

# Tech Brief

## PORTABLE WORK ZONE BARRIER- MOBILE BARRIERS MOBILE BARRIER TRAILER (MBT-1)

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Think Jersey DOT

FHWA-NJ-2009-021

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### BACKGROUND

- Protecting the safety of construction and maintenance fieldwork crews and motorists on roadways is among the top priorities of the New Jersey Department of Transportation (NJDOT) and the Federal Highway Administration (FHWA).
- The utilization of appropriate temporary traffic control procedures during roadway construction, maintenance, utility, or other activities is critical to ensuring the safety of the personnel performing those activities as well as the public motorist traveling the roadway adjacent to those activities. Based on recommendations from a previous study titled "Identification of Traffic Control Devices for Mobile and Short Duration Work Operations" commissioned by the New Jersey Department of Transportation and conducted by the University Research Center, this project was initially intended to focus on the fabrication and implementation of the Balsi Beam which is a truck mounted, moveable, expandable beam that provides positive work zone protection comparable to a fixed concrete barrier.

- With the assistance of the NJDOT's Research Advisory Committee, the Mobile Barrier Trailer (MB-T), manufactured by Mobile Barrier, LLC, have been identified, purchased, and deployed for evaluation at NJDOT work zone sites.

#### WHAT'S THE PROBLEM?

- Workers in short-term highway maintenance-type work zones are at significant risk of being struck by errant vehicles that intrude into defined work zones. Many work zone devices, such as truck-mounted attenuators (TMAs), traffic cones, and barrels are used to separate workers from the traveling public during construction and maintenance activities. Although, these devices may serve well to delineate work zones, they do not provide lateral impact protection for pedestrian workers when an errant vehicle intrudes into their area. While temporary concrete barrier and other positive barriers can be used in long-term work zones to separate the work area from live traffic, thus protecting the workers, it is not practical to use these types of devices for short duration and maintenance-type (Short-Term Stationary, Mobile Work, Work-Vehicle) work zones due to their time-intensive and difficult deployment characteristics.

#### HERE'S THE SOLUTION

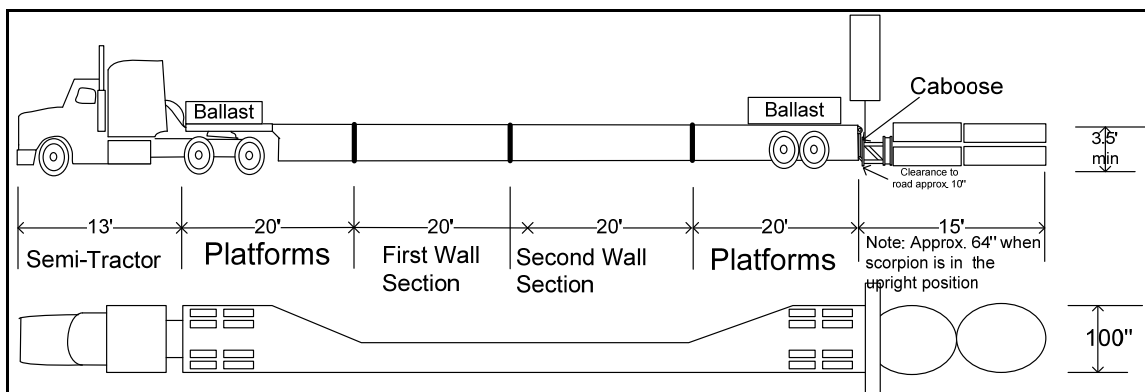
- With this research project, NJDOT has purchased, deployed, and evaluated the Mobile Barrier Trailer (MBT-1) at the New Jersey Department of Transportation work zone sites. The Mobile Barrier Trailer, manufactured by Mobile Barrier, LLC, is a mobile temporary barrier.
- The MBT-1 provides a physical and visual wall between passing traffic and the maintenance personnel. With integrated crash attenuation at the rear, a semi-tractor at the front, and a rigid wall on the side toward passing traffic, the Trailer provides approximately 100 feet (with 3 wall sections) of barrier and protected work. This trailer is towed around by a tractor truck, which makes it highly mobile.

#### THESE ARE THE OBJECTIVES...

- The primary objective of the study is to purchase and deploy the Mobile Barrier Trailer (MBT-1) at the New Jersey Department of Transportation Work Zone sites.
- A second objective was to assess the MBT-1 effectiveness to improve worker safety in mobile work zone and short-term maintenance operations and reduce delays and crashes due to work zones.

## HERE IS WHAT WE DID...

- The project has been focused on helping NJDOT to implement the MBT-1 with an attempt to evaluate and develop a deployment guideline of the MBT-1. Unfortunately, there have been delays and obstacles to deploy the MBT-1 to work zone sites as initially planned. Obstacles such as finding a tractor to pull the trailer or personnel to escort and set it up at the work site, have limited its deployment. The lack of deployment for field trials of the MBT-1 has impeded on the development of a comprehensive set of deployment guidelines and evaluation
- This research proposes some deployment guidelines and recommendations for future models of the MBT-1 based on experience and on comments received from personnel and workers exposed with the MBT-1.
- The MBT-1 functional requirements are the state-of-the-art in positive protection against lateral intrusions into the work zone. It far exceeds its expectations in regards to protecting the worker from bodily injury from errant vehicles and also protects the vehicles from possible fatalities with it ride down upon impact. This deflection of the walls when the impact occurs is only one of the advantages of this equipment. It has been mentioned that its mobility both to the site and on the site is another attractive feature when considering the implementation of this equipment on a given road construction project.
- Planning for the deployment of the MBT-1 to work zones is very critical. The MBT-1 must be assembled at a yard site before deployment to the field. The MBT-1 cannot be readily and safely converted from either left or right side barrier to the other side at the roadway job site. It was identified that the best application of the device is on straight sections of roadway without a need to use ramps, clover leaves, or intersections. In New Jersey, the geometry of the roadway systems would require that the MBT-1 be setup at a yard for deployment to roadways of geometry as those found on tolls or Interstate roads.



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A final report is available online at

<http://www.state.nj.us/transportation/refdata/research/>

If you would like a copy of the full report, send an e-mail to:

[Research.Bureau@dot.state.nj.us](mailto:Research.Bureau@dot.state.nj.us).

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