

Report of the Hampton Roads Bridge-Tunnel Independent Review Panel

Presented to the Commonwealth
Transportation Board
December 16, 2009

Independent Review Panel

- Convened by Commissioner Ekern in response to July 2nd flooding event
- Included experts from other tunnel facilities and emergency management agencies
- Recommendations developed over the course of three meetings

Panel Charge

- Review policies and procedures used for tunnel operations, maintenance, technology and management at Hampton Roads
- Review similar policies and procedures used at other tunnel facilities
- Make recommendations for needed improvements to ensure use of best practices

Panel Members

- Philip J. Tarnoff (chair), Director, Center for Integrated Transportation System Management, University of Maryland
- Steven Mondul, Deputy Assistant to the Governor for Commonwealth Preparedness
- Wallace Twigg, Region V Director, Virginia Department of Emergency Management
- Capt. R. Daniel Plott, Bureau of Field Operations, Virginia State Police
- John M. Keifer, Director of Public Works, City of Norfolk
- Lynn Allsbrook, Public Works Operations Manager, City of Hampton
- Steve Ernst, Senior Engineer for Safety and Security, Federal Highway Administration
- Jeff Holland, Executive Director, Chesapeake Bay Bridge-Tunnel
- Steve Napolitano, General Manager, Port Authority Bus Terminal and Lincoln Tunnel, Port Authority of New York and New Jersey
- Don Smith, Tunnel Maintenance Operations Manager, Maryland Transportation Authority
- Connie Sorrell, Chief of System Operations, Virginia Department of Transportation

Summary of Findings

- Similarities identified between HRBT and the facilities represented by panel members including:
 - Similar organizational structures with tracks for operations and maintenance (O&M)
 - On-the-job training for control room O&M personnel
 - Resource constraints requiring prioritization of maintenance activities
 - Established visual inspection schedules of tunnel elements

Summary of Findings (2)

- A number of significant differences were also noted
 - The emphasis on maintenance is more apparent at other facilities
 - Other facilities have a 24/7 maintenance presence on-site to quickly identify and resolve maintenance issues
 - External inspections occur more frequently at other facilities

Panel Recommendations

- Six recommendations are offered to enhance operations and maintenance at all VDOT tunnels for all types of potential incident conditions
- Since many recommendations are interrelated, a phased implementation plan should be developed

Recommendation #1

- Conduct a risk assessment to identify the critical events that would result in the closure of the facility or risk to the safety of facility users
 - Identify critical events
 - Evaluate options for monitoring of identified critical subsystems and response to critical subsystem failures

Recommendation #2

- Evaluate the staffing patterns and expertise required for each functional unit
 - Evaluate staffing patterns and structure to include distribution of staff in maintenance vs. operations, number of staff needed by function, skills required by position, and needed supervisory positions
 - Evaluate the effectiveness, costs, and issues involved consolidation of tunnel traffic management functions with the TOC
 - Prepare a staff development plan for tunnel staff that clearly defines requirements and expectations both for existing positions and advancement
 - Implement a formal training plan for maintenance and operations staff that includes exercises and drills
 - Institute 24/7 maintenance staffing to ensure immediate response to events

Recommendation #3

- Enhance facility management plans and procedures for tunnel facilities
 - Enhance maintenance plans so that preventative maintenance and inspection requirements are defined and documented
 - Use the risk assessment to define response procedures for failure of critical systems
 - Continue the implementation of a management system that can drive a proactive asset replacement plan to minimize the risk of failure of aging subsystems
 - Institute additional measures to monitor maintenance activities
 - Annually, conduct an independent inspection of a section or system as a quality control/quality assurance measure
 - Continue efforts to automate current manual logging processes in the tunnel control room

Recommendation #4

- Enhance traveler information dissemination during incidents and other major events as a means of reducing overall traveler delay
 - Evaluate traveler information resources to ensure that information is communicated at sufficient distances
 - Increase public awareness of 511 Virginia capabilities
 - Develop a public education program to ensure motorists know the appropriate response to an incident inside the tunnel

Recommendation #5

- Enhance the emergency plan coordination with localities and first responders
 - Develop signal timing plans for incident response across jurisdictional boundaries
 - Increase outreach to first responders

Recommendation #6

- Implement periodic reviews of security related plans and policies

Conclusion

- The recommendations presented here represent a practical set of comprehensive measures that can reduce the chances that an event such as occurred on July 2nd could recur
- Many recommendations are interrelated and therefore selective implementation of individual recommendations could reduce their overall impact