



Speed Limits in Work Zones

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Statewide WZ Safety Committee
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We all have a stake in **A**  **B**



Speed Limits in Work Zones

- ▶ How effective are speed limits in work zones?
- ▶ What are the speed limits that can be used in a Work Zone?
- ▶ What guidance is available?
- ▶ What are the procedures?



Speed Limit Sign (only)

Table 1. Potential Voluntary Speed Reductions for Various Work Zone Conditions.

Work Zone Condition	Potential Voluntary Speed Reduction*
Work Zone Reduced Speed Limit Sign	0 to 3 mph
Barrier Near Inside Travel Lane	0 to 3 mph
Lane Encroachment	1 to 5 mph
Lane Closure	1 to 7 mph
Construction Vehicle Access/Egress Location	5 to 6 mph
Temporary Crossover	4 to 9 mph
Two-Lane, Two-Way Barrier Separated Traffic	7 to 9 mph

* The speed reductions listed are based on a study conducted in Texas. Operating speeds upstream of the work zones ranged from 60 mph to 77 mph.

Drivers disregard static signs that don't reflect current driving speeds

Source: *Guidelines on Managing Speeds in WZ* – Roadway Safety Consortium, published by FHWA, available on www.workzonesafety.org



Speed Limit Sign Effectiveness – with other enhancements

Table 2. Potential Speed Reductions for Various Speed Management Techniques.

Speed Management Technique	Potential Speed Reduction*
CB Radio Information Systems	0 to 2 mph
Narrow Lanes With Channelizing Devices	0 to 5 mph
Transverse Pavement Markings	0 to 5 mph
<u>Portable Changeable Message Sign With Radar</u>	<u>0 to 6 mph</u>
Drone Radar	2 to 3 mph
Transverse Rumble Strips	2 to 5 mph
<u>Speed Display Trailers</u>	<u>2 to 10 mph</u>

* The speed reductions listed are based on a number of studies, and the results vary considerably.

