Defining MnDOT Policy and Practice

Speed Limits

Brad Estochen
MnDOT Office of Traffic, Safety, and Technology
Bradley.Estochen@state.mn.us
651-234-7011

DEPARTMENT OF TRANSPORTATION

Why?

Would you drive 30 MPH?

Why?

Would you drive 70 MPH?

Why?

“One of the most important responsibilities of traffic engineers is the establishment of proper and realistic speed limits. Our profession has long recognized that most citizens will behave in a reasonable manner as they go about their daily activities.

Thus, traffic laws that are based upon behavior of reasonable motorists are found to be successful. Laws that arbitrarily restrict the majority of motorists encourage wholesale violations, lack of public support, and usually fail to bring about desirable changes in driving behavior. This is especially true of speed limits.”

Mathew C. Seilski
ITE, President
AAA, Director of Traffic Engineering
National Highway Safety Bureau, Director of Driving Environment
1950

What is true…

1. Driving behavior is an extension of our social attitude, and the majority of drivers respond in a safe and reasonable manner.

2. The careful and competent actions of a reasonable person should be considered legal.

3. Laws are established for the protection of the public and the regulation of unreasonable behavior of individuals.

4. Laws cannot be effectively enforced without the consent and voluntary compliance of the public majority.

What is not so true…

1. Speed limit signs will slow the speed of traffic.

2. Speed limit signs will decrease accidents and increase safety.

3. Raising a posted speed limit will cause an increase in the speed of traffic.

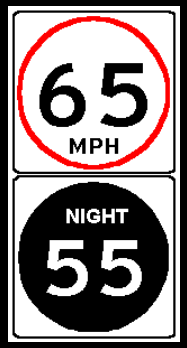
4. Any posted speed limit must be safer than an unposted speed limit, regardless of the prevailing traffic and roadway conditions.

Historical Perspective

Minnesota Prior to 1974

- Basic Speed Law:
  Illegal to exceed speeds “reasonable and prudent under the conditions…”

- Prima facie limits:
  30 MPH in urban districts*
  65 MPH in other areas during daytime
  55 MPH in other areas during nighttime
  10 MPH in alleys



- Violation not automatically illegal, but presumed not to be reasonable or prudent

- MnDOT had authority to designate lower or higher speed limits upon completion of an engineering and traffic study

Historical Perspective

1974 National 55 Act

- Attempt to increase nationwide fuel efficiency by adopting maximum 55 MPH speed limits
- Failure to comply resulted in forfeiture of federal highway aid
- Speeds in excess of 55 MPH automatically unlawful – no more prima facie
- National 55 Act relaxed in 1987 allowing for 65 MPH on rural interstates and addition of Dimler Amendment
- Repealed with 1995 National Highway System Designation Act

Minnesota Law Today 169.14

- Return to prima facie speed limits (statutory speeds)
- 100+ Felony
- 20 Over Double fines
- Dimler Amendment
- Rural Residential
- Ted Foss “Move Over”
- Slower Traffic Move Right (169.15)
- School Zone Speed Limits
- Work Zone Speed Limits
- Residential Roadways
- Park Roads (160.82)
- Rustic Roads (160.83)
- Bridge Speed Limits (169.16)
- Bicycle Lanes (160.263)
- Buses on Shoulders (169.306)

MnDOT's Role

Minnesota Statutes dictates the Commissioner of Transportation's involvement in Speed Zoning

- Establishment of Trunk Highway zones by Commissioner (MS 169.14 Subd. 4)
  "upon the basis of an engineering and traffic investigation"
- Zoning within local area (MS 169.14 Subd. 5)
  "upon the basis of an engineering and traffic investigation"
- Speed zoning in school zone (MS 169.14 Subd. 5a)
  "upon the basis of an engineering and traffic investigation as prescribed by the Commissioner of Transportation"
- Other special scenarios (bicycle lanes, work zones, parks, bridges, etc.)

