



PLANNING ADVISORY NOTICE

DESIGNING, IMPLEMENTING, AND MAINTAINING TRAFFIC CONTROL PLANS

The telecommunications industry is continually seeking to enhance coverage and support the communications needs of the United States. The support of effective broadband coverage for all requires the use of wireless facilities to provide communications infrastructure in locations where it is typically untenable to do so through other means. To accomplish this, equipment that meets or exceeds the requirements of the network design as licensed by the Federal Communications Commission is installed in many areas and on structures that have varying intended uses. In some cases, this will involve the installation, maintenance, and restoration of equipment in areas where vehicular and pedestrian traffic considerations must be addressed.

Installation, maintaining, and restoring equipment in areas where there is vehicular traffic poses unique considerations for safety; not only for the crew doing the work, but for the public using the roadway. It is imperative that traffic control processes are established to notify motor vehicle operators that workers are nearby and to pay close attention to the high-risk environment. Not only is it important for signage and other traffic control devices to be clearly visible, workers must also wear high visibility garments to enhance their visibility to motor vehicle operators.

Often times, the inherent dangers in a work zone are overlooked by pedestrians and vehicular operators due to the fact that we, as a society, are accustomed to passing through or around active work zones. Many Americans pass through and around work zones during their commute to and from work or school every day. Work zone crashes and fatalities have steadily risen over the last nine years; in 2020 there were an estimated 774 fatal crashes in work zones, which is an increase of over 45% from 2011 (533 fatal crashes in work zones)¹. Additionally, there were an estimated 44,000 work zone injuries in 2020 (which is a slight increase in the estimated 39,000 estimated work zone injuries in 2011)².

Not all work zones are near busy highways, many are by sidewalks or bike paths where the safety of the general public is just as important. When setting up an alternative path for a sidewalk or bike path, it's imperative that the path is simple to follow, has advanced warnings, is ADA compliant, and most importantly, keeps the public out of harm's way from equipment, holes, or dropped objects. This Planning Advisory Notice has been developed to review the best practices for developing and implementing traffic control plans and establishing a safe work zone while working in or near public rights-of-way, sidewalks, bikeways, and private roads that are open to the public (collectively referred to herein simply as "**public rights-of-ways**").

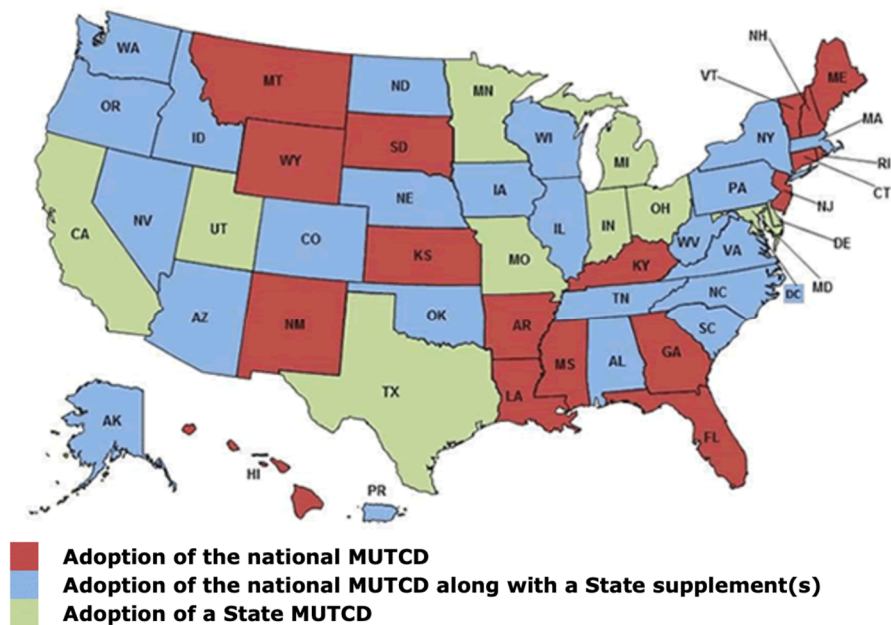
REGULATING TRAFFIC CONTROL PLANS

Every successful traffic control plan involves the use of traffic control devices; these can be critical for the safe and efficient movement of goods, commercial vehicles, and passenger vehicles on public rights-of-way. Some examples of a traffic control device are signs, road markings, barriers and channelizers, and traffic lights. The use of traffic control devices is governed by the Manual on Uniform Traffic Control

¹ See Fatality Analysis Reporting System. National Highway Traffic Safety Administration, U.S. Department of Transportation. Data available at [nhtsa.gov](https://www.nhtsa.gov). Summaries are provided by workzonesafety.org.

