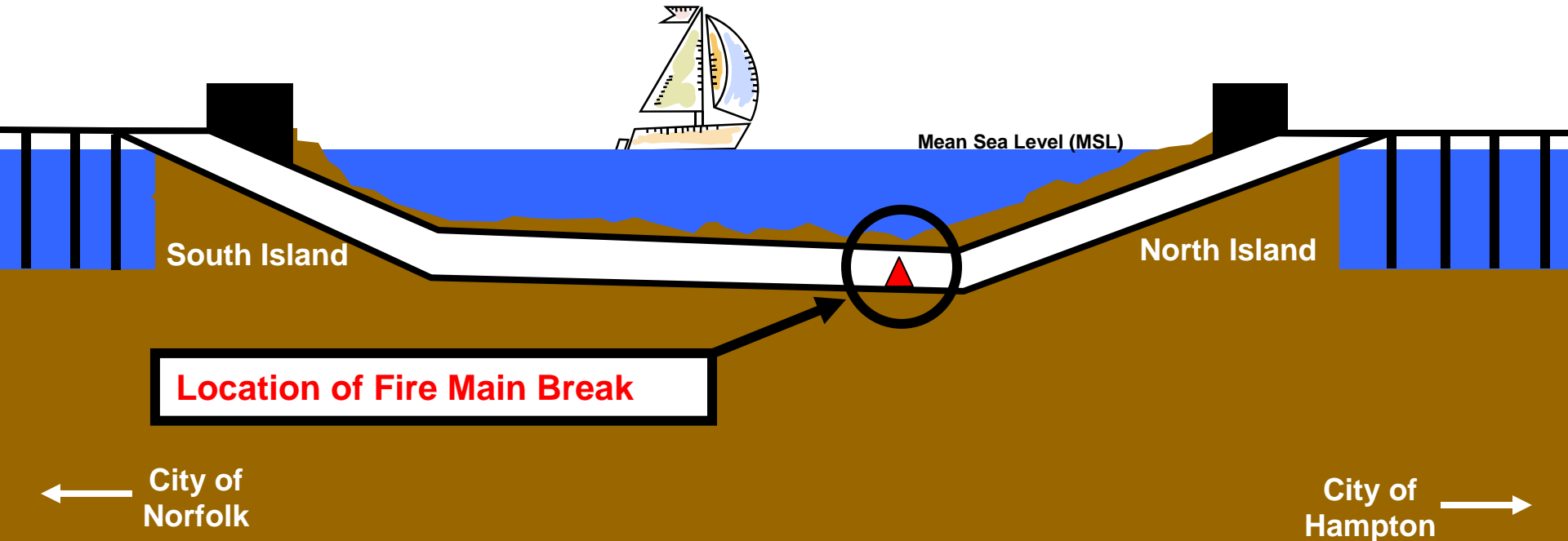




Hampton Roads Bridge-Tunnel Flooding Initial Review

July 10, 2009