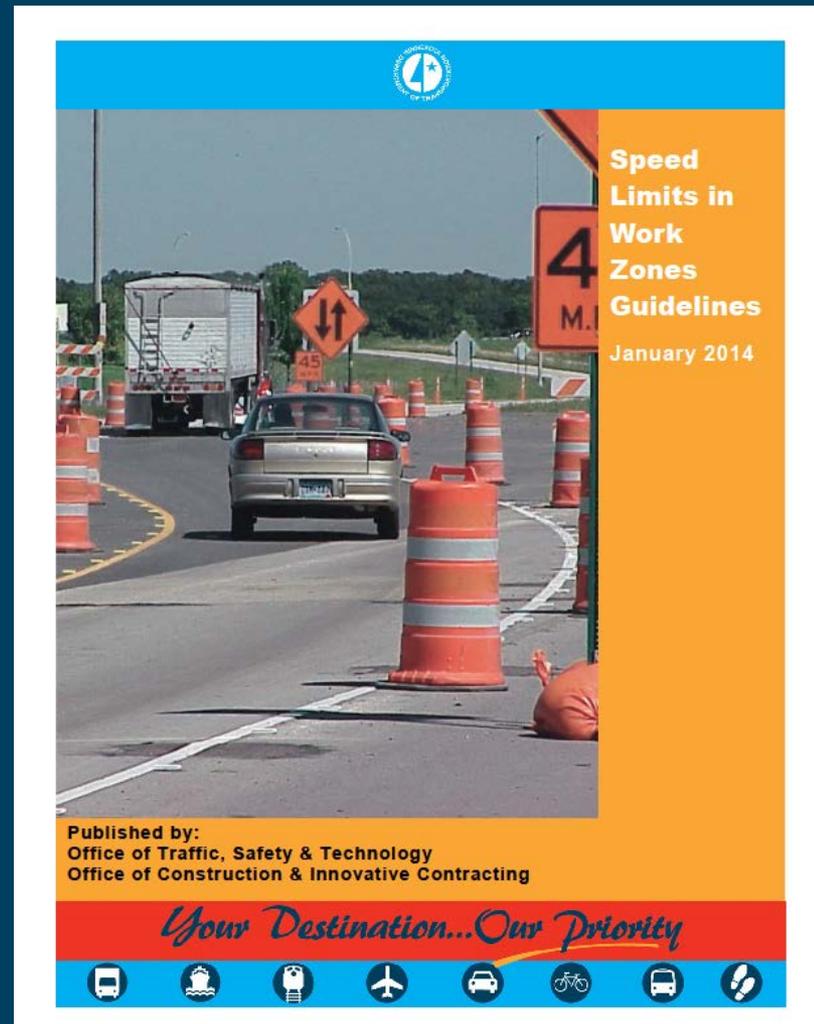


15 mph reduction in some situations
5–10 mph reduction more common



SL in WZ Guideline

- Updated names of the various speed limit types
- Fixed typos and other minor errors
- Modified approval process



Available at:

<http://www.dot.state.mn.us/speed/pdf/WZSpeedLimitGuideline.pdf>

Or websearch – mndot speed limit work zone



Speed Limit Types (new names)

Advisory Speed Limit OK – no change

Work Zone Speed Limit

Temporary Construction Speed Limit



Advisory Speed Limit

▶ Application

- For driver safety – let driver know a safe speed to travel to negotiate a potential hazard
 - Bumps, low shoulders, bypass indicating the curve, narrow lanes, lane shift, poor road surface, etc
- For worker safety at spot locations – let driver know that there are workers ahead



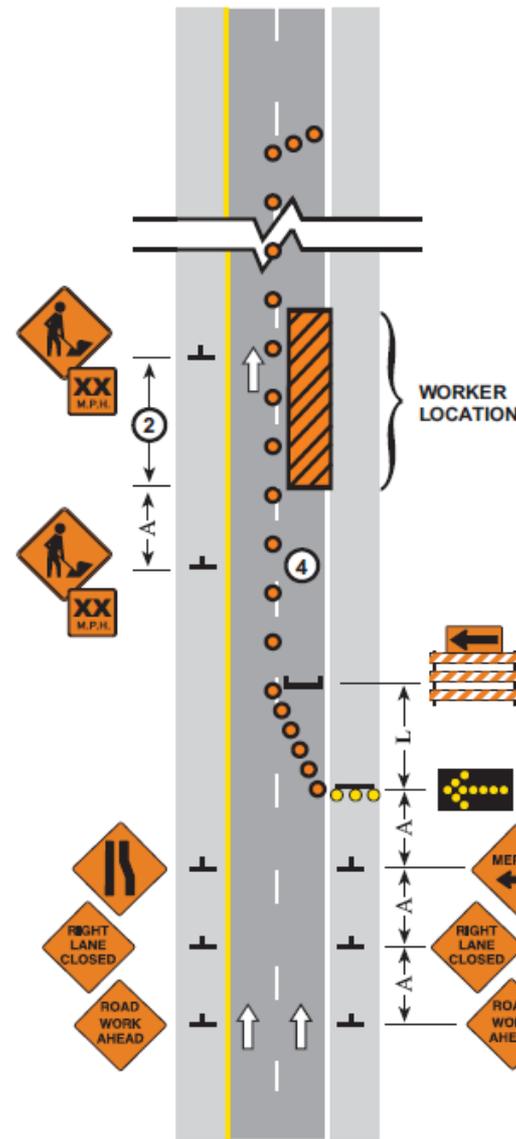
• Authority

- Warning sign needed
- Established by the District per the [MN MUTCD Part 6H-2](#)



Advisory Speed Limit Layout

- Consult with Traffic
- Need to be with warning sign
- Can use roll-up signs
- Effective for small work areas (especially if workers are seen)
- Use for spot locations within longer closure



Posted Speed Limit Prior to Work Starting mph	Advance Warning Sign Spacing - A - feet
0 - 30	250
35 - 40	325
45 - 50	600
55	750
60 - 65	1000
70 - 75	1200

Notes:

1. Use the appropriate layout for advance signing and spacing.
2. In long work zones, this sign assembly should be repeated at 1 mile intervals.
3. The flashing arrow panel shall be used when the posted speed limit is 45 mph or greater.
4. An OPTIONAL Dynamic Speed Display may be used. See Layout 4 for spacing details and sign specifications.

