



U.S. Department  
of Transportation

Federal Highway  
Administration

# Memorandum

Subject: **ACTION:** Inspection of Overhead Connections  
in Tunnels  
*/s/ Original Signed by*

Date: November 5, 2012

From: John Baxter  
Associate Administrator for Infrastructure

In Reply Refer To:  
HIBT-1

To: Directors of Field Services  
Federal Lands Highway Division Engineers  
Division Administrators

On September 30, 2012, an overhead luminaire (lighting fixture) fell from its support bracket onto a parking apron within the portal of the downtown side of Ft. Pitt Tunnel in Pittsburgh, PA. The connection failed as a result of galvanic corrosion between the aluminum frame of the luminaire and the stainless steel bolts connecting it to the support bracket.

Galvanic corrosion is an electrochemical process that can occur between dissimilar metals. During this process, metallic ions sacrificially move from the less noble metal (smaller atomic number) to the more noble metal which accelerates the deterioration of the less noble metal while retarding the deterioration of the more noble metal.

The incident and PennDOT's response are described more thoroughly in the attached report developed by the Office of Bridge Technology and the PA Division Office. The incident is also very similar to one that occurred in Boston's Central Artery/Tunnel (CA/T) in March of 2011. The results of that investigation were circulated by the Office of Bridge Technology and are also attached for your reference.

Although both recent incidents could have resulted in tragic consequences, fortunately, no one was injured. However, both of these incidents could have been prevented by routinely inspecting the connections and elements of the luminaires. Inadequate inspection also contributed to the collapse of the suspended ceiling in the CA/T in 2006 which tragically resulted in a fatality. That incident was one of the primary motivators for the development of National Tunnel Inspection Standards (NTIS) which are currently in the rule making process.

Please visit with your State transportation agency partner to assure that they are aware of these recent issues and their cause. Also, during that visit, strongly recommend that they

both identify potentially similar issues in their inventory and begin inspecting those connections and elements adequately to assure safety.

Please meet with your State transportation agency partner and report back any relevant outcomes of that meeting by December 14, 2012, to Mr. Myint Lwin at (202)366-4589 or [Myint.Lwin@dot.gov](mailto:Myint.Lwin@dot.gov) or Mr. Joseph Hartmann at (202) 366-4599 or [Joey.Hartmann@dot.gov](mailto:Joey.Hartmann@dot.gov).

Attachment:

Event Report: Ft. Pitt Tunnel Luminaire  
Connect Failure

cc:

BRIDGE\_ALL