HRBT Tunnel Side Profile



Location of Fire Main Break

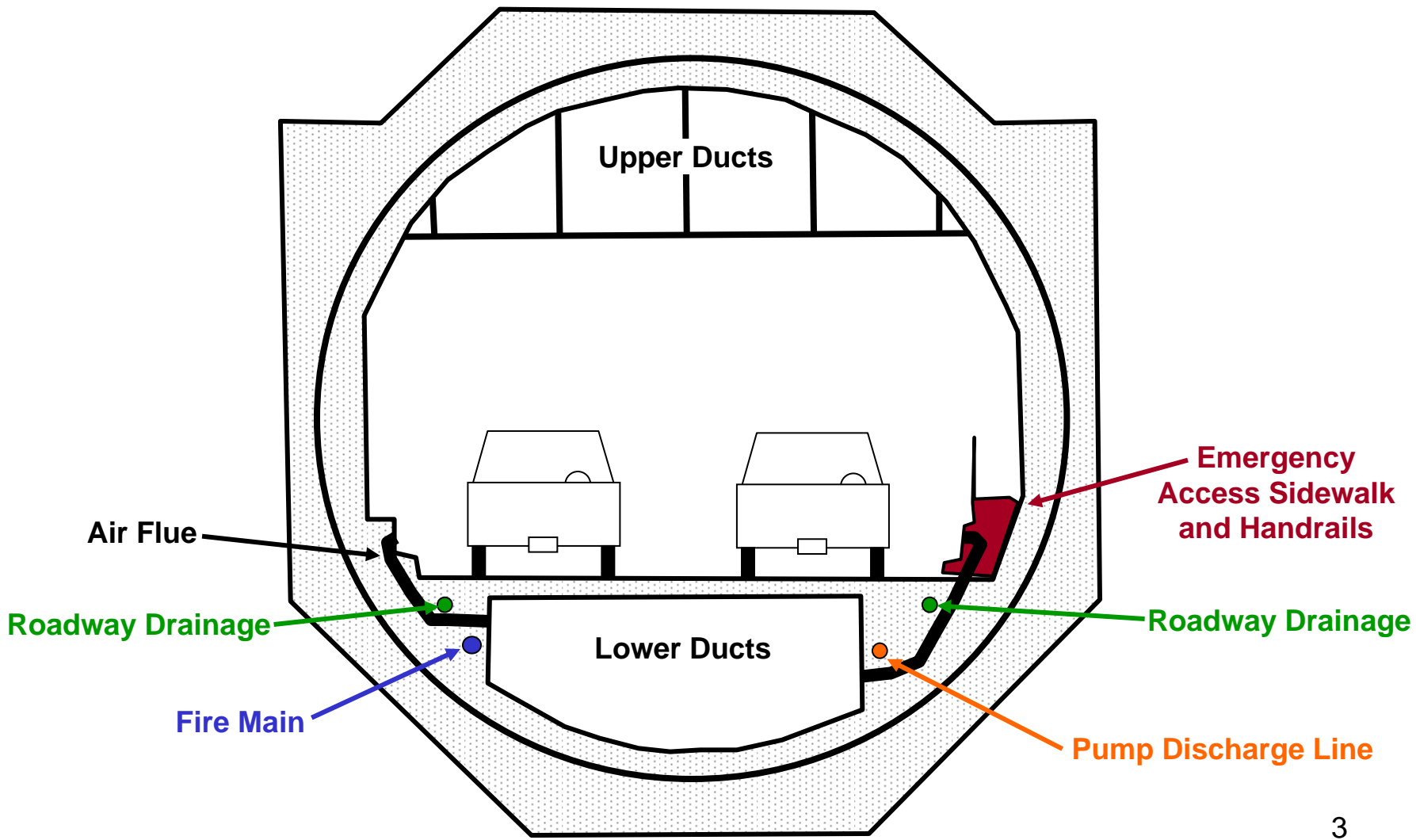
City of Norfolk

City of Hampton

