**Highway Work Zone Safety**

**KYTC Recent Efforts**

KYTC has recently engaged stakeholders from our organization and federal agencies and formed a committee to look at challenges and opportunities to better plan, design, administer and perform work within work zones in KY. Our **Work Zone Committee** (mentioned below several times) is evaluating ideas to improve safety (both worker and highway), traffic flow as well as driver understanding and compliance of work zone traffic control.

Each year toward the beginning of the construction season, KYTC promotes and participates in [Work Zone Safety Awareness Week](http://www.nwzaw.org/) (generally in April each year). This year due to COVID-19 we didn’t have in person events, but usually we participate in several press events around the Commonwealth reminding people to travel safely and responsibly through work zones and mourn / honor any workers who lost their lives the previous year in work zone crashes. Over the last several years, we’ve encouraged people to be “[vested in work zone safety](https://transportation.ky.gov/PublicAffairs/Pages/Work-Zone-Safety-in-Kentucky.aspx#:~:text=KYTC&text=The%20Kentucky%20Transportation%20Cabinet%20is,injuries%2C%20and%20fatalities%20in%20Kentucky.)” as a connection point for this critical worker safety challenge.

One other item that KYTC is working on that we’d like to highlight is experimental striping in several of our work zones. In an effort to improve work zone safety, KYTC secured approval from the Federal Highway Administration for the use of orange pavement markings on two I-75 widening projects north of Corbin and London. The primary benefits of the orange pavement markings are expected to be lower speeds due to a continuous warning that motorists are still within the limits of a work zone and less driver confusion due to improved demarcation of the intended travel path in transition areas.

**New Innovations or Trends in Improving Work Zone Safety**

* Use of portable transverse rumble strips in advance of lane closures has become fairly popular nationally. Data collected in Texas suggests they are pretty effective, especially at work zones where queues form that are unexpected by motorists (i.e., on rural or suburban freeways). Work crews put them out at the beginning of a work shift, and then pick them up when the shift is complete. They appear to work well in getting the attention of distracted drivers.  An example of this device can be found [here](https://www.pss-innovations.com/safety-products/rumble-strip-systems).

*KYTC has some limited experience with portable transverse rumble strips. The Work Zone Committee will be evaluating available products and discussing guidance on their use and implementation on an experimental basis.*

* Likewise, smart work zone systems that automatically sense road conditions and provide warnings to drivers when queues form, encourage diversion to other routes, etc. have become more popular nationally in recent years. Systems can do a variety of different functions, depending on the needs of traffic. Considerable information on this topic can be found [here](https://www.workzonesafety.org/swz/swztechnology-application/types-of-applications/).

*KYTC has implemented smart work zone technologies on some projects to update travel times on Dynamic Message Signs and to provide work zone condition updates on electronic message boards placed in advance of work zones. Messages automatically change depending on the speed of vehicles traveling through the work zone alerting drivers of slowing traffic or potential queues. Another strategy that KYTC is piloting, specifically related to queue warning is the inclusion of a Queue Protection Vehicle requirement on the I-75 Widening project in Laurel County. The queue protection vehicle provides a highly visible vehicle on the shoulder of the roadway displaying a message to warn drivers of queued traffic ahead. The vehicle is constantly moved with the queue length to remain approximately 1/2 mile ahead of the queue. The Tennessee Department of Transportation began implementing such vehicles several construction seasons ago and have reported significantly reduced crashes at the beginning of the queue on projects that have included this requirement.*

* Commercial motor vehicles (primarily large trucks) are significantly overrepresented in fatal work zone crashes. FHWA, FMCSA, and NHTSA are encouraging states to focus on reducing these types of crashes (see available resources [here](https://www.workzonesafety.org/topics-of-interest/improving-large-truck-safety-in-work-zones/)).