Minimum Sign Sizes For Advisory Speed Limit Signing

Sign	Posted Speed Limit Prior to Work Starting	
	0 - 40 mph	45 - 75 mph
WORKER AHEAD (W21-1)	36" x 36"	48" x 48"
ADVISORY SPEED PLAQUE (W13-1P)	18" x 18"	24" x 24"

● - Retroreflective channelizing device.



Workers Present Speed Limit

▶ Authority

- Regulatory speed limit allowed by [MN Statute 169.14 Subd 5d\(a\)](#), established by District Traffic Engineer or designee
- **Workers have to be present**

▶ What can the speed limit be?

- Minimum – 20 mph
- Not more than 15 mph reduction, except that it must not exceed 40 mph
- Except:
 - Divided highways must not exceed 55 mph
 - 2L2W highways with existing 60 mph, may establish a workers present speed limit at 40 mph



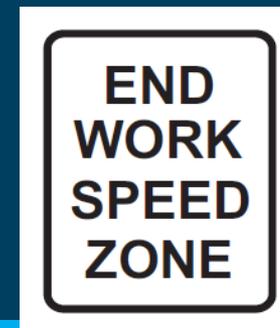
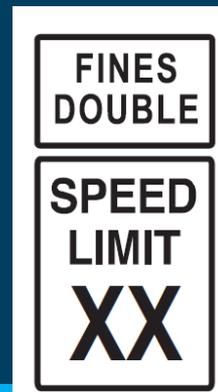
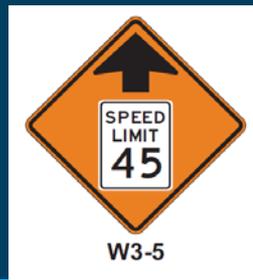
Workers Present Speed Limit

▶ Application

- For worker safety, established in short-term projects during continuous worker activity when workers are present and are adjacent to moving traffic.

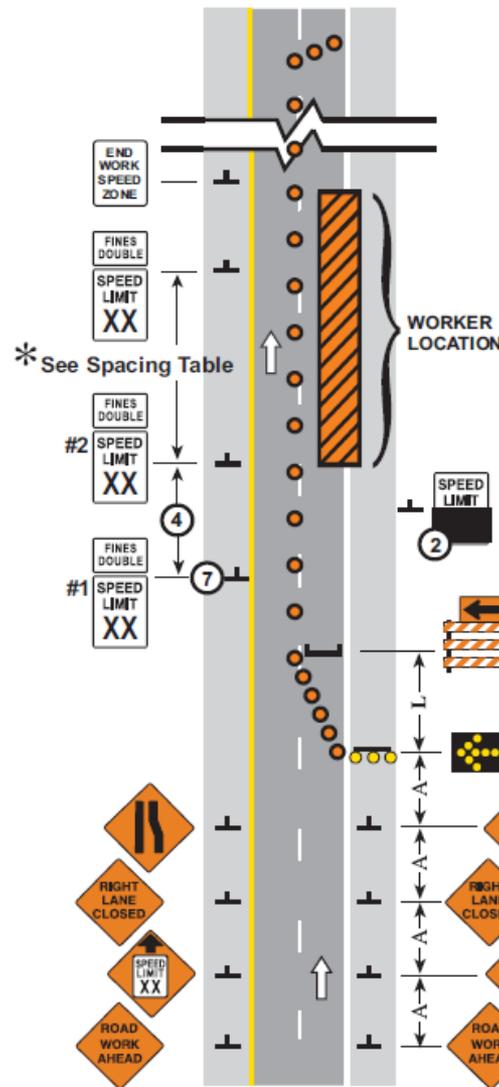
▶ Examples:

- Pavement repair, loop detector installation, M&O, concrete joint repair & crack sealing.