Note: Not to Scale

Westbound Tunnel Cross Section

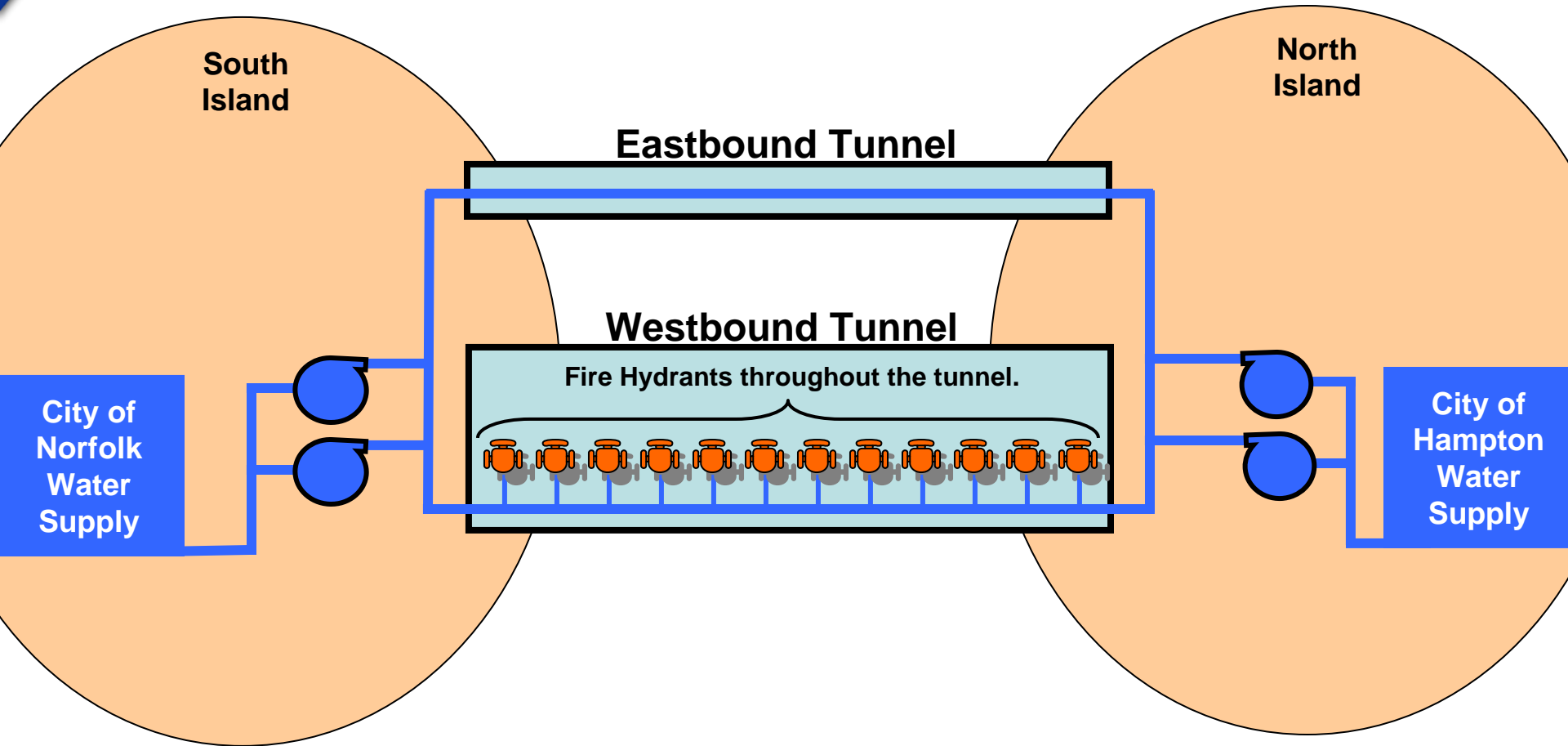
(Looking South towards Norfolk)