² Crash Report Sampling System. National Highway Traffic Safety Administration, U.S. Department of Transportation. Data available at [nhtsa.gov](https://www.nhtsa.gov). Summaries are provided by workzonesafety.org.

Devices (“**MUTCD**”)³ which outlines the minimum standards for the installation and maintenance of traffic control devices on public rights-of-way. The Federal Highway Administration (“**FHWA**”) is responsible for publishing the Federal MUTCD⁴. While the rules and regulations discussed in this Planning Advisory Notice (and their application to the telecommunications industry) focus on traffic control from a federal perspective, it is important to remember that many states have adopted a State MUTCD or State Supplements to the Federal MUTCD. For example, many states and municipalities have specific guidelines for permitting, certifications, and training for traffic control technicians, e.g., flaggers. The map below depicts the applicability of the Federal MUTCD across the United States⁵.



Designing, implementing, and maintaining a traffic control plan justifiably creates a heightened responsibility for the general contractor to ensure employee safety, proper training of their employees, and to create a safe work environment. Additionally, the general contractor is also responsible for protecting the health and safety of the public when entering or navigating around the work zone. Traffic control plans present unique challenges in all phases of implementation which requires specialized skill and experience. Due to these considerations, general contractors may consider utilizing a third-party provider having the requisite expertise for traffic control.

DESIGNING A TRAFFIC CONTROL PLAN

Effective project planning is a critical component of traffic control. Designing the traffic control plan should begin when engineered plans for the project are created and should be compliant with requirements of the jurisdiction having authority over the project location. Traffic control plan design should consider vehicular and pedestrian traffic and may involve site visits, engagement with local officials, support from law enforcement, and filing necessary permits or support requests. In addition, design and planning should identify training requirements, traffic control devices, communication procedures (amongst workers and to

³ The Federal MUTCD is made available for download by the Department of Transportation; [2009 Edition with Revision Numbers 1 and 2 incorporated](#).

⁴ See Code of Federal Regulations, [23 CFR 655.601](#)

⁵ Map provided from the U.S. Department of Transportation, Federal highway Administration website and can be found at [dot.gov](#).

vehicular and pedestrian traffic), permitting needs, and any personal protective equipment required to ensure the safety of the workers, motor vehicle operators, and any pedestrian traffic. These are all items that the general contractor and project stakeholders should be aware of prior to construction.

The traffic control plan designer must be a competent person⁶ as defined by OSHA. As such, the first step in planning an effective traffic control plan is to identify training and experience requirements for the designer. Considerations should include: the complexity of the scope of work; project location; size and duration of the project; and federal, state, and local jurisdictional requirements. Based on the above considerations, it may be appropriate for the traffic control plan designer to be an engineer, foreman, or other individual who does not necessarily have to be an employee of the general contractor. Once the training and experience requirements are finalized, the general contractor, or other appropriate project stakeholder, should identify the competent person (or third-party firm) to design the traffic control plan.

As mentioned previously, the designer should commence the traffic control design phase in conjunction with the engineered plan so that the traffic control plan may be incorporated into the final drawings, as necessary. The traffic control design phase should begin by evaluating the scope of work and project location to develop a traffic control system for the project. In order to implement the traffic control system, the designer should next consider the necessity of flaggers and traffic control devices. This may range from mere signage to the use of multiple flaggers, arrow boards, and truck mounted attenuators. Next, the designer must scope out the communication procedures for the traffic control plan, which are often impacted by state and local requirements. This may include advance notice of lane closures and traffic rerouting, which may be a requirement of the permitting process. Additionally, speed limits and road conditions including hills, curves, and blind entrances must be considered as part of the design of the plan to ensure that motor vehicle operators have adequate time to reduce speed and travel safely through the traffic control area.

When designing a traffic control plan, it is imperative to be familiar with the laws and regulations of the jurisdiction(s) having authority over the project location. While compliance with the Federal MUTCD is the starting point, many states and local municipalities implement additional controls and regulations. For instance, many jurisdictions require that traffic control technicians be trained and/or certified in the state or municipality where the work zone is located. It is critical to account for these considerations when designing the traffic control plan.