MnDOT's Goal

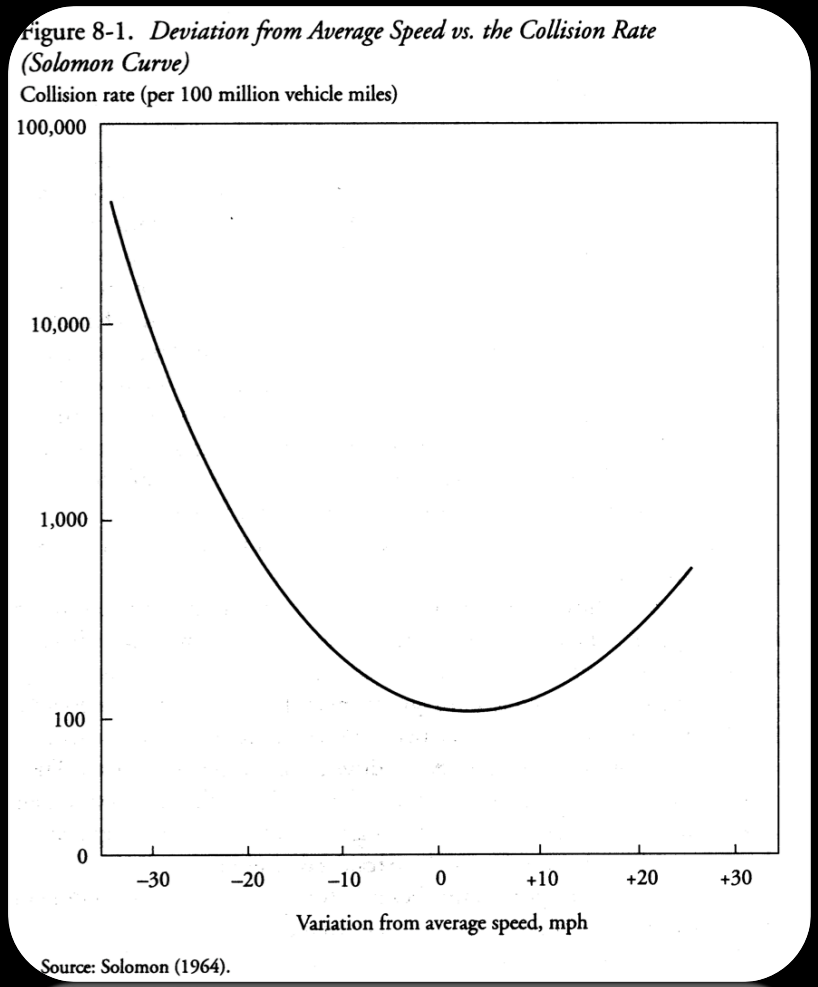
- What is the goal of Speed Zoning?
  "Correct and realistic speed zoning will serve to protect the public and regulate the unreasonable behavior of an individual." MnDOT TEM, Ch. 14

- How is this goal met?
  "upon the basis of an engineering and traffic investigation"

What is Reasonable and "Safe"?

