Transportation Hazards & Security Summit 2009: Progress Through Partnerships
1863 Charter of the National Academy of Sciences

“... the Academy shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art...”

1863: National Academy of Sciences
1916: National Research Council
1964: National Academy of Engineering
1970: Institute of Medicine

The work of The National Academies is reported through an Annual Report to Congress
Programs of The National Academies Attract Broad Participation and Support

Revenue Applied to 2008: $245 million

Department of Defense: 32%
- National Science Foundation: 6%
- Department of Health and Human Services: 7%
- Department of Transportation: 32%
- Department of Agriculture: 1%
- Department of Commerce: 3%
- Environmental Protection Agency: 2%
- Department of Justice: 1%
- National Aeronautics and Space Administration: 3%
- Department of Energy: 3%
- Department of the Interior: 1%
- Department of Homeland Security: 1%
- US Agency for International Development: 1%
- Department of Veterans Affairs: 1%
National Research Council:
Operating Unit of the National Academies

- Transportation Research Board
- Institute of Medicine
- Division of Behavioral and Social Sciences and Education (DBASSE)
- Division on Earth and Life Studies (DELS)
- Division on Engineering and Physical Sciences (DEPS)
- Policy and Global Affairs Division (PGA)
Making the Nation Safer

General Strategies and Research Needs

- Biological  Research, prepare, distribute response to pathogens
- Chemical/Explosives  Sensors & filters
- Info Technology  Network security/ER communications
- Energy  SCADA controls/adaptive grid/vulnerabilities
- Cities/Infrastructure  Emergency responder support
- Transportation  Layered system security
- People  Trusted spokespersons
- Complex Systems  Data fusion/data mining/red-teaming
- Cross-Cutting Technology  Sensors/robots/SCADAs/systems analysis
- Deployment  Homeland Security Institute, Partnerships among feds/states/locals/universities
- Nuclear  Control weapons & materials at source

Source: Downey, TRB Annual Meeting 2003
Disasters Roundtables: January 2001 - Present

25: Children, Youth and Disasters (Thursday, June 25, 2009)
24: Cascading Disasters: How Disasters Unfold
23: Making the World Safer from Disasters: The U.S. Role
22: Disaster Risk Management in an Age of Climate Change
21: Disaster Recovery
20: Creating and Using Multi-Hazards Knowledge and Strategies
19: Protecting Lives and Property at our Coastlines
18: Citizen Engagement in Emergency Planning for a Flu Pandemic
17: Rebuilding for Health, Sustainability, and Disaster Preparedness in the Gulf Coast Region
16: Community Disaster Resilience
15: Law, Science, and Disaster
14: The Indian Ocean Tsunami Disaster: Implications for U.S. and Global Disaster Reduction and Preparedness
13: Lessons Learned Between Hurricanes: From Hugo to Charley, Frances, Ivan, and Jean
12: Creating a Disaster Resilient America: Grand Challenges in Science and Technology
11: Public Health Risks of Disasters: Building Capacity to Respond
10: Reducing Future Flood Losses: The Role of Human Actions
9: Hazards Watch: Reducing Disaster Losses Through Improved Earth Observations
8: The Emergency Manager of the Future
7: The National Earthquake Hazards Reduction Program at Twenty-Five Years: Accomplishments and Challenges
6: Alerting America: Effective Risk Communication
5: From Climate to Weather: Impacts on Society and Economy
4: Countering Terrorism: Lessons Learned from Natural and Technological Disasters
3: Sea Level Rise and Coastal Disasters
2: Natural Disasters and Energy Policy
1: Urban/Wildland Fire Interface (January 26, 2001)
National Research Council Policy Study

Review of the Department of Homeland Security’s Approach to Risk Analysis (Research in Progress)

This Congressionally-mandated study by the National Academies will review how the Department of Homeland Security (DHS) is building its capabilities in risk analysis to inform decision-making. More specifically, the study will address the following tasks:

a) Evaluate the quality of the current DHS approach to estimating risk and applying those estimates in its many management, planning, and resource-allocation (including grant-making) activities, through review of a committee-selected sample of models and methods;

b) Assess the capability of DHS risk analysis methods to appropriately represent and analyze risks from across the Department’s spectrum of activities and responsibilities, including both terrorist threats and natural disasters;

c) Assess the capability of DHS risk analysis methods to support DHS decision-making;

d) Review the feasibility of creating integrated risk analyses covering the entire DHS program areas, including both terrorist threats and natural disasters, and make recommendations for best practices, including outreach and communications;

e) Recommend how DHS can improve its risk analyses and how those analyses can be validated and provide improved decision support.
TRB Mission Statement

To provide leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal.

