Wisconsin Traffic Engineering Council
Issue Paper 6 – Setting Speed Limits

Background / Overview
Speed Limits establish a maximum speed appropriate for each roadway segment. With the repeal of the National Maximum Speed Limit of 55 mph in 1995 by the US Congress, the responsibility for setting the speed limits lies with state and local governments. Generally, Speed Limits are legislated by road class and geographic area. However, these limits can be changed by state and most local governments by establishing speed zones for highway sections that do not fit specific road or traffic conditions. Safety and mobility need to be balanced in attempting to set a speed limit. An unreasonably low speed limit can cause inconvenience by drivers and a high speed limit can compromise motorist safety.

Current National Practices
The Manual on Uniform Traffic Control Devices provides the following guidance in establishing speed Limits: “When a speed limit is to be posted, it should be within 5 mph of the 85th-percentile speed of free-flowing traffic. At least once every 5 years, States and local agencies should reevaluate non-statutory speed limits on segments of their roadways that have undergone significant change in roadway characteristics or surrounding land use since the last review.” Other factors that may be considered:

- Road characteristics, shoulder condition, grade, alignment, and sight distance;
- The pace speed;
- Roadside development and environment;
- Parking practices and pedestrian activity; and
- Reported crash experience for at least a 12-month period.

Engineering studies are the most common method used for setting speed limits. Typically a study involves collecting and analyzing data pertaining to such factors as traffic speeds, crashes, roadside conditions and geometry. 85th percentile speed is the most widely used factor for determining the level of speed limit. Other factors most considered include crash history, roadway development and state-mandated maximum speed limit. 85th percentile speed is determined through spot speed studies of free-flowing traffic.

The Federal Highway Administration (FHWA) has developed USLIMITS, an expert system for deciding the speed limit. USLIMITS is intended to assist practitioners in determining credible, safe and consistent speed limits. Features of USLIMITS include:

- Web-based application
- A logical alternative to current subjective processes
- Provides recommended limits and warnings

Current Wisconsin DOT Practices
Statutory authority for setting regulatory speed limits in Wisconsin lies with the State Traffic Engineer. Authority for changing the speed limits to within 5 mph of the measured 85th percentile and no more than 2 mph below the measured average speed, or which are increased to the statutory speed limit is delegated to a designated approval authority in each region. Speed limits not meeting those criteria need to be sent to the respective traffic liaison engineer in WisDOT Central Office.

Approval Process
According to the statutes, an engineering and traffic study must precede the establishment of a speed zone on the state trunk highway system. Study elements include:

- Speed checks taken at appropriate intervals to determine the 85th percentile speed and mean speed of the speed distribution at each of the monitored locations.
- A speed zone log, documenting the essential topographic and geometric features of the potential zone, or an aerial photo strip showing good detail.
- Crash history if it appears pertinent.
- A map depicting limits of both existing and proposed speed zoning.
- Documentation of any concurrences or protests by local units of government, particularly where existing speeds are to be altered, and discussion of the reason for a recommended change.

If the above mentioned criteria are satisfied, the region approves the petition, otherwise sends it to Central Office with a recommendation. Submittals to Central Office are reviewed by the respective regional traffic liaison engineer at the Central Office. Upon approval, regions are notified and records are updated.

Technical Issues

- Road Geometry
  - Grade
  - Curves
  - Sight distance
- Safety
  - Crash Frequency
  - Crash Severity
- Traffic Operations
  - Travel Time
  - Capacity
- Driver Population
- Land Use
- Parking and Pedestrians

Additional Resources

- Design Speed, Operating Speed and Posted Speed Relationships, ITE Journal 67(2), 1997