

Develop Work Zone Training Video for Law Enforcement



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**RESEARCH &
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16. Abstract <p>This project developed a work zone training video script focused on law enforcement officers who interact with work zones. This training targets the most common and active work zone involvement which is when law enforcement officers are contracted to support a construction project and as a secondary focus, for flagging activities. Essential content includes requirements for work zones and best practices for safe operations in work zones. This research will culminate in two deliverables: 1) a pre/post survey to evaluate the outcomes of the training and 2) a 10 to 15 minute script (for production by NCDOT Communications).</p>			
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Executive Summary

This project was conducted to address safety risks faced by law enforcement officers operating in roadway work zones, particularly those contracted for traffic management or performing flagging duties. Leveraging research compiled and provided by NCDOT (including sources like ATSSA and FHWA), the project focused on identifying essential work zone safety requirements and best practices relevant to law enforcement personnel. NCDOT provided critical support and input throughout the process.

The core activities involved reviewing existing materials, structuring key safety content, and developing specific training tools. This effort successfully culminated in two key deliverables: 1) a finalized script for a 10-to-15-minute training video (designed for subsequent production by NCDOT Communications) and 2) a finalized pre- and post-training survey instrument, intended to evaluate the effectiveness of the training derived from the script.

These deliverables provide NCDOT with foundational materials to implement targeted safety training aimed at improving safety outcomes for law enforcement interacting with work zones across North Carolina.

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Formal Statement of Work

This project has developed a work zone training video script focused on law enforcement officers who interact with work zones. The support, input, and content development from NCDOT was essential for successfully completing this effort. NCDOT has compiled research on existing training related to this topic, including sources such as ATSSA, Federal Highway Administration, etc. and has shared this information with ITRE to use for the development of the training that will improve safety for law enforcement in work zones. Law enforcement officers are commonly in work zones to respond to an incident, conduct targeted enforcement, provide traffic management support through a contract with a construction project, or flagging at a signalized intersection. This training targets the most common and active work zone involvement which is when law enforcement officers are contracted to support a construction project and as a secondary focus, for flagging activities. Essential content includes requirements for work zones and best practices for safe operations in work zones. This research has culminated in two deliverables: 1) a pre/post survey to evaluate the outcomes of the training and 2) a 10 to 15 minute script (for production by NCDOT Communications).

Video Script

Opening (recommend no slide, but someone speaking to the LEOs)

Voice Over (VO): Welcome! This training video is for Law Enforcement Officers hired by contractors for presence in a work zone on roadways maintained by the North Carolina Department of Transportation.

In this video, you will learn:

(cut to slides with goals coming in with the voiceover)

- Why law enforcement officers are needed in work zones
- Where a law enforcement vehicle should be positioned and **not** positioned in a work zone
- What a law enforcement officer should be doing and **not** doing while working in a work zone

VO: Law enforcement officers provide important safety benefits to the traveling public and construction crews. Their presence, with their vehicles' flashing blue lights, attracts the attention of drivers, who are more likely to reduce their speed, be alert and avoid aggressive and distracted behavior while maneuvering through a work zone.

The issue is a serious one in North Carolina, each year dozens of people die in crashes in work zones in North Carolina. These crashes can be avoided if people are alert and follow all signs for the work zones and avoid any distractions.

Bottom line – your presence can reduce crashes and save lives.

(maybe include a visual of deaths in work zones over several years)

VO: Let's briefly go over the basic components of a work zone. Knowing how it operates will help you understand where to safely and effectively position yourself.

(Image of a work zone with parts side by side with a fly over of a work zone. For each component listed below, ID it as an on-screen graphic and maybe have B-roll of each section.)

As drivers approach a work zone, they first encounter the "advance warning area," which is indicated by the use of temporary traffic signs, portable changeable message signs, arrow boards, etc. The "advance warning area" is designed to prepare motorists for the changing road conditions. It is a requirement for advance warning signs to be in place prior to starting a work zone.

After the "advance warning area," drivers next encounter the "transition area," where traffic is shifted to a new traffic pattern, or guided out of its normal lanes, through the use of cones or drums.

Next comes the buffer space, which provides protection for workers and drivers. If a buffer space is utilized, no vehicles or equipment, including law enforcement vehicles, should be positioned in this space for the safety of the workers. This space can have a large crash-absorbing truck or truck/trailer mounted impact attenuator, called a TMA, that will have a roll ahead distance that should be kept clear at all times in the event it is struck by a motorist.

The fourth component is the actual work zone itself – where construction activity is occurring with crews and equipment. This is a critical area where the safety of crews is needed, and where the traveling public should be especially alert.

Finally, drivers enter the termination area, where they transition back to normal driving.

Those are the four components of a work zone.

So, where should you position your law enforcement vehicle?

Because it's important you are visible to drivers, we recommend you position your vehicle in the "advance warning area" that precedes the transition zone. Ideally, and if roadway geometry conditions allow, you should position yourself on the same shoulder of the road as the lane which is closed ahead. This will reduce conflicts with North Carolina's "Move Over" law and help in getting drivers to merge to the correct lane prior to the transition area. Your vehicle should be parallel to the road and your blue emergency lights should be activated.