Solomon Curve

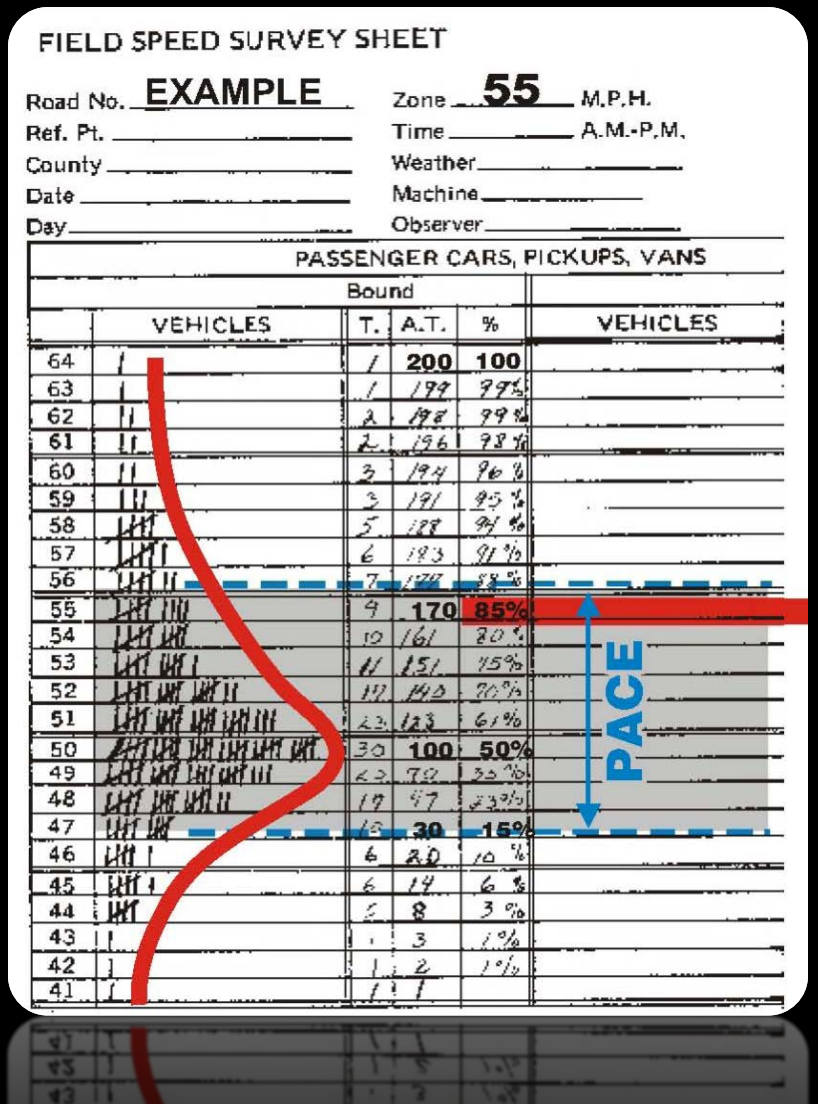
- ~5 MPH over average speed
- Lowest risk of crash
- 10 MPH "Pace"
- Majority of public compliance
- Outliers (fast and slow) at most risk
- Speed vs. speed Variance
- 85th percentile



What is Reasonable and "Safe"?

The 85th Percentile

- Internationally accepted method
- Speed meets drivers' experience and expectation
- Voluntary public compliance of the majority of reasonable drivers; "go with the flow"
- Lower crash involvement due to fewer possible outliers and variances
- Enforcement of unreasonable drivers (true outliers)



What is Reasonable and "Safe"?

Effects of Posted Limit

- Compliance only when expectation is met
- Lower limits do not reduce speeds
- Higher limits do not increase speeds
- Read the road, not the sign

Speed Zoning Studies

Study Location	Before	After	Sign Change +/- mph	85% Before After	Change mph
T.H.65	SPEED LIMIT 40	SPEED LIMIT 30	-10	34 34	0
T.H.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 CR 51	SPEED LIMIT 40	SPEED LIMIT 45	+5	45 46	+1
Henn CSAH 4	SPEED LIMIT 50	SPEED LIMIT 40	-10	52 51	-1
Nobles Ave	SPEED LIMIT 30	SPEED LIMIT 35	+5	37 40	+3
62nd Ave N	SPEED LIMIT 35	SPEED LIMIT 30	-5	37 37	0
Miss. St	SPEED LIMIT 30	SPEED LIMIT 35	+5	39 40	+1

