

Dynamic versus Static Visibility Needs Assessment for First Responder

While it is critical that first responders, such as law enforcement, firefighters, and EMS, are visible to the driving public, there is a question as to whether the current methods being applied to make first responder vehicles and staff conspicuous to adjacent motorists are effective. There is research that shows that lights can be too bright and that their placement can impair the visibility of drivers trying to look at nearby objects. This may even be the case for the first responders active within the area they are responding. There is also data to support that retroreflective material can impair a motorist's ability to see low contrast objects. It is not recommended to remove lights or retroreflective materials, but research could be conducted to help provide guidance on light intensity and placement, and the use of retroreflective materials.

Another consideration is whether the light patterns convey the proper message, and in particular, should there be at least two different light patterns for first responders. If one assumes that the existing patterns convey the message to move over and out of the way, is there something inherent in the light patterns that effectively alerts drivers to the appropriate direction to move, or could something be done to ensure that drivers are consistent in how they move with respect to an approaching first responder? Then, once on the scene, should a different pattern be used to convey something different?

Objectives

- Conduct a synthesis on the current body of knowledge related to the original design of flashing lights and conspicuity material related to first responders.
- Evaluate the impact of the intensity of the lights and their respective flash patterns on first responder vehicle detection by motorists versus detecting other adjacent objects, such as other non-first responder vehicles stopped or moving, traffic control devices, and pedestrians.
- Evaluate the impact of the placement of lights on first responder vehicles with respect to detecting other adjacent objects by motorists.
- Evaluate the impact of retroreflective materials on the first responder vehicles and the first responders themselves on detection by motorists, and the impact on motorists to see non-retroreflective objects in and around the scene.
- Evaluate whether different flash patterns could be used to increase motorist compliance with moving over, and alert the motorist to wear the first responder is going or where the motorist should move. This should consider whether the first responder vehicle is dynamic and on the way to the scene, or static and parked at the scene.
- Evaluate the necessary lighting conditions at a scene to allow the first responders to carry out their work without impairing their safety or the safety of adjacent motorists.