

VandenBerghe, Alissa (Consultant)

From: Nick.Artimovich@dot.gov
Sent: Friday, February 20, 2009 4:55 AM
To: Erickson, Rod
Cc: Olson, Dave; Mary.McDonough@dot.gov; will.longstreet@dot.gov
Subject: RE: Tunnel Barrier

Rod,

The vertical wall has its plusses and minuses:

Plus: There will be no tendency for smaller vehicles to overturn upon impact with the barrier. The Jersey Wall to some extent, and the old "GM Shape" was notorious for flipping small cars. (The "F-Shape" greatly reduces this tendency, and vertical walls eliminate it entirely.)

Plus: The vertical wall has been successfully tested to NCHRP Report 350

Minus: Every impact will result in some damage to the vehicle. The lower slope of the Jersey and F shapes allow some wheel contact with the barrier leading to redirection without any sheet metal contact with the barrier.

Neutral: Impacts by trucks will result in the whole side of the cab and box impacting the wall. This will result in damage, but there will be no lean over the barrier. The wall will have to be perfectly flat so that the upper part of the truck will not snag on anything (ie: no openings or recesses.) Since the roadway will be constrained there will be less likelihood that a severe impact will cause the truck to rebound and cross the tunnel. (As in this three lane tunnel in Russia <http://www.youtube.com/watch?v=89g7IEfO-zY>

One compromise you may wish to consider is to replicate the lower 10 inches of the "F-Shape" at the base of the wall – this will help reduce some of the force of the impact into the wall while minimizing the tendency for vehicle roll. The rest of the wall will be vertical.

Nick

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From: Erickson, Rod [mailto:EricksR@wsdot.wa.gov]
Sent: Thursday, February 19, 2009 7:00 PM
To: Artimovich, Nick <FHWA>
Cc: Olson, Dave
Subject: Tunnel Barrier

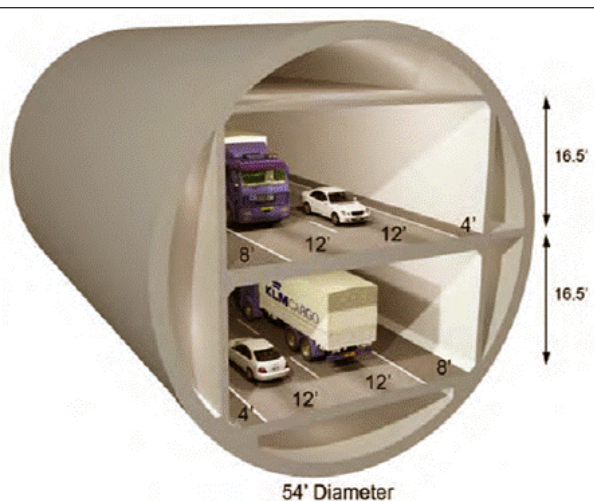
Hi Nick,

Washington State is considering the installation of a deep bore 54 foot diameter tunnel (see attached image). In this installation, the consultant is proposing to use vertical walls in lieu of shaped traffic barriers to preserve limited shoulder space. I am interested in your thoughts and direction in obtaining more information concerning this type of installation. The tunnel will be approximately 1 mile long and in the basic configuration shown. Please help me with any guidance you are aware of.

Thanks,

Rod

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