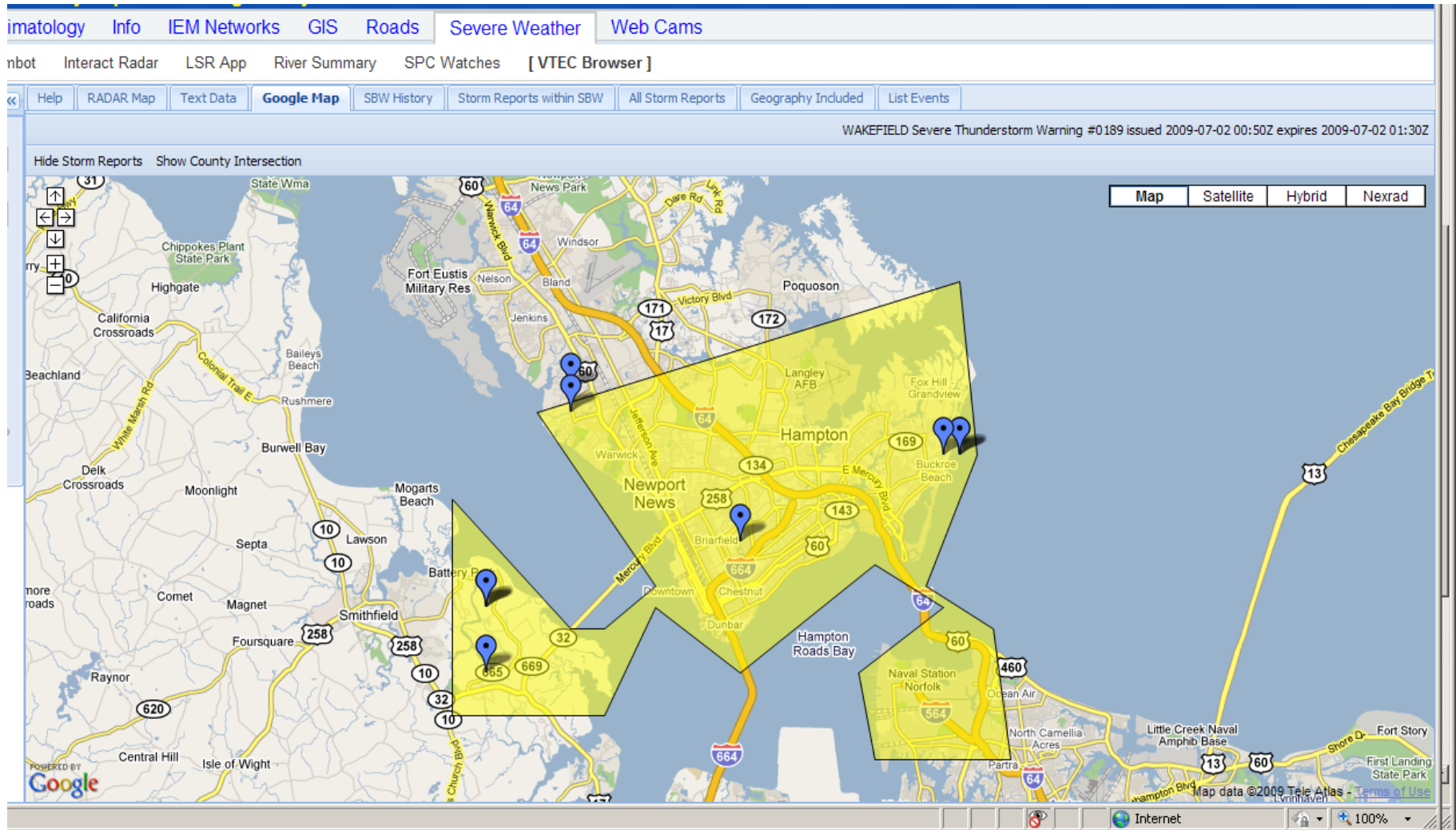
Note: Not to Scale

Fire System Plan View

(Simplified Schematic)



Severe Thunderstorm Warning Area and Impacts Reported to NWS



Simultaneous Events

- **James River Bridge (Route 17)**
 - Power Lines Down
 - All Traffic Stopped
- **Monitor-Merrimac Memorial Bridge-Tunnel**
 - Loss of Electrical Power
- **Hampton Roads Bridge-Tunnel**
 - Loss of Electrical Power
- **Chesapeake Bay Bridge-Tunnel**
 - Tractor Trailer overturned

Regional Overview Timeline

1st			July 2nd																					
PM			AM											PM										
9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9

Severe Thunderstorm

No Power, Down Power Lines, Traffic Stopped at JRB
8:56 11:13

No Power at MMMBT – Restored Roadway Lighting
8:54 11:32

No Power and on Alternate Power at HRBT
9:10 1:14

Fire Main Break at HRBT
9:12 6:00

Both Lanes Blocked
6:30 2:00

1 Car Accident in I-64 EB at High-Rise Bridge 1:00 1:30

3 Car Accident in NB MMMBT 1:49 2:39

One Lane Open 2:00 7:30

Both Lanes Open 7:30

HRBT Response Timeline

Wednesday July 1, 2009

9:10 PM	Power failure at HRBT / Maintenance Notified 9:15 PM / Power switched to Norfolk
9:24 PM	HRBT Fire Pump # 4 on / Maintenance Notified
9:25 PM	Maintenance at James River Bridge for downed power lines, cannot respond to HRBT
11:34 PM	Maintenance reports to HRBT Control Room
11:39 PM	Maintenance checks Fire Pump # 4
11:45 PM	Fire Pump # 4 turned off by Maintenance



