Why is this so Important? Major Truck Routes on the National Highway System 2007

Increased Demand on our Highway System.
Projected Growth of Major Truck Routes on the National Highway System 2040!

This is just one example of factors affecting our system.
Critical Infrastructure and Security Resilience (CISR) Research and Development Plan

- Alasdair Cain, Director of Research, Development and Technology Coordination, Office of the Assistant Secretary for Research and Technology, US DOT, alasdair.cain@dot.gov

- Sheila Rimal Duwadi, P.E., Team Leader, Hazard Mitigation, FHWA, Turner-Fairbank Research Highway Research Center
Plan now being developed is in response to **Presidential Policy Directive 21**
- Takes into account the evolving threat landscape, annual metrics, and other relevant information to identify priorities and guide R&D requirements and investments.

- November 18, 2014, Department of Homeland Security (DHS) convened a one-day workshop at the White House
  - DOT and DHS are co-lead agencies for the Transportation Systems Sector.
  - DOT was represented at the workshop by OST-R and FHWA staff.
  - DOT and the U.S. Coast Guard concurred with the draft outline proposed at the workshop
The Plan –
  - Delivered to the White House but has not yet been officially released.
  - Draft plan developed by DHS was circulated to Federal Agencies for comment in February 2015.

For further information, please contact Debbie Hinz, Deputy Associate Director, Office of the Secretary, USDOT. deborah.hinz@dot.gov
Current Research

Updates provided by:

• Sheila Rimal Duwadi, P.E., Team Leader, Hazard Mitigation
• Eric Munley – Research Structural Engineer

Turner-Fairbank Highway Research Center
Draft Reports under Review:
- Countermeasure Development for Suspension Bridge Components

Ongoing Projects:
- Material Specifications for Attack Countermeasures on Bridges
  - Stay-Cable sub-study
- Alternate Load Paths Around Damaged/Destroyed Bridge Members
- Redundancy in Long Span Bridges for Risk Mitigation in a Multi-Hazard Environment
• Upcoming Projects:
  – Countermeasure to Hand-Emplaced Improvised Explosive Devices
  – Access Control Methods to Prevent/Mitigate Attack
  – Analytical Methods for Countermeasure Design
Current Activities

• Updates provided by:

  – Mr. Steve Ernst, Senior Engineer
    Office of Infrastructure
    Safety and Security
• **ATPlanner for Bridge**
  - A DHS developed assessment and design tool for bridges

• **Security Design Manual Development**
  - Annotated Table of Contents and Two Sample Chapters are Finished.
  - Will incorporate state of the art security mitigation to show engineers how to design for security
  - Design examples utilize the ATPlanner for Bridge Tool

• **World Road Association Security Task Force**
  - June 10-12, 2014 Workshop in London, UK
  - Summary Paper Available at PIARC.ORG
New Regulation for Tunnel Inspection Will Drive the Research Needs

- http://www.fhwa.dot.gov/bridge/tunnel/
- Deluge Systems
- Tunnel Evacuation Systems:
  - Loudspeakers adapted for tunnel environment
  - Connected Vehicle Technology
  - Improved Signing (Wayfinding)
- Firefighting, Inspection, Maintenance
Office of Operations

- Updates provided by:
  - Bob Arnold, Office Director, Office of Transportation Management
  - Ed Fok, Transportation Technologies Specialist
  - Laurie Radow, Office of Transportation Operations
  - Jeff King, Office of Transportation Operations
Transportation Systems Cyber-Security Framework

Monitor – Alert – Advisory process for ITS deployments

Proposal to Standup a “Transportation Systems Cyber-Security Framework”
Climate Change

- FHWA Order 5220: Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events
  - Implementation of the FHWA Order
    - To include Division Offices Points of Contact

- FHWA Adaptation Working Group – internal agency group meets quarterly to provide updates on climate change activities
Climate Change

• 2014 Task: Climate Change/Sustainability – Operational Adaptation Guide
  – Develop a primer that will lead State/local DOTs and MPOs in adopting climate change adaptation strategies.
  – Primer objective: Address the current gap in understanding how TSM&O and maintenance can most effectively adapt to climate change.

• 2015 Task: Climate Change Resiliency and Operations
  o To serve as a guide to help DOTs as they plan and implement their TSMO, Maintenance, and Emergency Management components with regard to climate change resiliency.
  o Task will get underway later this month.
Office of Operations

FHWA Evacuation Primers

- Routes to Effective Evacuation Primers Series
  - Using Highways during Evacuations Operations for Events with Advance Notice
  - Using Highways for No-Notice Evacuations
  - Evacuating Populations with Special Transportation Needs
On-Line Training: Principles of Evacuation

• **Objective:** Planning level education tool which brings all stakeholders together in a cooperative effort using an all hazards approach to address emergency evacuations.