Workers Present Speed Limit

- DTE approves
- 15 mph reduction requires “reduced speed ahead” sign
- “End Work Speed Zone” sign required
- Enforceable only if done properly
- See notes



NOTES:

1. Use the appropriate layout for advance signing and spacing.
2. All in-place Speed Limit signs shall be removed or covered when the reduced work zone speed limit is implemented.
3. Work zone speed limit signs should be removed when workers are not present.
4. Speed Sign #1 should be located at least 300 ft in advance of Speed Sign #2. Speed Sign #2 should be located directly across from the first active work area (where the workers are present). As workers proceed downstream through the work area, Speed Sign #1 shall be no more than 2500 ft from the active work area (see note #7).
5. The “REDUCED SPEED AHEAD” sign shall be used when there is a speed reduction of 15 mph or greater between the normal speed limit and the work zone speed limit.
6. The flashing arrow panel shall be used when the posted speed limit is 45 mph or greater
7. When an **OPTIONAL** Dynamic Speed Display sign with a black and white plaque is used to supplement Speed Sign #1, see Layout #4 for distances.

* Typical Spacing For Work Zone Speed Limit Signs

Work Zone Speed Limit mph	Confirming Speed Limit Sign Spacing feet
20 - 35	1300
40 - 55	2500

Minimum Sign Sizes For Work Zone Speed Limit Signing

Sign	Posted Speed Limit Prior to Work Starting	
	0 - 40 mph	45 - 75 mph
END WORK SPEED ZONE (R2-6c)	24" x 30"	24" x 30"
FINES DOUBLE (R2-6aP)	24" x 18"	36" x 24"
REDUCED SPEED AHEAD (W3-5)	36" x 36"	48" x 48"
SPEED LIMIT (R2-1)	24" x 30"	36" x 48"

● - Retroreflective channelizing device.



SPEED LIMITS IN WORK ZONES
GUIDELINES
JANUARY 2014

WORKERS PRESENT SPEED LIMIT
MULTI-LANE ROAD

LAYOUT 2



Workers Present Speed Limit

Documentation critical:

- Enforcement
- Tort liability

WORKERS PRESENT SPEED LIMIT DOCUMENTATION FORM

Road Name	Control Section
Road Authority	
Existing Speed Limit	Posted Workers Present Speed Limit

Whereas it is necessary to perform maintenance/construction roadwork in a safe and efficient manner, therefore, the following changes in maximum speed limits shall be made to the described roadway sections. Changes authorized herein are in accordance with Minnesota Highway Traffic Regulation Act, Minnesota Statutes Chapter 169.14, Subd. 5d.

Location

FROM _____ TO _____

Signature _____ Time/Date Installed _____

Signature _____ Time/Date Installed _____

Location

FROM _____ TO _____

Signature _____ Time/Date Installed _____

Signature _____ Time/Date Installed _____

Location

FROM _____ TO _____

Signature _____ Time/Date Installed _____

Signature _____ Time/Date Installed _____

Location

FROM _____ TO _____

Signature _____ Time/Date Installed _____

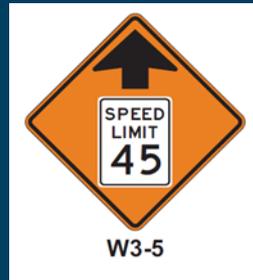
Signature _____ Time/Date Installed _____

Use fixed physical features such as intersections and bridges or the distance from these features to describe from/to locations. Reference Points (mileposts) may be used if accurately identified. DO NOT USE signs, poles, barricades, or temporary devices.



Electronic Workers Only Speed Limit

- ▶ Workers Only Speed Limit
 - Deployment issues with static signs
- ▶ MN MUTCD – 15 mph or greater speed reduction, a W3-5 sign shall be installed (federal language)
- ▶ TTC plan
- ▶ Electronic documentation



24/7 Construction Speed Limit

▶ Authority

- Regulatory speed limit allowed by [MN Statute 169.14 Subd 4](#), same statute as permanent regulatory speed limits
- Established by Commissioner as recommended by District Traffic Engineer (requires “engineering and traffic investigation”)

▶ Engineering and traffic investigation

- Traffic Control Plan, idea of staging, location of geometric issues, narrative with reasons why.

