

# Speed Limits

## What are speed limits?

There are two types of speed limits in Minnesota – statutory speed limits and regulatory speed limits. Statutory speed limits are 30 miles per hour (mph) on city streets and township roads in urban areas and 55 mph on rural, two-lane township, county, and state highways. When road authorities determine that the statutory limit should be reviewed, the law (Minnesota Statute 169.14) requires that the Commissioner of Transportation conduct a traffic engineering investigation to determine a reasonable and safe regulating speed zone. Regulatory speed zones are those other speed limits such as 35, 40, 45, and 50 mph.

## How are regulatory speed limits determined?

The Minnesota Department of Transportation (MnDOT) determines regulatory speed zones by using two performance measures:

- The 85<sup>th</sup> Percentile Speed (speed at which 85 percent of drivers are traveling at or below).
- The Ten Mile Per Hour Pace (Pace) (10-mph range that contains the highest fraction of drivers in the sample).

Using these performance measures is a best practice and is consistent with conclusions from transportation research and guidance in *Minnesota's* and *FHWA's Manual on Uniform Traffic Control Devices*<sup>(1,2)</sup>. These performance measures reflect two basic principles of the speed laws and the speed zoning process:

- Most drivers will select reasonable and safe speed based on their perception of the roadway environment.
- There are fewer potential conflicts and an increased level of safety for vehicles and pedestrians when drivers travel about the same speed.

## Why are speed limits needed?

Providing drivers with guidance about reasonable operating speed helps create safer roadways. In Minnesota, almost 20 percent of severe crashes are related to excessive speed. National research<sup>(3,4)</sup> states that setting and posting speed limits with the 85th Percentile Speed and Pace enhances driver expectation, compliance, and safety on roadways.

## How effective are speed limits?

National research<sup>(3,4)</sup> shows that drivers mostly select reasonable and safe speeds through their perception of the roadway environment, not by speed limit signs. The most comprehensive national research<sup>(3)</sup> examined 100 sites in 22 states where speed limits were lowered or raised by 5 to 20 mph. The report concluded that changing the speed limit did not necessarily result in changed driver behavior<sup>(3)</sup>.



Changing posted speed limits does not appear to change driver behavior.

MnDOT conducted similar research and participated with local authorities to investigate the results of an engineering and traffic investigation that recommended the speed limit be raised. MnDOT investigated by:

- Temporarily changing the speed limit.
- Allowing local authorities to apply increased levels of enforcement.
- Regularly documenting resulting speed profiles.

In each case, the speed limit was changed by between 5 and 15 mph and the measured 85th percentile speed changed between 0 and 3 mph (Table 1). The key conclusion from these experiments is consistent with the national research that changing posted speed limits does not appear to change driver behavior.

## When should speed limits vary?

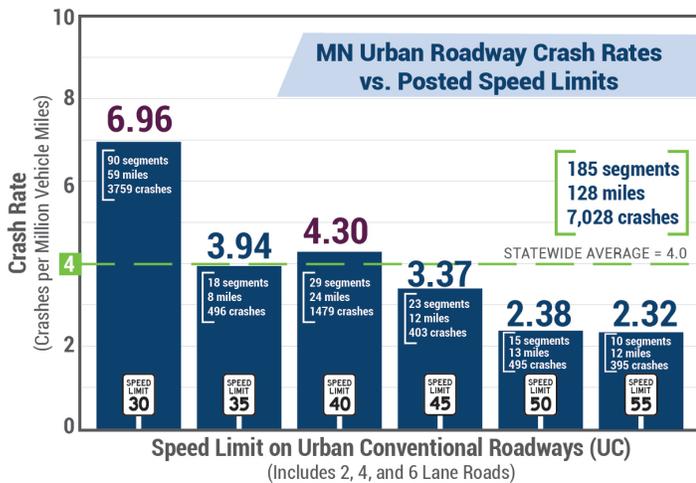
Primary candidate locations for establishing regulatory speed limits are:

- **Roads that transition from rural to urban.** During these transitions drivers should slow their speed. However, the differences in the road environment may be too subtle to prompt a driver-initiated speed change. In these instances, dynamic speed feedback signs are effective.
- **Urban arterials and collectors** are roadways that are typically wider than other urban streets, on-street parking is often prohibited, and adjacent land development is set back from the curb. These conditions support driver perceptions that higher speeds are reasonable.

