RIMIS Deployment Update
Public Participation Meeting
June 24, 2014
Providing safe and efficient transportation in the Delaware Valley region involves many partners...
Pennsylvania RIMIS Partners

- Bensalem FD
- Bensalem PD
- Berwyn Fire Company
- Bucks County 9-1-1 / OEM
- Chadds Ford Township
- Chester County 9-1-1 / OEM
- Chester Fire Dept
- Chester Twp PD
- Delaware County 9-1-1 / OEM
- Delaware Valley Intelligence Center
- EVB Towing
- George Clay FD
- Gladwyne Fire Company
- GVF Transportation
- Haverford Twp PD
- King of Prussia Fire Company
- Limerick Township PD
- Lower Merion FD
- Lower Merion PD
- Middletown Township PD
- Montgomery County 9-1-1 / OEM
- Oreland Volunteer Fire Co. No. 1
- PA Turnpike
- PEMA
- Penn DOT Central Office
- PennDOT District 6-0
- PennDOT Bucks/Delaware/Montgomery Maintenance
- Philadelphia Fire Department
- Philadelphia OEM
- Philadelphia Streets Department
- Plymouth Fire Company
- Plymouth PD
- South Media Fire Company
- Springfield Public Works
- West Conshohocken Boro PD
- West Whiteland PD
- Whitemarsh PD
- VMSC of Lower Merion & Narberth
New Jersey RIMIS Partners

- Bellmawr Fire Department
- Burlington County 9-1-1 / OEM
- Burlington County TOC
- Burlington Twp FD
- Burlington Twp PD
- Camden County 9-1-1 / OEM
- Cherry Hill FD
- Cherry Hill PD
- Collingswood FD
- Cross County Connection TMA
- DRJTBC
- DRPA
- Evesham Fire-Rescue
- Evesham Police Department
- Gloucester City EMS
- Gloucester County 9-1-1 / OEM
- Mansfield Ambulance

- Medford PD
- Mercer County Dept. of Transportation
- Mercer County 9-1-1 / OEM
- Moorestown FD
- Mount Laurel EMS
- Mount Laurel FD
- Mount Laurel PD
- NJ DEP
- NJ DOT – Statewide Traffic Management Center
- NJ DOT – Traffic Operations South
- NJ Transit Bus Operations
- South Jersey Transportation Authority
- Virtua EMS
- Westampton FD
- Westampton PD
- Willingboro FD
- Willingboro PD
Traffic Incident Management in the DVRPC Region

Task Force Locations:

1. I-76/I-476 Crossroads (est. 1999)
2. NJ SAFR (est. 2002)
3. Philadelphia (est. 2007)
4. Delaware County (est. 2008)
5. US 30 Chester County (est. 2009)
7. I-95/US 1 Bucks County (est. 2012)
Using RIMIS

* Operations Database
  - Can be used for a Traffic Operations Center
  - Log incidents and create reports (incident, monthly, construction)
  - Notification distribution

* Situational Map
  - The “big picture”: arterial network information, local construction information, minor special events
  - Fills the gap between locals and DOT

* Video Wall
  - Incident Management: location verification, incident severity, equipment dispatch, arrival tactics
PepperDOT District 6-0: accident on I-95 northbound at Exit 23. GIRARD AVE/LEHIGH AVE there is a lane restriction [RCS 99086]
RIMIS Video Wall
RIMIS: State and Regional Level

• New Jersey DOT
  ▪ NJ 511, SWIFT System

• Pennsylvania DOT
  ▪ PA 511, Road Closure Reporting System (RCRS)

• Pennsylvania Emergency Management Agency

• New Jersey Department of Environmental Protection

• Pennsylvania Turnpike Commission

• Delaware River Port Authority

• Delaware River Joint Toll Bridge Commission

• Delaware Valley Intelligence Center

• Federal Bureau of Investigation

• US Open Golf Tournament, 2013
RIMIS: County Level

• County 9-1-1 Centers
  ▪ Bucks, Chester, Delaware, Montgomery, Philadelphia
  ▪ Burlington, Camden, Gloucester, Mercer
• Mercer County Department of Transportation
• Philadelphia Streets Department
• Burlington County Traffic Operations Center
RIMIS: Municipal Level