▶ Speed limit should be monitored and verified that it is appropriate for activities

- Investigation is done prior to the actual set-up



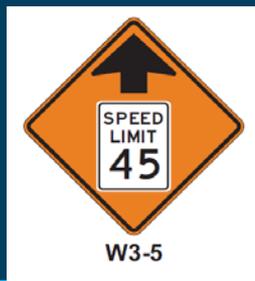
24/7 Construction Speed Limit

▶ Application

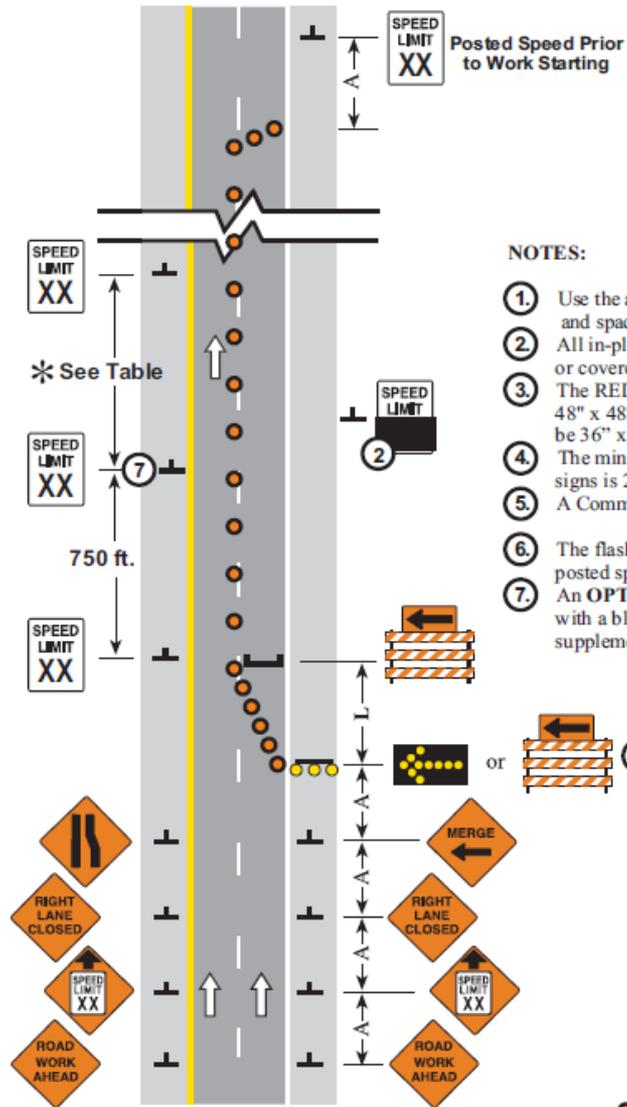
- Regulatory speed limit intended for **24 hour** posting where motorists must reduce speeds **to safely navigate** the work zone. Primarily for driver safety.
- Typical 10 mph reduction – research shows that compliance to 10 mph reduction much more likely than greater speed limit reductions

▶ Examples

- Bypasses, shoulder drop-offs, narrow lanes, grade separations, and pavement repair.



24/7 Construction Speed Limit



Posted Speed Limit Prior to Work Starting mph	Advance Warning Sign Spacing - A - feet
0 - 30	250
35 - 40	325
45 - 50	600
55	750
60 - 65	1000
70 - 75	1200

NOTES:

1. Use the appropriate layout for the advance signing and spacing.
2. All in-place Speed Limit signs shall be removed or covered.
3. The REDUCED SPEED AHEAD shall be 48" x 48" and the first SPEED LIMIT sign shall be 36" x 48".
4. The minimum size of all regulatory speed limit signs is 24" x 30".
5. A Commissioners Authorization is required.
6. The flashing arrow panel shall be used when the posted speed limit is 45 mph or greater.
7. An OPTIONAL Dynamic Speed Display Sign with a black and white plaque may be used to supplement any of the confirming speed limit signs.