*The Kentucky Office of Highway Safety within KYTC works with NHTSA, FMCSA and FHWA on preventing CMV crashes. Several of our six emphasis areas in our* [*2020-2024 Strategic Highway Safety Plan*](https://transportation.ky.gov/HighwaySafety/Documents/2020%20SHSP%20SAFE%20KY%20Highway%20Safety%20Plan%20Final%205-20.pdf) *(****Aggressive Driving****,* ***Distracted Driving****,* ***Impaired Driving****, Occupant Protection,* ***Roadway Departure*** *and Vulnerable Road Users) are directly applicable to these types of crashes and their prevention will be a focus over the implementation of that plan.*

**New Practices or Requirements for Contractors and Workers**

* More specific design requirements for access points into and out of a work zone that is protected by barrier (see this [link](https://www.workzonesafety.org/files/documents/training/fhwa_wz_grant/artba_large_truck_work_space_access_points_factsheet-508.pdf) for more information)

*During project development KYTC uses a multi-disciplinary project team that brings varied experience to the design process. We will ensure that this information reaches our project development professionals for consideration.*

* Use of smart work zone technologies to provide warnings to motorists when work vehicles at a work zone are leaving or entering travel lanes (see this [link](https://www.workzonesafety.org/files/documents/training/fhwa_wz_grant/artba_use_swz_technology-508.pdf) for more information)

*KYTC has not utilized this technology, but the Work Zone Committee plans on evaluating available products and recommend experimental use.*

* Increased attention is being given to accommodating pedestrians in and around work zones, especially those with disabilities. (More information and resources about this can be found [here](https://www.workzonesafety.org/topics-of-interest/accommodating-pedestrians/)).

*KYTC has identified this as an area of need for the Work Zone Committee to study and make recommendations for expanded training and guidance.*

* A couple of efforts are underway developing and testing/demonstrating automated vehicles used to protect work crews. These are large trucks with crash cushions (attenuators) mounted to the back that reduce the severity of a crash if a motorist fails to slow in time and hits the truck. Traditionally these have been driven by workers, and some have been injured when rear-ended by a high speed vehicle. By removing the driver from the vehicle itself, it is believed to improve worker safety. Some information about this type of technology can be found [here](https://www.workzonesafety.org/swz/swztechnology-application/field-demo/swz-colorado-field-demonstration/) and [here](https://www.workzonesafety.org/files/documents/SWZ/ATMA_project_background-Kyle.pdf).

*KYTC is interested in this technology but has not yet been involved in any discussions with manufacturers or other agencies using them. The Work Zone Committee will be discussing this item further and looking at potential opportunities to pilot this technology.*

**New Technology Trends or Innovations**

* Some agencies are investing in mobile barriers that are towed in place to protect workers in vulnerable situations (guardrail repair, pothole patching, etc.) and then towed out of the way when the work is finished. This is especially useful for short-duration maintenance activities. (Information about this technology can be found on page 38 of this [document](https://www.workzonesafety.org/files/documents/training/fhwa_wz_grant/uw_wz_designer_guidelines_positive_protection-n-508.pdf), an example of this technology can be found [here](https://www.mobilebarriers.com/)).

*KYTC is interested in mobile barriers but has not yet been involved in any discussions with or manufacturers other agencies using them. The Work Zone Committee will be discussing this item further and looking at potential opportunities to pilot this technology.*

* Several agencies are working to automatically identify when and where work zones are set up and when they are taken down. They are instrumenting flashing arrow panels with communication technology that can be imported into agency traveler information websites and shared with navigational companies such as INRIX, HERE, Google, etc. Devices that can be placed in traffic cones or drums and automatically transmit their location are also being developed. An example of this type of technology is listed [here](https://www.iconeproducts.com/?ss_source=sscampaigns&ss_campaign_id=5ef9fe6eab81c94ff3e4bb22&ss_email_id=5efa01667032046e77230fd7&ss_campaign_name=ConnectedTech+Warns+Drivers+to+Watch+Out+for+Work+Zones&ss_campaign_sent_date=2020-06-29T14%3A57%3A46Z)).