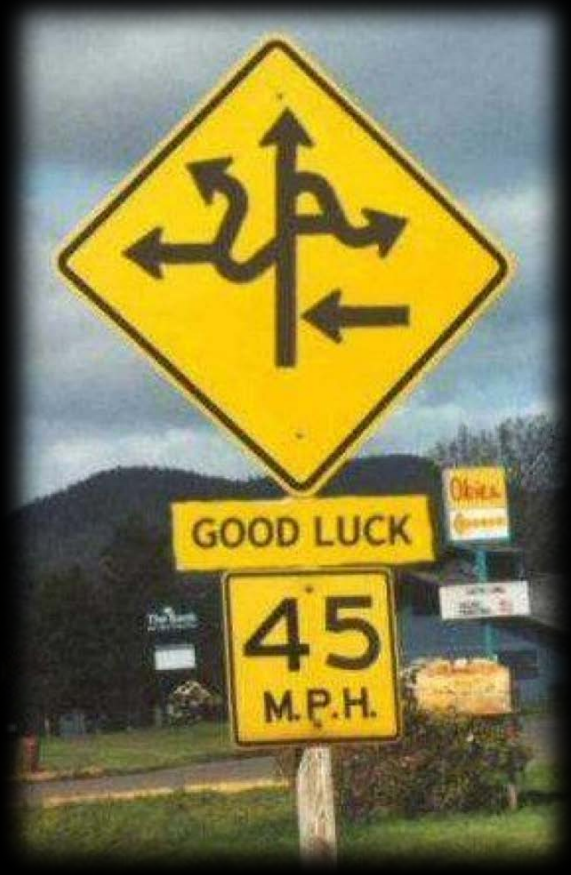
Other Important Factors

Tell me about yourself…

- Type (bituminous, concrete, gravel)
- Condition (new, old, broken)
- Features (width, lanes, shoulders, curves)
- Crossroads, building locations, crosswalks, signals and signs, etc.
- Traffic Volume (ADT)
- Crash summary

Exceptions to the 85th

- High numbers of speed-related crashes (rear ends, illegal/unsafe speed) that show an upward trend, a 5 MPH reduction is warranted – IF enforcement is committed
- Very low volume
  Test drive at 5 MPH increments;
  two runs by two drivers
- Work Zone Speed Limits
