

Work Zone Speed Management

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1974

- The energy law was written into the Michigan Vehicle Code, making the maximum speed on any road 55 mph.
- The speed limit law was written into the Michigan Vehicle Code, requiring 45 mph maximum speeds in work zones unless otherwise posted.
 - This law created a “blanket” speed reduction of 10 mph.

1988

- National laws were revised to allow speed limits to be raised initially to 65 mph, then 70 mph on interstate and freeway routes.
 - This is where speed limit variation began.
 - The Michigan Vehicle Code was not reviewed to determine if the existing 45 mph unless otherwise posted law should be changed to keep up with the change in speed limits.

1996

- A National Cooperative Research (NCHRP) report, number 192 is issued.
 - Recommends that speed limits only be reduced if necessary, and then only a maximum of 10 mph.
 - The report is adopted by AASHTO and is recommended for use in all states.
 - This report also supports the language in the MUTCD.

Reduction in 85th Percentile

Speed Limit Reduction (MPH)	Reduction in 85 th Percentile Speed (MPH) between upstream and work zone location		
	All Vehicles	Cars	Trucks
0	4.5	3.7	4.9
10	5.5	6.5	6.4
15	7.0	7.8	1.7
20	11.8	9.2	10.8
25	10.0	9.0	11.8

Summary of Speed Variance

Speed Limit Reduction (MPH)	Percent increase in speed variance between upstream and work zone location		
	All Vehicles	Cars	Trucks
0	61.2	81.8	11.8
10	34.1	46.8	14.4
15	86.7	79.6	159.3
20	82.6	93.5	182.9
25	92.6	206.3	32.5

2005

- Attempts to re-establish the existing speed limit guidelines are stalled by laborers groups, who are concerned for worker safety.
- Speed limits are required to be reduced to 45 miles per hour on all projects for the construction season.

2006

- Work zone speed limits are to be established with a maximum 10 mph reduction.
- Additional reductions are allowed, but require Engineer of Construction and Region Engineer approval.
- Additional signs “WHERE WORKERS PRESENT 45” signs are required in addition to any work zone speed limit posted at 50 mph or higher.

Work Zone Speed Limits

- Speed data was collected in 2008
 - Indicates higher speeds than posted when the posting is inappropriate.
- Where Workers Present 45 signing is being left in place when it should be removed
 - Example: The signs are used for barrier wall placement, then remain up.

Work Zone Speed Limits

- Posted 45/60 with Workers Present

Type of Closure	Speed Samples
All Lanes Open	62-66 mph
One Lane Open, One Lane Closed	56 mph
One Lane Closed, Workers <10ft away	45-46 mph



Work Zone Speed Limits

- Posted 45/60 with no workers present

Type of Closure	Speed Samples
All Lanes Open	65-71
One Lane Open, One Lane Closed	56-67

Work Zone Operating Speeds

- Ingress/Egress of equipment can have a major impact on traffic flow and speed.
 - On a project in 2008, the anticipated operating speed was 60 mph.
 - During contractor ingress/egress activities, the actual operating speeds were under 40 mph, causing traffic backups in excess of 6 miles.

Ingress/Egress



Contractor Ingress/Egress

- Limit the amount of locations to enter and exit traffic.
- Create tapers for acceleration and deceleration if possible.
- Look for innovative approaches to access the work site without disrupting the flow of traffic.
- Provide advance motorist notification of the ingress/egress points.

Speed Limits and Crashes

Speed Limits and Crashes

- Is there a relationship to posted speed limits and crashes in work zones?

Crashes in Work Zones

■ All Crashes

Year	All Roads	Trunk Line
2005	6577	4630
2006	5237	3670
2007	5530	3799
2008	4991	3123

Rear End Side Swipe Same Direction Crashes

- These crashes in work zones are indicators of:
 - Speed differential
 - Traffic volumes at or above capacity
 - Contractor ingress and egress
 - Contractor “interference”

Work Zone Crashes

■ Rear End Crashes

Year	All Roads	Trunk Line
2005	2528	1903
2006	2117	1674
2007	2114	1620
*2008	1854	1305

Work Zone Crashes

■ Side Swipe Same Crashes

Year	All Roads	Trunk Line
2005	1028	784
2006	705	519
2007	853	633
*2008	634	434

Conclusions

- Establishing realistic speed limits will:
 - Improve motorist compliance
 - Not have a negative impact on safety
 - May reduce crashes

Questions?

If you have more questions, contact me.

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