by the regional planning organization from the Office of Highway Safety Planning (Michigan State Police).

SEMCOG coordinated meetings with the communities public safety officer, city and school officials, and

Wayne County (Division of Roads). The safety issue the committee focused its attention on regarded a fatal pedestrian-car crash that took place at the signalized entrance to the Grosse Pointe North High School (along Vernier Road).

SEMCOG followed its own guidelines documented in the *Traffic Safety Manual* to identify high-crash locations, suggest possible countermeasures to corresponding crash causes, and perform a benefit/cost analysis on the selected solutions to implement the most cost-effective solution.

Having performed the study on the intersection and surrounding area, SEMCOG identified several deficiencies including:

- need for added signs identifying the pedestrian cross walk (for motorists and pedestrians),
- lack of a left-turn bay and signal phasing causing drivers entering the school to take unnecessary chances due to the lack of gaps,
- eight-inch signal heads which decreased the visibility of the signal,
- closely spaced adjacent driveways causing conflicting turns, and
- inadequate egress green time for school during lunch break and at dismissal.

Each of these deficiencies were reviewed by the committee and a list of solutions were developed using the CAST software.

The committee chose to improve the signalized intersection by adding a left-turn bay and separate left turn signal phasing to give motorists turning into the school their own lane of traffic rather than sharing it with the others vehicles proceeding westbound through the intersection. Also, adjustments were made to the timing of the signal which generated a better flow of traffic out of the high school. Finally, pedestrian

crossing signs, freshly painted pavement markings, and a heightened police presence was added so that those traveling through the intersection, or entering and exiting the high school, would be more aware of the location's pedestrian traffic.

Since implementing of these improvements there has been a considerable decrease in the number of incidents (both pedestrian and vehicle). The success of this study prompted the city to pursue other safety studies on their own using the manual with the guidance of SEMCOG.

Traffic SAFE-TE3 Program

Community: Farmington Hills

Contact: Kevin McCarthy, (248) 473-9590

The Traffic SAFE-TE3 Program is a community wide program that involves both citizens and professional staff in developing traffic calming measures. The program provides a systematic way to identify traffic problems, recognize alternative solutions to the problem, and choose the solution to implement. The solutions always begin with the least restrictive. If unsuccessful at resolving the problem more restrictive approaches can be used. Thus far the community has installed many speedhumps and they have the option of utilizing traffic circles.

Additional Resources

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