IMPLEMENTING THE TRAFFIC CONTROL PLAN

Implementing traffic control is not always a simple copy and paste process; environmental, terrain, and other variables must be considered when implementing traffic controls. For instance, project duration is one of the first variables to evaluate. The Federal MUTCD classifies project duration into five (5) main categories: long-term stationary, intermediate stationary, short-term stationary, short duration, and mobile. Long term stationary is work that occupies a location for more than three (3) days. Intermediate stationary is work lasting more than one (1) day but less than three (3) days. Short-term stationary is work lasting more than one (1) hour, but within a single day. Short duration is work that occupies a location up to one (1) hour. Lastly, mobile work is defined as work that moves intermittently or continuously; examples would include scopes such as pothole filling and striping and paving public rights-of-ways.

Safe installation of the traffic control devices is critical as this is the first notification to the area that work is happening and should be supervised by a competent person. When installing traffic control devices it is

⁶ OSHA defines a competent person as “one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them”; see [29 CFR 1926.32\(f\)](#)

important to adhere to the guidelines articulated in the traffic control plan such as spacing, size, type, and quantity. Once the traffic control devices and ancillary equipment are set-up and completed per the traffic control plan, best practice is to complete a test drive with the flow of traffic to ensure visibility, movement, and flow are adequate to protect workers inside the work zone and the general public. Routine monitoring to ensure proper traffic flow and safety is also important.

When flaggers are required, the competent person should ensure that flaggers have proper training, are equipped with appropriate signage, wear suitable hi-visibility work attire, and effectively communicate with vehicular and pedestrian traffic. As part of effective communication, the flagger should maintain eye contact with motor vehicle operators to ensure worker safety as they are the first line of defense for distracted drivers. Traffic control technicians are often engaged in communication with irritated drivers, so possessing the ability to diffuse situations and keep motor vehicle operators calm is a valuable skill.

Implementing the pedestrian portion of a traffic control plan is predicated on keeping pedestrians out of active work zones and installing barricades and signage to create safe pathways for pedestrians (NOTE: these pathways must also be ADA compliant). When implementing pedestrian controls, it is important to consider dropped objects from work zones and other construction operations that could endanger foot traffic. It is best practice for the competent person to continually monitor pedestrian pathways to ensure compliance and adjust pathways as needed during the course of construction.

MAINTENANCE OF THE TRAFFIC CONTROL SYSTEM

Once the traffic control system is implemented, there is yet another important aspect of the traffic control plan that must be administered; maintenance. Routine inspection and monitoring of traffic control devices, traffic flow, and pedestrian pathways, especially as conditions change, are paramount to ensuring a safe work zone. One of the principal influences of traffic control maintenance is weather, especially wind, which often times impacts traffic control devices in the work zone. When weather affects the operation of a traffic control device it is imperative that remedial efforts are undertaken to not only correct the traffic control device, but to guard against future weather impacts. For instance, electronic traffic control devices are susceptible to the elements as water and moisture may impact their performance and viability; due to this vulnerability they must be periodically checked during adverse weather to ensure they are operating properly. As another example, if strong winds are knocking over signage and traffic cones, then a proper remedial effort would be to return the traffic control devices to their correct position and fortify their position by adding sandbags, weighted rings, or additional weight to their base. It is also important to remember that high winds may cause signs and other traffic control devices to become flying objects that can create a hazard to workers, motor vehicle operators, and pedestrians.

Another very important aspect of maintaining an effective traffic control plan is to periodically test the system. Vehicular and pedestrian traffic flows continually change; congestion is higher during rush hour and before / after local events. Weather, and changes to traffic control system (e.g., additional lane closures, mobile work, and accidents) also impact the flow of traffic. For these reasons it is a best practice to continually test the traffic control system to ensure continued utility. The traffic volume or work zone condition may necessitate a modification to the traffic control plan/system (e.g., traffic control devices may need moved or additional devices installed). The competent person will need to make these adjustments to ensure safe and continuous traffic flow in and around the work zone (remember, the competent person could be from the engineering firm who designed the traffic control plan, a third-party provider of traffic control services, or the general contractor). Material modifications to the traffic control system may also lead to additional state and local permitting requirements, including, but not limited to, submitting a revised traffic control plan to the jurisdiction having authority.

