Protective Vehicle Area and Roll-Ahead Distances

Proper placement of protective (shadow/barrier) vehicles is essential during all types of operations. The vehicle must be placed close enough to the operation to prevent motorists from intruding into the work space, but not so close as to have the protective vehicle pushed ahead into the work space if hit from behind. This distance is known as the roll-ahead distance. The weight of the protective vehicle, the speed of traffic, the speed of the work operation, and the vehicle make-up of the traffic stream (all passenger vehicles or a large number of tractor trailers) will determine the roll-ahead distance to be used. The roll-ahead distances shown on our typical applications use a 24,000 lb protective vehicle and a 15,000 lb impacting vehicle.

There shall be no equipment, vehicles, or workers within the roll-ahead area.

Types of Protective Vehicles

There are two types of protective vehicles: **Barrier and Shadow**

**Barrier Vehicle:** A barrier vehicle is for stationary work operations to protect workers on foot in the roadway from errant vehicles. The barrier vehicle is unoccupied with the parking break set and front wheels turned away from oncoming traffic and employees in the work area, if possible. A barrier vehicle does not require a Truck Mounted Impact Attenuator (TMIA) in all cases. If a TMIA is used, it shall be attached to a large dump truck, a large rack truck or other vehicle having a gross weight of at least 24,000 pounds. Where the posted speed limit is 55 mph or less, the TMIA shall be a Test Level 2 attenuator. Where the posted speed is more than 55 mph, a Test Level 3 attenuator shall be used, if available. Barrier vehicles may be loaded with sand, gravel or fine aggregate to enhance the vehicle’s gross weight.

**Shadow Vehicle:** A shadow vehicle is for mobile operations only. The shadow vehicle shall be equipped and meet the same size and weight requirements as a barrier vehicle. The driver shall remain in the vehicle and adjust the vehicle’s spacing as work progresses.

**Advance Warning Vehicle:** This vehicle is stationed a considerable distance in advance of a moving or stationary maintenance operation. Its purpose is to display sign messages which will advise motorists of what to expect ahead. If the vehicle is able to stay completely on the shoulder, a pick up truck may be used. However, if the vehicle encroaches into the travel lane, it then becomes a Barrier/Shadow Vehicle and shall be equipped accordingly.