- Local Police, Fire, EMS Departments
- Public Works Departments

Lower Merion Township Police
Moorestown Township Fire
RIMIS: Philadelphia Streets Department Under Development

- Traffic Operations Center to use RIMIS
- Integrate Street Closure Permit Data
  - Utility Emergency Work
  - Paving
  - Block Party
  - PWD Emergency Work
  - Special Event
  - Plumbers
  - Lane Closure
- Data Interface Complete
- TOC Opens Early 2015
RIMIS: Next Steps

- Continued Maintenance and Operations
- Continued Roll-out to More Responders
- Expand Database Input
- Potential Additional Data Interfaces
  - PennDOT Statewide Traffic Software
  - PA Turnpike
  - CAD Data
- Better Integration with SEPTA
- Performance Monitoring
- Planning for Operations
Contact Information

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Resilience in the Face of Climate Change
A Regional Perspective

Presented by: Robert Graff, Manager, Office of Energy and Climate Change Initiatives, DVRPC

With help from:
Christopher Linn, AICP, Manager, Office of Environmental Planning, DVRPC
Erik Johanson, Manager of Strategic Business Planning, SEPTA

DVRPC Public Participation Task Force
June 24, 2014
**resile** (rī-zīlz') *intr.v.* -siled, -sil-ing, -siles. 1. To spring back, especially to resume a former position or structure after being stretched or compressed. 2. To draw back; recoil. [Obsolete French *resilir*, from Latin *resilire*, to leap back: re-, re- + salire, to leap; see *sel-* in Appendix.]

**resilience** (rī-zīlz'yəns) *n.* 1. The ability to recover quickly from illness, change, or misfortune; buoyancy. 2. The property of a material that enables it to resume its original shape or position after being bent, stretched, or compressed; elasticity.

**resilien•cy** (rī-zīlz'yən-sē) *n.* Resilience.

**sel-**. Important derivatives are *salient, sally, sauté, assail, desultory, exult, insult, result, somersault, and salmon.*
Preparing to Bounce Back Faster
Doing Things Differently to Minimize Damage
More Extreme Weather Expected

Image credit: IPCC (2001)
Today Philly = Tomorrow Atlanta?

Image credit: UCS
Temperature Extremes in Greater Philadelphia
One Set of Projections from CMIP3*

- Days over 95°F
- Days over 100°F
- Days over 105°F
- Days over 110°F

Time Frame

* Phase 3 of the Coupled Model Intercomparison Project, LLNL, from FHWA's Draft CMIP Climate Data Processing Tool
Hydrological Extremes Increase with Temperature

Floods
Blizzards
Drought
Severe Thunderstorms
Tornadoes
Hail Storms
Hurricanes
Heat
Heat
Heat
Wind
Wind
Wind
Wind
Wind
Water
Water
Water
Sea Level Rise
Global Average Absolute Sea Level Change, 1880–2011

Data sources:

For more information, visit U.S. EPA’s “Climate Change Indicators in the United States” at www.epa.gov/climatechange/indicators.
Sea Level Rise

TOMS RIVER VULNERABILITY
Storm Surge
Storm Surge
Storm Surge
Storm Surge
Takeaways

• The future is expected to have more frequent and larger extreme weather events.
• These are likely to damage transportation infrastructure.
• We need to prepare now, both to protect infrastructure, and to be ready to repair it.
• The first step in preparation is knowing where we are most vulnerable.
Questions?

“Any doubling of the percentage of carbon dioxide in the air would raise the temperature of the earth's surface by 4°C” – Världarnas Utveckling (Worlds in the Making), 1906

Latest estimate from IPCC (2013): 1.5 – 4.5°C

Svante Arrhenius
1859-1927
Assessing the Vulnerability of New Jersey’s Transportation Infrastructure to the Impacts of Climate Change

Prepared by:
Christopher Linn, AICP, Delaware Valley Regional Planning Commission
Project Goals
FHWA Conceptual Model

**Inventory of Assets**
- Existing inventories
- Existing priorities, evaluation tools

**Develop inventory of assets**
- How important is each asset?

**Climate Information**
- Gather climate information (observed and projections)

- What is the likelihood and magnitude of future climate changes?