• These elements among others are included in the training
  – Incident Command System/National Incident Management System and the need to be NIMS compliant
  – Special Needs and Pets
  – Host/Receiving Jurisdictions (States/Counties)

• Nine member states and TSA of the Security Pooled Funds Study provided funding for the task.
Traffic Incident Management and Presidential Policy Directive #8

- Strengthen Security and Resilience
- Systematic preparedness for threats
- Shared responsibility of all levels of Government, private and nonprofit sectors
- Assessment of preparedness and operational readiness.
Preparedness and Traffic Incident Management Training

- The TIM Training and implementation at daily traffic incidents, improves multidisciplinary responder collaboration and improved relationships to better respond to everyday traffic incidents.

- FHWA believes the TIM training and practice at everyday events better prepares responders and the nation to respond to larger natural and man-made disasters as well.
National TIM Training Status
Total Responders Trained

Train-the-Trainer Sessions (12 hours)
• **176** sessions with **6,677** participants

In-Person Responder Training (4 hours)
• **4,536** sessions with **115,002** participants

Web-Based Training (WBT) (4 hours)
• National Highway Institute: **616**

Total Trained: **122,295**

*As of July 27, 2015*
National TIM Training Status
Total Responders Trained

*As of July 27, 2015

122,295 Total Trained
National TIM Training Status
Responders to be Trained

*As of July 27, 2015, FHWA SIP Goal is 20% by May 31, 2016
Who are the Responders?

*As of July 27, 2015

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Total Trained</th>
<th>Total To Be Trained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire/Rescue</td>
<td>43,491</td>
<td>419,549</td>
</tr>
<tr>
<td>Law Enforcement</td>
<td>41,517</td>
<td>417,215</td>
</tr>
<tr>
<td>EMS</td>
<td>5,805</td>
<td>239,093</td>
</tr>
<tr>
<td>DOT/Transportation</td>
<td>16,890</td>
<td>85,714</td>
</tr>
<tr>
<td>Towing and Recovery</td>
<td>8,294</td>
<td>80,196</td>
</tr>
<tr>
<td>Other Disciplines*</td>
<td>6,298</td>
<td>43,989</td>
</tr>
</tbody>
</table>

*As of July 27, 2015
Response, Emergency Staging, Communications, Uniform Management, and Evacuation (R.E.S.C.U.M.E.)

- Updates provided by:
  - Linda Dodge, Chief of Staff, ITS Joint Program Office
USDOT-ITS Joint Program Office

R.E.S.C.U.M.E.

• Dynamic Mobility Applications (DMA) Program
• Applications
  – Incident Scene Pre-Arrival Staging Guidance for Emergency Responders (RESP-STG)
  – Incident Scene Work Zone Alerts for Drivers and Workers (INC-ZONE)
  – Emergency Communications and Evacuation (EVAC)
Evacuation Model

Key features of the Greater New Orleans TRANSIMS model that are of relevance and importance to the R.E.S.C.U.M.E. assessment project:

• The model includes an auto-based evacuation.
• The model incorporates an assisted transit evacuation (Citizen Assisted Evacuation Plan – CAEP).
• Evacuee departures were modeled based off of observed traffic volumes from the Katrina evacuation.
# USDOT-ITS Joint Program Office

## EVAC Modeled Functionalities

<table>
<thead>
<tr>
<th>Non-special needs evacuees (those using their own transportation)</th>
<th>Special needs evacuees (those requiring assistance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic route guidance information</td>
<td>Identify and locate people who are more likely to require guidance and assistance</td>
</tr>
<tr>
<td>Current traffic and road conditions (including incident data and road closures info)</td>
<td>Provide pickup time and location options</td>
</tr>
<tr>
<td>Location of available lodging</td>
<td>Identify existing service providers and other available resources</td>
</tr>
<tr>
<td>Provide shelter options</td>
<td>Provide shelter options</td>
</tr>
<tr>
<td>Location of fuel, food, water, cash machines and other necessities</td>
<td>Provide return home information (departure time, transportation pickup and location)</td>
</tr>
<tr>
<td>Provide return home information (when to return, routing, traffic light functions)</td>
<td>For responders (RESP-STG): Dynamic dispatching and routing guidance for picking up and transporting special needs evacuees to shelters</td>
</tr>
</tbody>
</table>
Reports In-Process for Publication

  - Information Broker Framework Analysis
  - Prototype System Design Document
  - Final Functional and Performance Requirements
  - Prototype System Architecture

- Emergency Communications for Evacuation (EVAC) in New Orleans Impact Assessment Report
Questions & Comments

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