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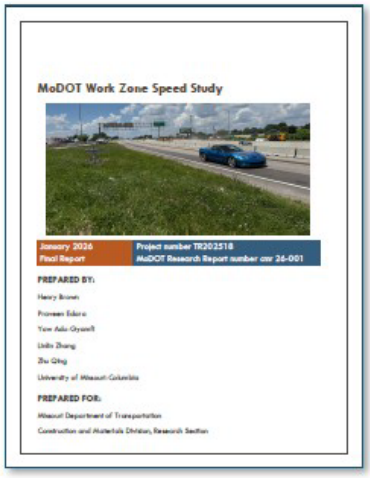
Research Summary

MoDOT Work Zone Speed Study



Management of work zone speeds and ensuring driver compliance with work zone speed limits play an important role in reducing the number and severity of work zone crashes. The objective of this research study is to assess speeds driven by motorists in Missouri freeway work zones, including average speeds, 85th percentile speeds, maximum speeds, and levels of work zone speed limit compliance and noncompliance.

The research methodology to meet this objective includes a literature review, collection and analysis of field data on vehicle speeds, analysis of probe data from HERE, and review of crash data corresponding to the dates and locations of the field study. The field study included the measurement and analysis of speeds (with and without a work zone) for almost 5.5 million vehicles at five interstate work zones in Missouri. For some locations, data were also collected when there was no work zone present. Data on vehicle speed and type were collected continuously at different locations within the work zone using radar sensors. Data were collected using radar sensors (see Figure 1).

"Overall, the results indicate prevalent speeding in Missouri work zones."

Results from the literature review indicate that previous studies generally found various levels of speed limit compliance in work zones. Countermeasures such as the use of law enforcement and speed display trailers have been shown to help reduce vehicle speeds in work zones.

Overall results from the analysis of field data and HERE data are summarized as follows:

- Across all sites, a large majority of drivers exceeded posted work zone limits, often by more than 10 mph.
- The maximum speed recorded across all sites with a work zone present was 103 mph. All sites saw a maximum speed of at least 85 mph.
- Speeds were lower with the work zone in place than during non-work zone conditions. However, work zones introduced greater fluctuations in speeds.
- With the exception of the I-44 Rolla work zone, less compliance was observed with stricter posted speed limits.
- Vehicles tended to slow through the middle of work zones, with upstream sections having the highest speeds and midpoints the lowest.
- Small/medium vehicles consistently drove faster than large trucks, usually by 2–4 mph..
- Compliance improved when workers were visible near the travel lanes. The I-44 work zone had the highest work zone

speed limit compliance of all the work zones studied in this research.
- Other work zone characteristics did not seem to influence drivers' speeds.
- With the exception of the I-55 St. Louis work zone, speeds were generally lower during nighttime than during daytime.

The crash review identified four crashes across all sites during the time of the data collection: two property damage crashes, one minor-injury crash, and one serious-injury crash. The contributing circumstances for one of the crashes was identified as too fast for conditions. Across all monitored work zones, no significant changes in traffic speed or flow were observed.

Overall, the results indicate prevalent speeding in Missouri work zones. While vehicle speeds were lower with the work zone compared to non-work zone conditions, speed variation with the work zone in place also increased. The presence of workers in the closed lane separated by channelizers on I-44 was associated with lower speeds and greater speed limit compliance. Possible strategies to reduce speeds and improve speed limit compliance in Missouri work zones could include law enforcement presence, speed feedback trailers, public outreach campaigns, and reviewing existing policies.

Figure 1: Example of sensor mounted on existing sign at I-70 Rocheport.

Project Information

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