**Risk**
- Low vulnerability
  - Is the asset vulnerable to projected climate effects?
    - High or medium vulnerability
      - What is the likelihood that future stressors will measurably impact the asset?
      - What is the consequence of the impact on the asset?
    - Low risk
      - What is the integrated risk?

**Monitor and revisit**
- Monitor and revisit as resources allow

**Low likelihood/Low magnitude**
- High likelihood/High magnitude
  - Identify, analyze, and prioritize adaptation options

**Low likelihood/High magnitude**
- Outside of scope of Risk Assessment pilot

**High likelihood/High magnitude**
- Within scope of Risk Assessment pilot

**High vulnerability**
- More important

**Less important**
- Less important
Determining Climate Impacts

- Sea Level Rise and Storm Surge
- Inland Flooding
- Temperature and Precipitation (avg. and extremes)
Sea Level Rise and Storm Surge
High Resolution LiDAR from USGS
SLOSH Model
Sea, Lake and Overland Surges from Hurricanes
Highways Potentially Vulnerable to Sea Level Rise and Storm Surge
Rail Infrastructure Potentially Vulnerable to 1% Storm Event
Baseline (1990) number of “hot” days

Average Annual Number of Days Exceeding 95°F

- Climate station
- Baseline, 1990
  - High: 7
  - Low: 2
High emissions scenario “hot” days by 2100

Average Annual Number of Days Exceeding 95°F

- Climate station
- A2 Scenario, 2100
  - High: 60
  - Low: 49
CLIMATE VARIABILITY & RESILIENCE STRATEGIES: SEPTA’S EXPERIENCE

PREPARED BY:
ERIK JOHANSON
MANAGER OF STRATEGIC BUSINESS PLANNING
SEPTA’S PRIMARY CHALLENGE: STATE OF GOOD REPAIR (SGR)

CURRENT BACKLOG: $5 BILLION

20-YEAR REHAB & REPLACEMENT NEEDS: $8.5 BILLION

TOTAL STATE OF GOOD REPAIR NEED: $13.5 BILLION
CLIMATE VARIABILITY: A NEW CHALLENGE FOR SGR

WHAT WE KNOW:

• 67% increase in heavy rain since mid-20th century
• Four FEMA Major Disaster declarations since 2010
• Aging systems more vulnerable to extreme weather
• Climate trends a key consideration to ensure asset resiliency
EXTREME WEATHER IN PHILADELPHIA

POLAR VORTEX ➔ ICE JAM
CONTEXT FOR RESILIENCY PLANNING

➢ IS THIS GOING TO HAPPEN MORE OFTEN IN THE FUTURE?

➢ IF SO, WHAT DO WE DO ABOUT IT?
FTA PILOT PROGRAM

OBJECTIVES:

• Better Understand Climate Projections
• Assess Key Vulnerabilities
• Develop Forward-Looking Resiliency Strategies

ONE OF SEVEN PROJECT TEAMS ACROSS U.S.
## PROJECTED CLIMATE TRENDS

### PHILADELPHIA REGION BY MID-CENTURY (2050)

<table>
<thead>
<tr>
<th>Climate Variable</th>
<th>Minimum Projected Change</th>
<th>Maximum Projected Change</th>
<th>Average Projected Change</th>
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<tbody>
<tr>
<td><strong>Heat</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Temperature</td>
<td>4%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>93°F (5th %)</td>
<td>101%</td>
<td>302%</td>
<td>196%</td>
</tr>
<tr>
<td>98.1°F (1st %)</td>
<td>215%</td>
<td>1,107%</td>
<td>540%</td>
</tr>
<tr>
<td><strong>Precip</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Rainfall</td>
<td>-6%</td>
<td>17%</td>
<td>7%</td>
</tr>
<tr>
<td>1.4” (5th %)</td>
<td>2%</td>
<td>30%</td>
<td>15%</td>
</tr>
<tr>
<td>2.5” (1st %)</td>
<td>-1%</td>
<td>69%</td>
<td>39%</td>
</tr>
<tr>
<td>“Snow Chance” Days</td>
<td>-12%</td>
<td>-35%</td>
<td>-25%</td>
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MANAYUNK/NORRISTOWN LINE