  Guide to Establishing Work Zone Speed Limits
- School Zone Speed Limits
  Guide to Establishing School Zone Speed Limits
- Continuous Curvilinear sections
  Ball Bank



Gravel Roadways

- Changes in grade (washouts), reconstruction, or paving will automatically void any authorization issued

- Recommended
  A section of gravel between two paved sections (shortcut)
  Urban district combined with heavy seasonal traffic (very rare)

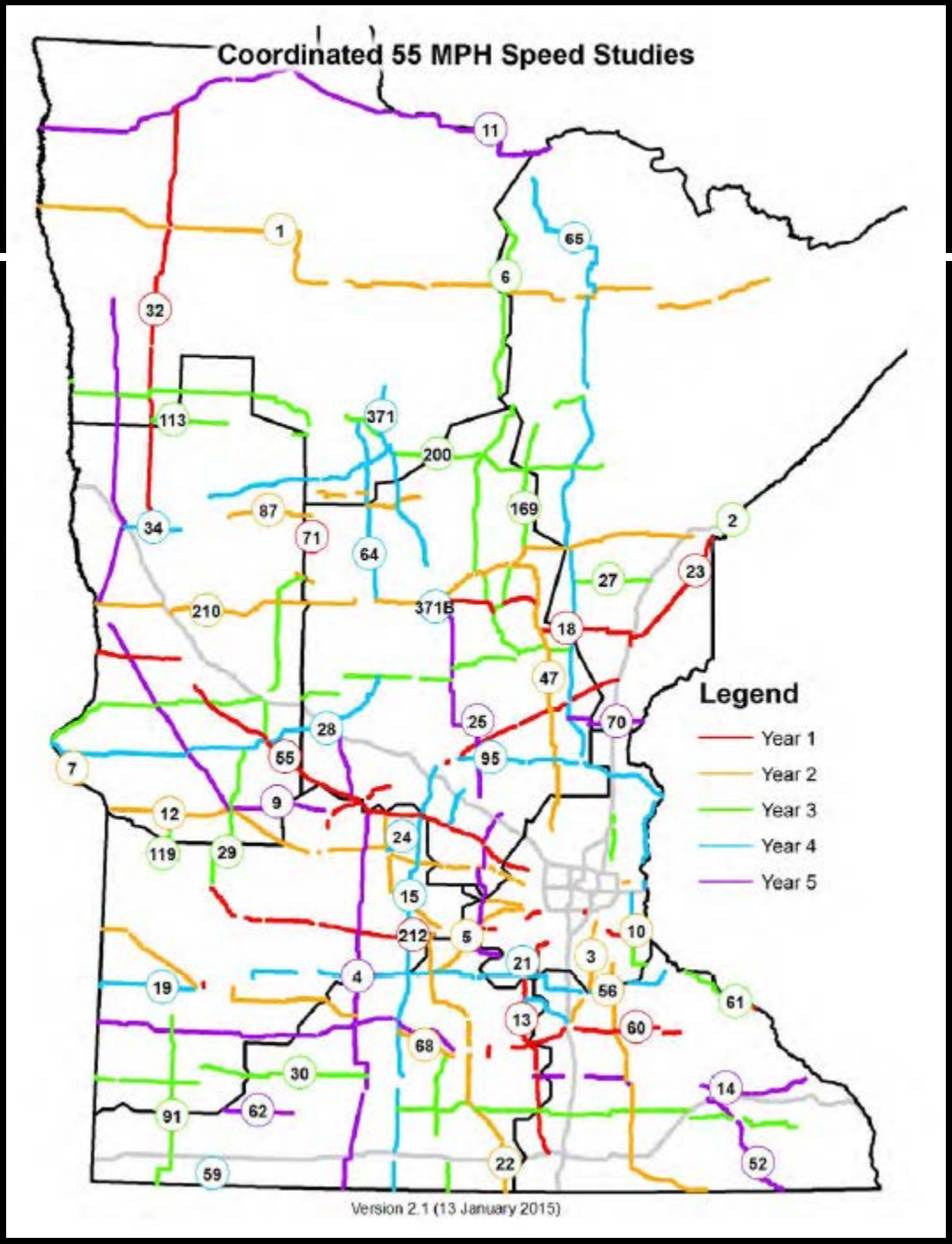
- Not Recommended
  Dead end roads
  No connection to arterials
  Non-collectors
  Isolated abusers
  Dust problems