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Most requests from local authorities to lower speed limits are based on the idea that slower speeds are implicitly associated with greater safety, which is not supported by the research and evidence<sup>(4)</sup>. In urban areas, roads with 30 mph speed limits had the highest crash involvement rate (Figure 1) and the rate diminishes with increasing speed limits. Also, the density of access had a greater effect on crash involvement than the posted speed limit. In other words, safety on urban roadways is more a function of proper access management of roadways than the posted speed limit<sup>(4)</sup>.

**Figure 1: Crash Rate vs. Posted Speed Limit on Urban Roadways<sup>(5)</sup>**



## What are additional considerations?

Efforts to influence drivers' choice of reasonable and safe driving speed is a shared responsibility. Road authorities should consider:

- The best way to provide drivers with a consistent message and a road environment matching the posted speed limit.
- The best way to reinforce a safe operating speed through the selection of design features that reinforce the desired operating speed.
- Review of additional research and resources from Minnesota's Local Road Research Board like – *Addressing Citizen Requests for Traffic Safety Concerns*<sup>(6)</sup>.
- Monitor speeds over time to actively manage speed zones. **END**

**Table 1: Results of MnDOT Speed Zoning Studies<sup>(5)</sup>**

Speed Zoning Studies					
Study Location	Before	After	Sign Change +/- mph	85% Before After	Change mph
TH 65	SPEED LIMIT 40	SPEED LIMIT 30	-10	34 34	0
TH 65	SPEED LIMIT 50	SPEED LIMIT 40	-10	44 45	+1
Anoka CSAH 1	SPEED LIMIT 45	SPEED LIMIT 40	-5	48 50	+2
Anoka CSAH 24	SPEED LIMIT 30	SPEED LIMIT 45	+15	49 50	+1
Anoka CSAH 51	SPEED LIMIT 40	SPEED LIMIT 45	+5	45 46	+1
Hennepin CSAH 4	SPEED LIMIT 50	SPEED LIMIT 40	-10	52 51	-1
Noble Ave	SPEED LIMIT 30	SPEED LIMIT 35	+5	37 40	+3
62 <sup>nd</sup> Ave N	SPEED LIMIT 35	SPEED LIMIT 30	-5	37 37	0
Miss. St	SPEED LIMIT 30	SPEED LIMIT 35	+5	39 40	+1

## References

- (1) Minnesota Department of Transportation (MnDOT). 2018. *Minnesota Manual on Uniform Traffic Control Devices*.
- (2) Federal Highway Administration (FHWA). 2012. *Manual on Uniform Traffic Control Devices*. [https://mutcd.fhwa.dot.gov/kno\\_2009r1r2.htm](https://mutcd.fhwa.dot.gov/kno_2009r1r2.htm). Updated May 2012. Accessed January 8, 2019.
- (3) Federal Highway Administration (FHWA). 1997. *Effects of Raising and Lowering Speed Limits on Selected Roadway Sections*. Publication No. FHWA-RD-97-084.
- (4) Minnesota Department of Transportation (MnDOT). 1999. *Statistical Relationship Between Vehicular Crashes and Highway Access*. MN/RC-1998- 27. March. <https://trid.trb.org/view/496207>. Accessed October 17, 2018.
- (5) Minnesota Department of Transportation (MnDOT). 2015. *DSPU – Summary Document: Speed Limits*. <https://www.dot.state.mn.us/trafficeng/safety/docs/speedlimitssummary.pdf>. Accessed December 13, 2018.
- (6) Minnesota Department of Transportation (MnDOT). 2017. *Addressing Citizen Requests for Traffic Safety Concerns*. LRRB Report 2017RIC05. <http://www.dot.state.mn.us/research/reports/2017/2017RIC05.pdf>. Accessed December 13, 2018.