*KYTC is looking into opportunities to better communicate work zone information with the public each day. KYTC is currently working on a grant application to the US Department of Transportation which includes a data-informed method of identifying short duration work zones. Our longer duration (traditional) work zones are published through our traveler information system –* [*https://goky.ky.gov*](https://goky.ky.gov) *– which is then published as a data feed to be shared as discussed above with navigational companies. One of KYTC’s main methods of doing this is the* [*Waze Connected Citizen Partnership*](https://www.waze.com/ccp)*.*

* Related to the previous bullet, work is underway to establish a consensus-based standard digital description of all types of work zone events (project limits, temporary lane closures, etc.). The goal is to be able to share accurate and timely work zone event data and disseminate it to connected and automated vehicles as they become more prevalent on roadways. Labelled the Work Zone Data Initiative, it is a joint effort of the FHWA Office of Operations and Intelligent Transportation Systems Joint Program Office of the USDOT. A link to the site can be found [here](https://collaboration.fhwa.dot.gov/wzmp/wzdi/Forms/AllItems.aspx).

*The grant opportunity mentioned above is an outgrowth of this project – the* [*Work Zone Data Exchange*](https://www.transportation.gov/av/data/wzdx)*. Through the Waze Connected Citizens Partnership, KYTC has been a national leader in the gathering, processing and publishing real-time traveler information space since 2014. KYTC was also amongst the founding members of the WZDx specification after being recruited by the USDOT's ITS JPO due to our expertise in big data. KYTC remains a member of that technical specification group. We’re excited for this opportunity to continue to provide quality, timely, actionable information for those who are traveling on our roadways. This data is also useful for KYTC and other agencies (such as law enforcement and local public officials) to be able to better plan and operate work zones in the future.*

**New Training Requirements**

* There haven’t been any significant changes in training requirements on a national level. However, the American Road and Transportation Builders Association (ARTBA) has recently launched a new safety professional certification program that has been embraced by a few agencies (the Texas DOT is one of those agencies). See [here](https://sctpp.org/) for more information.

*KYTC has recently implemented a new training program for field staff who work in the construction and maintenance field – the Highway Technician Academy. This academy has many classes / courses where employees learn about various elements of how to perform work safety within work zones. We are also evaluating other opportunities related to employee safety and have a couple of ongoing research projects with the Kentucky Transportation Center that look for opportunities to improve the safety of our workers that we are working to implement as well.*

**Legislative Trends**

* Measures in several states have been filed seeking to allow automated speed enforcement devices in highway work zones.

*KYTC is looking at and studying this as a potential opportunity going forward, but haven’t made a final decision on that yet. We’d be happy to discuss when you or Representative Blanton are ready.*

* Legislation has been filed in several states to require the presence of a police officer and a vehicle with blue flashing lights to be stationed at certain highway work zones. A similar measure in Florida would allow construction vehicles to display blue lights in conjunction with paving operations or where a hazard exists.

*KYTC does request and utilize police presence on certain projects. KYTC has concerns that non-law enforcement officers (i.e. contractors) utilizing blue lights may diminish the effectiveness of blue lights as a whole once drivers became aware that not all vehicles displaying blue lights have the ability to issue citations.*

* Texas has established a process whereby they include contingency funds in their projects to cover any unforeseen safety needs during construction. This reduces delays associated with change orders for any necessary safety improvements as well as the reluctance in pursuing those by project staff. A fact sheet documenting the process can be found [here](https://ops.fhwa.dot.gov/publications/fhwahop20009/fhwahop20009.pdf).

*KYTC has included Law Enforcement Officers as a pay item on 198 projects over the last 5 years. On numerous others, State Troopers are utilized and charge directly to the project. KYTC has not included contingency funds specifically earmarked for safety enhancements in the past; only pay items for Law Enforcement Officers. Any additional items determined to be needed have been added by the normal change order process.*