TRB Then

TRB Today
TRB is Broadly Engaged in Hazards and Security

Transportation Research Board
Executive Committee

Technical Activities
200+ Committees/Task Forces
Cmte on Critical Transp. Infrastructure Protection

Policy Studies
IDEA & Countering Terrorism
Panel on Transportation

Administration and Finance

Strategic Highway Research Program II

Cooperative Research Programs
National Cooperative Highway Research Program
Transit Cooperative Research Program
Airport Cooperative Research Program
National Cooperative Freight Research Program
Hazardous Materials Cooperative Research Program
Commercial Truck and Bus Safety Synthesis Program

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine
TRB Research Programs

- **Cooperative Research Programs (CRP)**
  - Highway (NCHRP)
  - Transit (TCRP)
  - Airport (ACRP)
  - Freight (NCFRP)
  - Hazardous Materials (HMCRP)

- **Synthesis Programs**
  - Highway
  - Transit
  - Airport
  - Truck & Bus Safety

- **Innovations Deserving Exploratory Analysis (IDEA)**
  - Highway
  - Transit
  - Highway and Rail Safety

- **Legal Research**

- **Strategic Highway Research Program 2 (SHRP 2)**
  - Capacity
  - Renewal
  - Reliability
  - Safety

- **Marine Board**

- **Policy Studies**
R&D Efforts: Process Used to Develop Solutions

**TRB Research Programs**

- **National Cooperative Highway Research Program (NCHRP – b. 1962)**
  American Association of State Highway and Transportation Officials (AASHTO)

- **Transit Cooperative Research Program (TCRP – b. 1992)**
  Federal Transit Administration

- **Commercial Truck and Bus Safety Synthesis Program (CTBSSP– b. 2001)**
  Federal Motor Carrier Safety Administration

- **Airport Cooperative Research Program (ACRP – b. 2005)**
  Federal Aviation Administration

- **National Cooperative Freight Research Program (NCFRP – b. 2006)**
  Research and Innovative Technology Administration

- **Hazardous Materials Cooperative Research Program (HMCRP – b. 2006)**
  Pipeline and Hazardous Materials Safety Administration

- **Strategic Highway Research Program II (SHRP II – b. 2005)**
  Federal Highway Administration in association with AASHTO
R&D Efforts: Identification of Gaps & Needs

1. TRB Committee on Critical Transportation Infrastructure Protection shares research results from all sources & identifies research needs

2. AASHTO SCOTSEM identifies and refers research needs

3. NCHRP 20-59 panel funds applied research or refers prioritized requests

- 10,000+ TRB Annual Meeting Participants, 3,000 presentations
- 75 other technical meetings
- TRB Annual State Visits to DOTs, Universities, MPOs, Transit Agencies, Ports, Airports, and other agencies.
- State/Local Government
- Non-Governmental Organizations
- Federal Agencies
- Private Sector
R&D Efforts: Identification of Gaps & Needs
Transportation Research Information Services (TRIS) Database—World’s Largest

Research In Progress (RiP) Database
Research Needs Statements Database

http://ntl.bts.gov/tris

http://rns.trb.org/
R&D Efforts: Process Used to Develop Solutions

**Project Oversight by Panel of Intended Users and Experts**

- **RFPs**
  - Proposals
  - Define Scope of Research (2 day meeting)

- **Comments & Modifications**
  - Select Contractor (1 day meeting)

- **Guidance**
  - Monitor Progress (1 or more meetings)

- **Comments & Modifications**
  - Review and Approve Report (mail ballot and/or meeting)

- **QPRs & Interim Reports**
Continuous Development of Risk Management and Emergency Response Planning Guidance

2002: Guides to Vulnerability Assessment & Emergency Response Planning
2002-2003: workshops
2004-2005: publications that anticipated NIMS, NRP/NRF, and NIPP.
2008-2009: publications for balloting by AASHTO

Published February 2009:
NCHRP Report 525, Vol. 15
Costing Asset Protection: An All Hazards Guide for Transportation Agencies (CAPTA)

2009 (anticipated)
A Guide to Emergency Response Planning at State Transportation Agencies
(NCHRP Project 20-59(23))
NCHRP Security Projects Authorized: 53

- Projects in Development or Contracts Pending: 7
  - Projects in Progress: 5
  - Projects Completed: 41
TRB Technical Activities

- Task Force on Critical Transportation Infrastructure Protection
- Committee on Critical Transportation Infrastructure Protection
  - Training, Education and Technology Transfer Subcommittee
- Committee on Transportation Safety Management
  - Emergency Evacuation Subcommittee
- Task Force on Airport Security
Maritime Transportation

- Marine Board Activities
  - U.S. Marine Salvage Assets and Capabilities in a Maritime Disaster
  - Risk of Vessel Accidents and Spills in the Aleutian Islands: Designing a Comprehensive Risk Assessment
  - Marine Salvage Capabilities: Responding to Terrorist Attacks in U.S. Ports—Actions to Improve Readiness
  - Annual Harbor Safety Committee Conferences
The National Academies: Consensus Studies, Workshops, and Other Services

What we do
• Consensus studies
• Ongoing activities

How we do it
• Standing boards and committees
• Broad participation in funding

What’s in it for you?
• Interaction through regular briefings to senior staff and participation in standing committees, boards, and roundtables
• Designated liaisons to projects
• Professional development of staff

What do you have to do to get it?
• Support core activities (join and participate)