



**VDOT Action Plan for Response  
Hampton Roads Bridge-Tunnel Independent Review Panel  
Recommendations**

December 16, 2009

**David S. Ekern**

Commissioner

*Conduct a risk assessment to identify the critical events that would result in closure of the facility or risk to the safety of the facility users.*

- **Monitoring technology installed in HRBT (2009)**
  - Water detection system installed in the lower ducts
  - Flow sensors installed in potable water and fire suppression systems. Currently developing a contract to install these sensors in all facilities.
- **Closed circuit television cameras to be installed in select areas in 2010**
- **An Automated Maintenance Management System (AMMS) to be deployed in 2010**
- **Risk analysis completed to identify 6 key systems that could result in the closure of a tunnel or movable bridge facility. These critical systems are:**
  - The power distribution system
  - The fire suppression system
  - The drainage system
  - The over height vehicle detection system
  - The ventilation system
  - The hydraulic and mechanical systems

## VDOT ACTION PLAN

### ***Evaluate the staffing patterns and expertise required for each functional unit.***

- Staffing and organizational structure of maintenance and operations personnel to be completed by July 2010
- Plan to consolidate traffic management functions at tunnels with Transportation Operations Center (TOC) to leverage resources and improve coordination during major events (July 2010)
- Implement a new training program for operations and maintenance staff (2010)

### ***Enhance facility management plans and procedures for tunnel facilities.***

- Computerized logging system to track field personnel activities and maintenance activities for each tunnel control room (2009)
- Asset Management Working Group guiding overall tunnel asset maintenance management program. Provides a quality control function and reviews of completed maintenance/work orders, equipment repair efforts and systems replacement planning cycles.
- Implementing an Automated Maintenance Management System (AMMS) to capture info from all data systems to ensure that preventative maintenance and inspection requirements for each tunnel subsystem are clearly defined, documented, scheduled and managed.
- Independent inspection process (July 2010)

***Enhance traveler information dissemination during incidents and other major events as a means of reducing overall traveler delay.***

- Continue to work with the I-95 Corridor Coalition for notifications to other states (North Carolina and Maryland) during Level III incidents (2009 and ongoing)
- Implement an enhanced public education and outreach effort for 511 Virginia system (2010)
- Develop an education and outreach effort for public education regarding tunnel incidents (July 2010)

***Enhance the emergency plan coordination with local and first responders.***

- Incident diversion plans have been developed by the Virginia Department of Emergency Management for localities in Hampton Roads (2009).
- Scheduling quarterly meetings with localities, fire, rescue, police and tunnel personnel to improve communication, coordination, planning and response to tunnel and movable bridge incidents (April 2010)
- Conduct periodic exercises and drills to test these collaborative response plans (2010 and ongoing)

***Implement periodic reviews of security-related plans and policies.***

- Continue to work with the Multi-Jurisdictional Anti-Terrorist Task Force, which includes the federal law enforcement agencies, Virginia State Police, Department of Homeland Security and local law enforcement agencies, to ensure facility security plans are adequate
- Work with the Department of Homeland Security to implement inspection recommendations for security systems and plans
- Conduct training to ensure that all employees are fully aware of all security policies and procedures and conduct frequent security exercises (2010)

# TUNNEL INVESTMENTS

## Completed Work Since 2003

- HRBT—\$8.2 million
- MMMBT—\$6.1 million
- Midtown Tunnel—\$708,000
- Downtown Tunnel—\$2.3 million

- Fire Suppression System Upgrades
- Flood Prevention and Drainage Improvements
- Ventilation/HVAC Improvements
- Electrical Upgrades
- Safety Improvements
- Inspections, Analyses, Reports

## Anticipated Work (2009-2012)

- HRBT—\$49.5 million
- MMMBT—\$8.2 million
- Midtown Tunnel—\$7.6 million
- Downtown Tunnel—\$5.2 million

- Fire Suppression System Upgrades
- Flood Prevention and Drainage Improvements
- Ventilation/HVAC Improvements
- Lighting/Electrical Upgrades
- Radio System Enhancements
- Safety Improvements
- Security Upgrades
- Pavement/Structural Repairs