What about these 60 MPH Limits?

- Public interested in going faster
- Proposed to change 55 to 60 in statue
- Thousands of miles impacted
- MnDOT agreed to study
  - Highways that would support higher speeds
  - Evaluate the impact the increase had

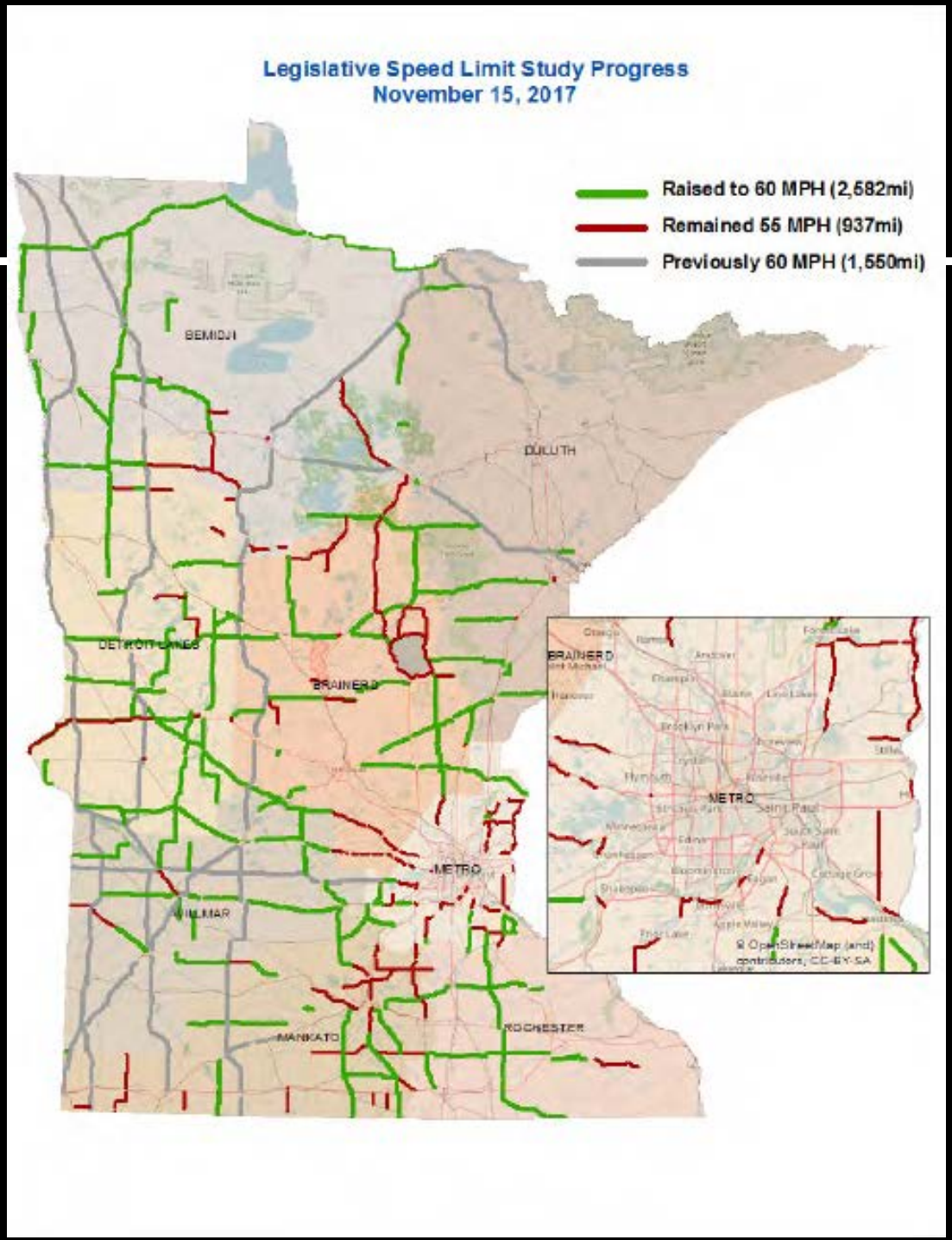
High Enforcement of Aggressive Traffic

- 2006 Approximately 850 miles raised to 60
- 2012 Approximately 1100 miles raised to 60
- 2014 Investigate remaining 2 lane roads
- 2018 ?????


Coordinated 55 MPH Speed Studies
11
1
65
6
32
113
371
200
87
169
2
34
71
64
27
23
210
371B
18
47
Legend
Year 1
Year 2
Year 3
Year 4
Year 5
28
25
70
7
55
95
9
12
24
119
29
15
212
5
10
21
3
4
19
56
61
13
60
68
30
14
91
62
22
52
59
Version 2.1 (13 January 2015)

Changes

- 75% raised



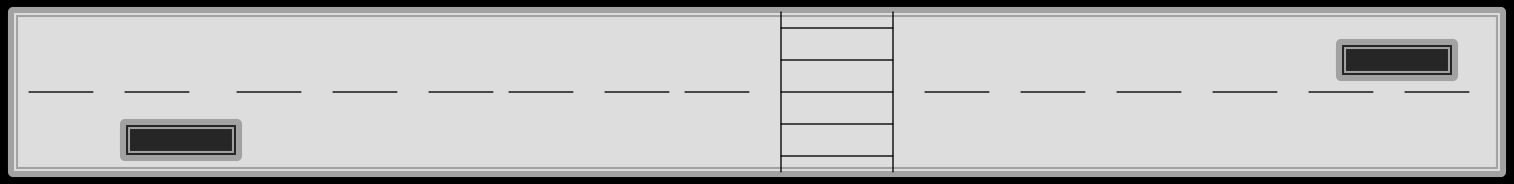
Urban Speeds

- Urban District Speed Limit 30 mph
- Fits “most” situations
- Speed Limits can be lower through a traffic study