If a traffic queue develops in the advance warning area, you should be prepared to adjust your position such that you are approximately $\frac{1}{4}$ mile upstream of the end of the traffic queue. As the queue dissipates, you should continue to adjust your position to maintain this $\frac{1}{4}$ mile distance. If there is not a safe shoulder to position yourself on in the advance warning area, the next best place to position yourself is inside of the closed lane at least 200' after the TMA and upstream of the first work crew. Recall that TMAs, if struck, roll ahead 100-200' as part of their energy-absorbing design. Now, let's discuss where you should avoid positioning yourself in the work zone.

You should avoid positioning yourself in the buffer space, transition area, or in an open lane of traffic. These locations are hazardous to either yourself or the motoring public as they violate motorist expectations. Be mindful not to position yourself in a location that blocks the motorists' view of advanced warning signs, arrow boards, and changeable message signs. Positioning too close to signs could distract drivers from reading the important traffic information being communicated on the signs. In addition, be mindful that your use of a strobe light from your vehicle may "wash out" the flashing arrow boards, making them difficult for motorists to see. Therefore, you should not be positioned within 750 feet' of an arrow board or changeable message sign, regardless of whether you are in front of it or behind it to avoid this wash-out effect.

(Graphic showing arrow board "no park" area.)

VO: Although construction work crews may attempt to ask you to use your vehicle to block a lane of traffic during traffic control set up, you should not do this. Explain to them that doing so would put your safety at risk, that you are prohibited from taking this action, and tell them you will not proceed. While it is permissible on roadways with speed limits of 40mph and below for a law enforcement officer to block an active lane of traffic, it can still be hazardous, and this method should only be deployed when no other options exist. For high-speed facilities (45 mph and higher), you should only block active travel when conducting a rolling roadblock across all lanes, which we'll discuss later. As a reminder you should also not be within 200 feet downstream or behind a TMA. These TMA vehicles are designed to move when they are struck, and parking directly in front of one can put you at risk.

(bullets to be displayed while above is read)

Position yourself

- Visible to approaching motorists with blue lights activated
- In the advanced warning area or inside the closed travel lane after the TMA and buffer space
- On the shoulder or median
- Parallel to the road
- Adjust your position with traffic, based on the queue.

Avoid positioning yourself

- In the buffer space, or transition area
- In an open lane of traffic (except for a rolling roadblock operation as described below), including temporarily blocking a single lane on high-speed multilane facility
- Blocking view of advanced warning signs
- Within 750 feet of arrow boards or changeable message signs
- Within the 200 feet roll ahead distance in front of the crash cushion of a TMA
- Behind a TMA, as you are not getting the crash protection the TMA offers

VO: Law enforcement officers may be asked to assist with a rolling road block. Rolling road blocks can be used for the installation of lane closures, removal of overhead signs, or removing or installing bridge girders over the roadway, and other types of construction where the entire travel way must be slow rolling or closed to traffic. The crews in charge of the work zone will install advance warning signs before the law enforcement officer is able to proceed with the rolling road block. If you are asked to assist with a rolling road block and the advanced warning signs are not in place, tell your point of contact immediately and do not assist the construction crew until warning signage is erected. This is critical to the safety of the motoring public.

(Should show a diagram of a rolling road block during next dialogue)

In order to start a rolling road block, all law enforcement vehicles and pilot vehicles will begin stopped on the outside shoulder, on an on-ramp shoulder, or in another safe staging area. The pilot vehicles will be positioned behind the chase vehicle. All pilot vehicles will enter the roadway, with the chase vehicle in the front and pilot cars following behind in a single file in the right lane.

The chase and pilot vehicles accelerate to normal roadway speeds in this single file line.

Once they reach operating speed, the pilot cars will re-position themselves side by side, across all lanes of traffic, and then gradually slow to the pre-decided rolling roadblock pace speed.

After the traffic has been blocked and is travelling at the pace speed behind the pilot vehicles, a chase vehicle travels forward toward the work area, following the last public motorist, to verify that all traffic has cleared. The chase vehicle is not law enforcement. Instead, the chase vehicle will normally be a contractor work vehicle (such as a pickup truck) or the NCDOT inspector. Once the chase vehicle reaches the work area, the contractor may begin working in the roadway.

The pilot vehicles continue pacing traffic toward the work area while work in the roadway is occurring. Once the work is completed, the work crew will radio back to the pilot vehicles that the roadway is clear. Once this radio transmission is received, the pilot vehicles pacing traffic will increase their speed to the posted speed limit, and then release traffic by un-blocking the travel lanes. (play a sequence of a rolling road block)

(Back to speaker)

VO: Now that you're familiar with the common roles of a law enforcement officer in a work zone, let's go over some additional do's and don'ts:

(display the bullets as they are read)

When you arrive for a shift, you should:

- Meet with your Point of Contact. Learn the layout and operation of the work zone and any changes to the work zone that may have occurred, even if you just worked it the day before.
- Have a way to communicate with the Point of Contact during your shift – you should be provided with a radio or cell phone number of the superintendent on site.

