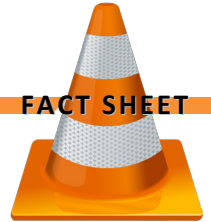


Work Zone Intrusion Reporting Research Synthesis

FACT SHEET



Fall 2017

The Minnesota Department of Transportation initiated an independent study to learn more about best practices for reporting and documenting vehicle intrusions into the work space of a work zone, including “near misses” that do not result in crashes. The purpose of the study was to determine what data other States collect about vehicle intrusions and what technologies are used in gathering and reporting the data.



Source: CTC & Associates

To support this effort, a survey of State Departments of Transportation (DOT) was conducted to learn their practices for work zone intrusion data collection. This survey was supplemented by follow-up interviews with survey respondents and a literature review that gathered information about work zone data collection practices.

Survey Approach

An email survey was sent to the members of the American Association of State Highway and Transportation Officials (AASHTO) Subcommittee on Construction to gather information on States’ procedures for work zone intrusion data collection. The survey consisted of the following questions:

- What is your procedure for collecting information about work zone intrusions?
- What technology or technologies do you use for reporting work zone intrusion data (such as paper forms, GoPro or other video cameras, tablet computer-based forms, automatic sensors, or other technologies)?
- What specific data do you collect about work zone intrusions, such as location, time of day, vehicle description, etc.?

Of the 19 respondents, only three States were found to collect work zone intrusion data: Iowa, North Dakota and Pennsylvania. All three collect this data via forms; Pennsylvania and Iowa use electronic fillable PDF forms, while North Dakota uses a paper form.

Findings

All three States collect incident data including description, location, date and time. At least one state additionally included the number of vehicles involved, incident diagrams, whether the site has an incident history, resulting corrective actions and weather conditions.

State	Incident Description	Incident Location	Date and Time	Number of Vehicles	Incident Diagram	Site Accident History	Resulting Actions	Weather Conditions
IA	✓	✓	✓	✓	✓	✓	✓	
ND	✓	✓	✓				✓	✓
PA	✓	✓	✓					

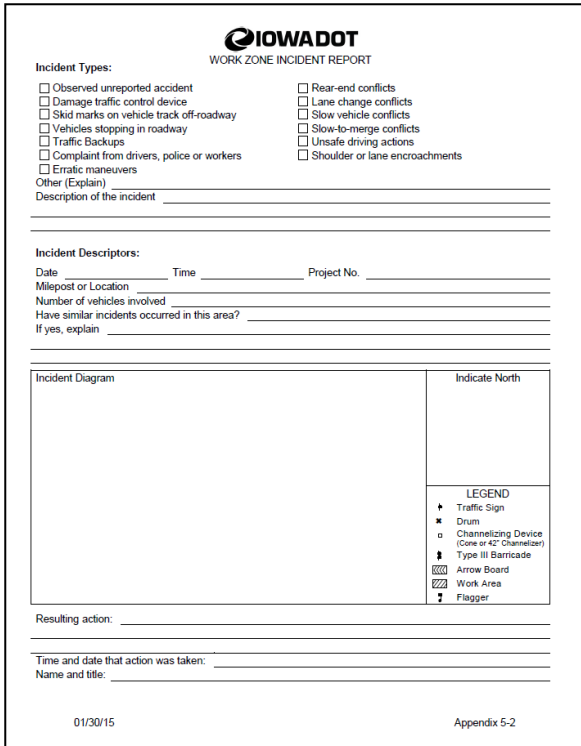
Source: Minnesota Department of Transportation

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Data Collection Challenges

Interviewees included representatives of all three States (Iowa, North Dakota and Pennsylvania). In these follow-up interviews, all three said that data collection for work zone intrusions is less formalized and less thorough than data collection for work zone incidents that lead to injuries, fatalities or property damage. For example, in Pennsylvania, the Pennsylvania DOT Workers' Compensation Coordinator said, "I know that foremen will take down license numbers if they can get them and report them to the local authorities for investigation, but I don't know that we're getting forms for every single intrusion."

Data Collection Technologies



The image shows a sample Iowa DOT Incident Report Form. At the top left is the IOWADOT logo and the title 'WORK ZONE INCIDENT REPORT'. Below this is a section for 'Incident Types' with a grid of checkboxes for various incident categories such as 'Observed unreported accident', 'Damage traffic control device', 'Skid marks on vehicle track off-roadway', 'Vehicles stopping in roadway', 'Traffic Backups', 'Complaint from drivers, police or workers', 'Erratic maneuvers', 'Other (Explain)', 'Rear-end conflicts', 'Lane change conflicts', 'Slow vehicle conflicts', 'Slow-to-merge conflicts', 'Unsafe driving actions', and 'Shoulder or lane encroachments'. There are lines for 'Description of the incident'. Below that is a section for 'Incident Descriptors' with fields for 'Date', 'Time', 'Project No.', 'Milepost or Location', 'Number of vehicles involved', and 'Have similar incidents occurred in this area?'. A large box is designated for the 'Incident Diagram', with a 'LEGEND' box to its right listing symbols for 'Traffic Sign', 'Drum', 'Channelizing Device (Cone or 42" Channelizer)', 'Type III Barricade', 'Arrow Board', 'Work Area', and 'Flagger'. At the bottom, there are fields for 'Resulting action:', 'Time and date that action was taken:', and 'Name and title:'. The form is dated 01/30/15 and labeled as Appendix 5-2.

Sample Iowa DOT Incident Report Form
Source: Iowa DOT

Both Iowa and Pennsylvania DOTs reported that work zone intrusion data is collected electronically through fillable PDF forms, although Iowa DOT also permits paper reports. In Iowa, the respondent said that currently about 75 percent of State work zone data reporting is done electronically. The State began using iPads in work zones a few years ago and is hoping to have all offices using them by 2016. North Dakota DOT receives near-miss reports on paper or verbally, although when there is an injury or property damage, the reports are filed electronically.

Oregon DOT's Traffic Control Plans Engineer said that the State is planning to implement smart work zone technologies in the near future. While he was unsure whether the State's plans include using those technologies to document work zone intrusions, he said that remotely-operated pan-tilt-zoom cameras could feasibly do so. These cameras are capable of capturing high-definition pictures and videos at a range of frequencies

(from 1 frame per minute to more than 30 frames per second). The images can be date-, time- and location-stamped, and can be transmitted via cellular or satellite networks to agency personnel for review and evaluation.

To learn more, contact:

Jenny Hoskins, P.E.
Iowa DOT
(515) 386-8166
jenny.hoskins@dot.iowa.gov

Todd Haglin
Emergency Management
and Safety Manager
Minnesota DOT
(651) 366-3079
todd.haglin@state.mn.us

Doug Schumaker
Traffic Safety Design
North Dakota DOT
(701) 328-1210
dschumak@nd.gov

Matthew Briggs
Traffic Control Specialist
Manager
Pennsylvania DOT
(717) 783-6268
mabriggs@pa.gov



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