*** Typical Spacing For Temporary Speed Limit Signs**

Temporary Speed Limit mph	Confirming Speed Limit Sign Spacing mile
20 - 25	1/4
30 - 35	1/2
40 - 45	3/4
50 - 75	1

● - Retroreflective channelizing device.



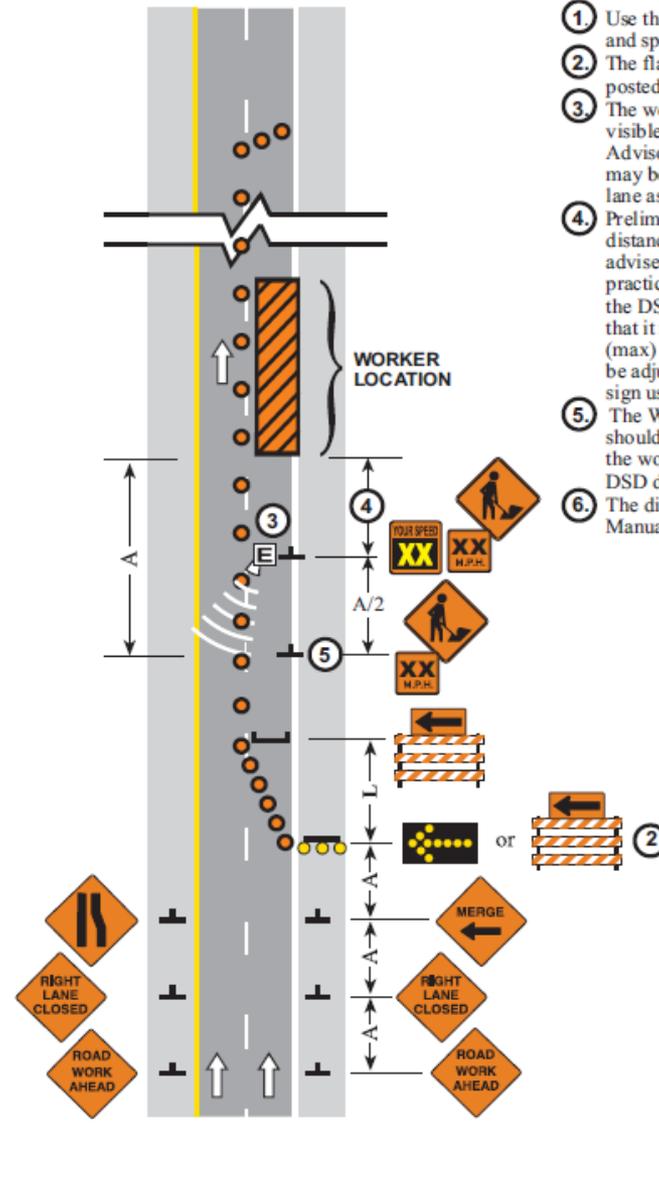
Detours – Speed Limits, etc

- ▶ Regulatory speed limit allowed by [MN Statute 169.14 Subd 4](#), same statute as permanent regulatory speed limits
- ▶ Follow procedures similar to setting permanent speed limit
- ▶ Increased ADT often deteriorates local roads
- ▶ Road condition must be maintained
- ▶ Striping/other signing must be reviewed
- ▶ Intersection traffic control change – possible use of portable rumbles or LED enhancement



Dynamic Speed Display Signs

- DSD signs display speed of approaching drivers
- DSD sign needs to be right next to Speed Limit sign
- If used with Advisory, operate only when workers present



Additional thoughts

- ▶ Don't reduce speeds for the sake of reducing speeds – if enforcement is not there, you'll increase the speed differential – leading to rear end crashes and possible intrusions
- ▶ Proper TTC set up following the Traffic Control Plan, the MN MUTCD & Field Manual – primary way to keep work zone as safe as possible
- ▶ 24/7 Construction Speed Limit with Workers Present Speed Limit
 - CPR job – lane reduction on rural freeway
- ▶ 24/7 Construction Speed Limit for long-term lane reductions on rural freeways (10 MPH)
- ▶ Regulatory speed limits in work zones
 - Technically fines are doubled in all work zones with workers present



Questions?