MORE THAN 50% OF THE HIGHEST SCHUYLKILL RIVER CRESTS @ NORRISTOWN HAVE OCCURRED IN THE LAST 10 YEARS

<table>
<thead>
<tr>
<th>RANK</th>
<th>CREST</th>
<th>DATE</th>
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<tbody>
<tr>
<td>(1)</td>
<td>25.10 ft</td>
<td>06/23/1972</td>
</tr>
<tr>
<td>(2)</td>
<td>22.00 ft</td>
<td>09/17/1999</td>
</tr>
<tr>
<td>(3)</td>
<td>21.00 ft</td>
<td>08/24/1933</td>
</tr>
<tr>
<td>(4)</td>
<td>19.76 ft</td>
<td>08/28/2011</td>
</tr>
<tr>
<td>(5)</td>
<td>19.30 ft</td>
<td>09/13/1971</td>
</tr>
<tr>
<td>(6)</td>
<td>19.13 ft</td>
<td>06/28/2006</td>
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<tr>
<td>(7)</td>
<td>19.00 ft</td>
<td>01/20/1996</td>
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<tr>
<td>(8)</td>
<td>18.40 ft</td>
<td>08/19/1955</td>
</tr>
<tr>
<td>(9)</td>
<td>18.30 ft</td>
<td>10/01/2010</td>
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<td>(10)</td>
<td>18.00 ft</td>
<td>10/19/1991</td>
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<tr>
<td>(11)</td>
<td>17.92 ft</td>
<td>10/09/2005</td>
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<tr>
<td>(12)</td>
<td>17.60 ft</td>
<td>12/05/1993</td>
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<tr>
<td>(13)</td>
<td>16.28 ft</td>
<td>06/21/2003</td>
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<td>(14)</td>
<td>16.06 ft</td>
<td>09/07/2011</td>
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<td>(15)</td>
<td>16.06 ft</td>
<td>04/03/2005</td>
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<td>(16)</td>
<td>16.00 ft</td>
<td>09/18/2004</td>
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<tr>
<td>(17)</td>
<td>15.37 ft</td>
<td>09/29/2004</td>
</tr>
<tr>
<td>(18)</td>
<td>14.35 ft</td>
<td>03/11/2011</td>
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</table>
RESILIENCE STRATEGIES UNDERWAY: CAPITAL

SLOPE STABILIZATION

RAISED SIGNAL HUTS

TURNBACK OUTSIDE FLOOD ZONE

EMERGENCY GENERATORS
RESILIENCE STRATEGIES UNDERWAY: OPERATING & MAINTENANCE

Diligent Tree-Trimming

Sandbagging Ventwells

Staging Fleet in Higher Grounds

Emergency Response Tracking

SEPTA | Partnering for Regional Sustainability
RESILIENCE STRATEGIES: ADMINISTRATIVE

CORE FIRST, RESTORE OUTWARD

CUSTOMER COMMUNICATIONS

SEPTA will suspend all services effective at the end of this Sunday service schedule due to potential severe weather from Sandy.

INTERAGENCY COOPERATION

PLANNED SERVICE SUSPENSIONS
FTA FUNDING OPPORTUNITY

$3 BILLION AVAILABLE FOR “SANDY ZONE”

• Prioritizes Projects that:
  – Harden Assets Against Future Natural Disasters
  – Reduce Risk of Disruptions from Natural Disasters
  – Cost-Effective Projects From Collaborative Planning Efforts

• SEPTA’s Application includes:
  – Power Resiliency  – Flood Mitigation
  – Right of Way Hardening  – Emergency Communications
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Questions