- When you have other law enforcement personnel also providing blue light presence, communicate with them who will be parked where so that both officers are not parked in the advanced warning area.
- Drive through the work zone at the beginning of each shift and notify your Point of Contact of potential issues that you may notice or have questions about before you begin your shift.
- Have a plan to relocate your vehicle with traffic changes based on traffic queuing or as work zone operations change.

While in position you should:

- **ALWAYS BE ALERT**
 - o It is easy to become distracted by paperwork, the radio, or your phone while watching traffic. But it's when we become distracted that we miss key details, like a driver behaving erratically, and this is when crashes can occur.
- Keep your headlights off, and emergency lights on
- Pay attention to traffic at all times
- Be positioned on the shoulder or median in the advance warning area and away from arrow boards and changeable message signs

Things you Should Avoid

- Positioning yourself in the buffer zone or transition area
- Becoming distracted
- Blocking an active travel lane on high-speed multi-lane facility
- Stopping traffic (outside of a rolling road block)
- Beginning a rolling road block, if advanced warning signs are not in place
- Assisting construction vehicles entering and exiting the work area
- Following instructions from construction workers that conflict with information in this video
- Positioning yourself within roll ahead area or in advance of a TMA

When working in a work zone, it is your responsibility to know what you should and should not be doing. You should always feel comfortable telling your point of contact or any worker "I am not allowed to do that for you" if what they ask conflicts with the information you have been given in this training.

Thank you for watching the training. If you have questions about your role in the work zone or would like to learn more, contact (NCDOT will fill in). After the video stops, please complete the post training assessment.

Pre/post Assessment

Correct answers are in bold, explanation that should display after the student answers are in italics.

1. True/**False**

Law enforcement officers should always follow the instructions from construction workers and their point of contact at the work zone.

If law enforcement officers are asked to do some that disregards their safety or contradicts their training, they should not follow those instructions.

2. True/**False**

It is recommended to position yourself in the taper or transition area of the work zone.

Law enforcement officers should be positioned in the advance warning area of the work zone as the preferred option. If there is no shoulder available in the advance warning area, then law enforcement should position themselves more than 200ft downstream of the TMA. Officers should not be within in the buffer space, transition area, or in an open lane of traffic.

3. **True**/False

Work zones can be dangerous places, law enforcement officers should be alert and distraction free at all times while working.

Work zones have new driving patterns, heavy equipment, and distracted drivers. Law enforcement officers must be prepared and should always remain alert and distraction free.

4. True/**False**

Law enforcement officers can temporarily stop a single lane of traffic on the interstate to assist in setting up a lane closure when requested by their point of contact.

Law enforcement officers shall not be used to close or block an active travel lane on multilane roadways with a posted speed of 45mph or greater unless they are part of a rolling road block.

5. True/**False**

It is ok for a law enforcement officer to not have a way to reach their point of contact while parked in a work zone.

*The work zone point of contact should **always** provide a way to be in contact, typically a radio. Law enforcement officers should not begin work in a work zone until one is provided.*

6. A law enforcement officer presence deters what behavior in a work zone?

- a. Speeding
- b. Aggressive driving
- c. Distracted driving
- d. All of the above**

A law enforcement presence with flashing blue lights attracts the attention of drivers, who are more likely to reduce their speed, be alert and avoid aggressive behavior while maneuvering through a work zone.

7. How many parts of a work zone are there?

- a. 1
- b. 6
- c. 3
- d. 4

There are 4 parts of a work zone – the advance warning area, the transition area, the activity area (which may include a buffer space) and the termination area.

8. The primary location a law enforcement officer should be positioned at a work zone to provide blue light presence is:

- a. **On the shoulder of the road in the advance warning area**
- b. In the transition area of the work zone
- c. In the buffer space of the work zone
- d. None of the above

The primary location that law enforcement officers should be positioned in a work zone is on the shoulder of the road in the advance warning area, never in the buffer space or transition area of a work zone.

9. True/**False**

Law enforcement officers should be positioned close to the changeable message sign in a work zone. *Law enforcement officers should not be positioned within 750ft of an arrow board or changeable message sign to avoid “washing out” the message boards or flashing arrow boards.*

10. **True**/False

Law enforcement vehicles should be positioned parallel to the roadway with headlights off and emergency lights on.

This is correct, vehicles should be positioned parallel to the roadway with headlights off and emergency lights on.

Last question (or questions, I think as many as 6 on this topic could be good) saved for updated information on rolling road blocks/the replacement information on rolling road blocks.

Conclusion

NCDOT has received a script and pre/post assessment to use to create training for law enforcement officers to learn more about their role when providing a blue light presence in a work zone. The NCDOT communications team has been in contact with the NCDOT Work Zone Traffic Control staff and developed a plan with their videographers to film the new video required for completion of this project.