

Highway Work Zone Safety

Highway maintenance and construction involves a large number of hazards to the site workers', the general public and the motorists. Safe design of work zones can go a long way in protecting individuals from injury and vehicles from damage while maintaining some level of traffic flow. The responsibility for planning, designing, and implementing work zones lies primarily with local and state governments. Whether your municipal employees are performing the construction activities, supervising the activities, or developing roadwork bid specifications it is important to understand the highway work zone safety procedures so they can be built into the project from the beginning.

Guidance on highway safety can be obtained from the Federal Highway Administration's National Highway Work Zone Safety Program (<http://www.fhwa.dot.gov/>), and this site provides guidance on enhancing work zone safety, and can be used as a guide for state and local governments who are developing work zone safety programs.

The Federal Highway Administration NHWZSP Elements

The NHWZSP consists of four elements including standardization; compliance; evaluation; and implementation. A summary of each element is helpful in planning highway maintenance activities.

- Standardization of traffic control equipment, operational features, traffic control planning and layout, contract specifications, and use of industry recognized work zone management methods by all of the involved parties supports recognition and understanding of what is required to comply, and promote an enhanced level of work zone safety.
- The following standards and guidelines are good references for those interested in enhancing roadway work zone safety:
 - Uniform Traffic Control Devices (MUTCD) including Part VI, Standards and Guides for Traffic Controls for Streets and Highway Construction, Maintenance, Utility, and Incident Management Operations (<http://mutcd.fhwa.dot.gov>).
 - Work Zone Safety, Engineering and Traffic Regulations, 23 CFR 630 Subpart J, Traffic Safety in Highway and Street Work Zones (<http://www.fhwa.dot.gov/legisregs/directives/fapg/cfr0630j.htm>).
- Compliance with recognized standards and guidelines improves the operational safety of work zones. Demonstrating compliance includes understanding project needs or complexity, implementing the traffic control plan at the beginning of the project, and altering plans in response to changing conditions. Important elements to ensuring compliance with work zone-related standards and guidelines are:
 - Procedures and specifications that maintain an acceptable level of quality for traffic control plan applications, including all traffic control devices and safety appurtenances used in work zones.
 - Education of inspectors and site workers to reinforce the maintenance of work zone safety, and public awareness of the risk of driving through work zones.
 - Use of available resources and guidance material to reinforce compliance with traffic control plans, specification, and procedures.
- Evaluation of work zones helps to analyze non-compliance in work zone operations. Root cause analysis and auditing against recognized practices enhances diagnosis of practices that increase risk.
- New technology and procedures can enhance highway-user and worker safety, and traffic flow through work zones.

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Risk Management Tips for Managing Work Zones

Potential hazards vary at each work zone, and careful planning is required for safe operations. To help ensure the work will be performed in the safest possible manner, the following suggestions should be considered:

- The municipal employees and all contractors must adhere to the traffic work zone plan.
- A qualified individual from the contractor or municipality should be responsible for ensuring compliance with the traffic control plan.
- The qualified individuals and others involved in the site should evaluate the work zone before starting work on each shift and periodically throughout the shift as construction activity proceeds.
- Any signs that do not relate to the work zone specific traffic instructions should be covered over or removed temporarily.
- Close off streets, sidewalks, or other public areas where there will be potential hazards created by the project.
- Single lanes are the most effective control measure since they prevent passing maneuvers and reduce the speed of fast drivers.
- The roadway surface used for traffic traveling through the construction work zone should be maintained in a condition that will permit the safe movement of vehicles.
- Speed limits must be established, monitored, and enforced based on the specific work zone configuration.
- Location of traffic cones, barrels, or other channeling devices should be marked on the pavements by paint or other methods so that they can be reset if accidentally moved.
- Construction site vehicles should have flashing amber lights.
- Provide a variety of signs and portable barricades for the project.
- Signs that will be used over night or remain up for extended periods should be reflective, and in some cases illuminated.
- Signs should be installed at the standard height anticipated by motorists.
- Use steady lights to delineate travel areas.
- Use flashers or flags on 24-hour signs to enhance visibility.
- Signs saying "Personnel Working" and similar signs should be used only during times when individuals are actually working and otherwise covered over.
- Communicate with property owners who will be impacted by the project in advance, and provide access to private properties and businesses during both the design and construction phases of each project while maintaining the integrity.