Communication is another element of maintaining the traffic control plan. Clear internal communication guidelines should be developed to ensure that employees can effectively communicate with other employees and any equipment operators. Traffic control technicians who will communicate with the public should also have project specific training to ensure communication with vehicular and pedestrian traffic is clear and concise. Part of this communication should be a daily tailboard or job hazard assessment of the traffic control system. This job hazard assessment should entail, at minimum, monitoring traffic conditions, observing weather, and ensuring that traffic control devices are operating properly. It is essential to understand whose responsibility it is to perform the job hazard assessment and the overall maintenance of the traffic control system. These responsibilities should be clearly communicated amongst the project stakeholders prior to implementation of the traffic control plan.

The main objective of maintenance activities is to ensure safety; both for the worker and vehicular and pedestrian traffic traveling through and around the work zone. This is achieved through adherence to the traffic control plan and routine monitoring and inspection to ensure that traffic control systems and traffic control devices are working effectively. Motor vehicle operators and pedestrians need to have a clear identified path that does not lead to confusion or create additional distractions. This is achieved by maintaining and testing the traffic control system, completing job hazard analysis (at least daily), and utilizing clear and effective communication procedures.

SPECIAL CONSIDERATIONS

Night Work and Emergency Conditions. Special Considerations must be incorporated into the traffic control plan for night work or emergency conditions such as during or after natural disasters. Additional lighting or traffic control devices designed specifically for night work may need to be incorporated into the traffic control plan. Many states and local jurisdictions have rules for lighting (e.g., construction vehicle strobe light style and color). Contractors performing night work must ensure they are complying with these local rules; remember, when crossing municipal or state lines the rules may change. Additionally, Class III reflective vests and leggings should be worn, and in many cases are required. Hard hat lights and other features are available in an effort to enhance visibility to motor vehicle operators. Strobe lights and lighted arrow boards are additional traffic control devices that can assist motor vehicle operators and pedestrians to safely navigate safely through and around the work zone. Extra precautions may also be necessary during the pre-dawn and twilight hours.

Oversize Vehicles. Large trucks and trailers can be challenging to any work zone as oversized loads, long trailers, and tall vehicles require additional turning radius and clearance. When designing and maintaining the traffic control system it is important to consider the surroundings and thoroughfares where traffic control is needed to prevent issues related to oversize vehicles.

Nearby Work Zones. Working within or near an already established work zone may create confusion not only with motor vehicle operators and pedestrians, but with the other general contractors as well. When designing and implementing traffic control systems near other established work zones it is important to effectively communicate with all affected general contractors. Neighboring work zones should consider how their traffic control plans will affect each other and the public. Effective communication is critical to ensuring that the traffic flow is safely maintained, additional distractions are not created for motor vehicle operators, and that pedestrians are not guided to pathways that intersect with neighboring work zones.

Drop Zones. Dropped object prevention needs to be incorporated into any work plan, and the traffic control plan is no different. If overhead work is taking place within the traffic control area, protocols to prevent dropped objects and materials must be established. Toe boards, drop zones, barricades, expanded work zone

areas, and other methods may need to be incorporated to keep workers, motor vehicle operators, and pedestrians safe.

CONCLUSION

When the maintenance or deployment of telecommunications infrastructure requires work to be performed in and around public rights-of-way a critical component of the pre-job planning process is to design a traffic control plan that meets the requirement of the applicable MUTCD and other requirements of the jurisdiction having authority. The design and implementation of a traffic control plan requires a high degree of skill and experience and, depending on the breadth of the proposed scope of work, the general contractor may want to consider consulting or hiring a third-party provider who specializes in the design and implementation of traffic control plans. Third-party traffic control providers and other professionals also offer a variety of training services for the general contractor's traffic control technicians. Post implementation, best practice is to continually monitor and test the traffic control system to ensure continued utility, and most importantly, that the traffic control system is keeping workers and the public safe!

ADDITIONAL RESOURCES

FEDERAL MUTCD:

- [MUTCD.FHWA.DOT.GOV](https://www.fhwa.dot.gov/mutcd)
- [workzonesafety.org](https://www.workzonesafety.org)

OSHA

- [Work Zone Traffic Safety Card](#)
- [Reference Guide to Work Zone Traffic Control](#)

American Traffic Safety Services Association:

- [Pocket Guide of MUTCD Guidance on Temporary Traffic Control](#)
- [Temporary Traffic Control for Maintenance Operations](#)
- [High-Visibility Safety Apparel](#)