Fire Main Wall Rupture



HRBT Response Timeline

Thursday July 2, 2009

12:01AM	Maintenance notes no water supply to the HRBT Facility
1:14 AM	HRBT split power to Hampton and Norfolk side – power restored
1:53 AM	Still no water at HRBT Facility (North and South Island)
6:15 AM	HRBT Control Room notified Maintenance of standing water at Station 7 (lowest point) of westbound tunnel
6:26 AM	All WB traffic stopped due to standing water / Control Room started making notifications
6:45 AM	Maintenance arrive at HRBT
6:57 AM	Maintenance enters the tunnel – water bubbling up from manhole cover in roadway
7:03 AM	HRBT Major Incident VaTraffic / 511 alert system – bridge tunnel stoppage
7:17 AM	HRBT turned into high profile by TEOC; new VaTraffic entry made
7:22 AM	Vacuum truck requested by HRBT to TOC
7:42 AM	Maintenance secures water main and shuts off supply
7:55 AM	2 Vacuum trucks in WB tunnel
8:15 AM	Environmental notified about water discharge
8:29 AM	Hampton Fire Department en route to assist with pumping

HRBT Response Timeline

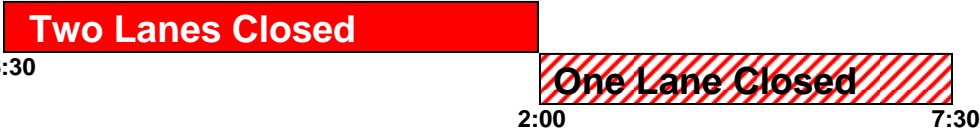
Thursday July 2, 2009

8:30 AM	Began water discharge from vacuum trucks into upper holding tank of North Island
9:15 AM	Environmental permits water discharge. VSP requests Hampton Fire Department to pump water into bay
9:26 AM	VDOT maintenance enters lower duct system
9:44 AM	Hampton Fire Dept. enters Westbound HRBT
2:13 PM	I - 64 West right lane open to traffic at 25 MPH
2:20 PM	VSP remains in tunnel for traffic control
5:00 PM	Hampton Fire Dept. concludes pumping
6:03 PM	Traffic stopped for Fire Dept. to exit
6:08 PM	VDOT preparing to open left lane of HRBT
7:37 PM	Right and Left Lanes open I-64 West bound at 55 MPH

Public Communications Timeline

1st			July 2nd																					
PM			AM											PM										
9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9

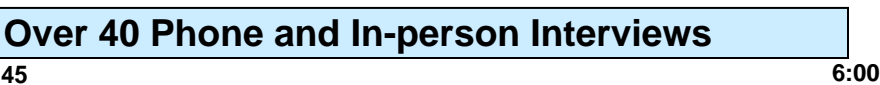
Traffic Impacting Event



PIO Communications



PIO Media Interviews



On the Go Info

- Changeable Message Boards
- Highway Advisory Radio



“511 Alerts”



SSP Routine Patrols

6 Patrols are 24 / 7 / 365

SSP Augmented Patrols



Action Plan

July 1st to 8th

- **July 1st to 2nd :**
 - Restore traffic – **Completed at 7:30 PM, July 2nd**
 - Conducted Emergency Response – **Completed**
- **July 2nd to 8th:**
 - Initiated Emergency Recovery Operations – **On-going**
 - Pump out water – **Completed**
 - Dry out Mid-River Pump Room – **Completed**
 - Dry out lower tunnel ducts – **Completed**
 - Remove two motors and one pump – **Completed**

Action Plan

Current and Future Milestones

- **July 9th:**
 - Replace the two motors and one pump
 - Remove second pump
- **July 10th:**
 - Repair and replace second pump
 - Complete Emergency Recovery Operations
- **Near Term:**
 - Process Stand Down
 - Repair and pressure test Fire Main
 - Establish an Independent Review Panel



Questions?