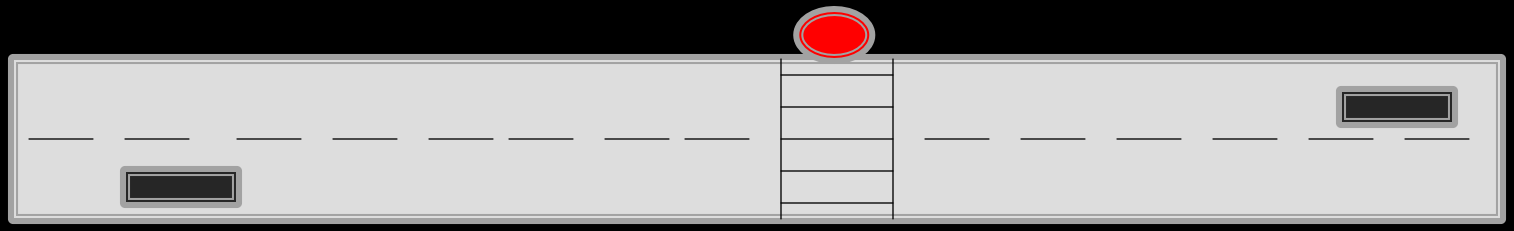
Vulnerable Users & Speed

- Judging traffic gaps is difficult.
- Speed variance complicates the issue

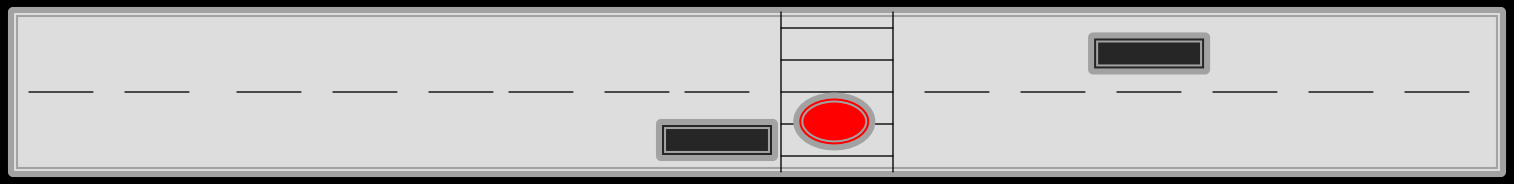
- Pedestrians walk at 3.5 ft/sec
- 20 mph = 29.3 ft/sec
- 40 mph = 58.6 ft/sec
- City block is about 320 ft
- 10 seconds to cross a typical road



- Speed variance can be deadly
- 5 seconds gets pedestrian half way



- 20 MPH car gets to intersection in 10 seconds
- 40 MPH car gets to intersection in 5+ seconds
- Pedestrian is just crossing centerline at 5 seconds



How can we slow people down?

- Change roadway environment
  - Narrow lanes
  - Narrow shoulders
  - Curb extensions

- Promote enforcement of speed limits
- Drive the speed limit yourself

What's the Max?

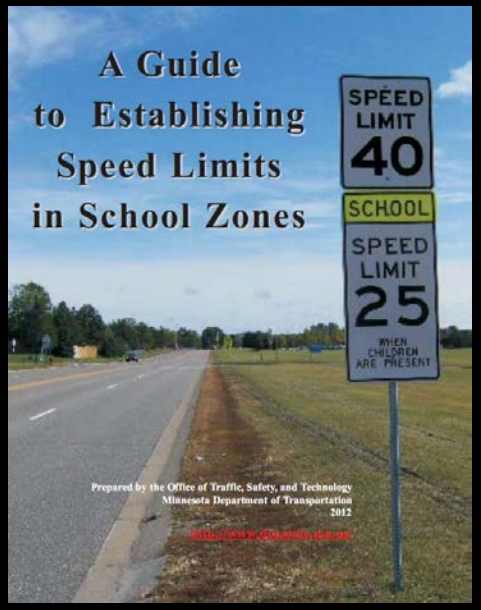
- Texas 85 mph
- 80 MPH limits are increasing
  - MT, SD, WY, ID, NV, UT
- Speed variance needs to be considered
  - 85 mph car
  - 65 mph truck
  - Recipe for success?

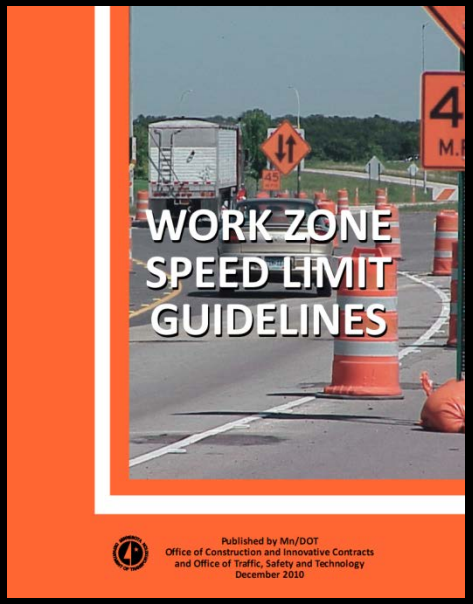
Approaching Speed is Tough

- Economic Vitality
- Speed vs Safety
- Wholesale changes are not advised
  - MnDOT approach to raising speed limits
  - Study the situation and make the best decision
- Speed isn't an issue until you get into a crash

Resources

www.dot.state.mn.us/speed





Q&A