



# Current Agency Challenges in GIS

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Planning

# Vision & Mission

## FHWA Vision

**Our Agency and Our  
Transportation System  
Are the Best in the World**

## FHWA Mission

**To Improve Mobility on  
our Nation's Highways  
through National  
Leadership, Innovation,  
and Program Delivery**

# 2008 Agency Risk Priorities

- Civil Rights:
    - Organizational Capacity
    - Fiscal Support
  - Construction:
    - Construction Management
    - Construction Quality
  - Design:
    - Design Oversight
    - Consultant Use
  - Environment:
    - Climate Change
    - NEPA Process
    - Air Quality Requirements
  - Finance:
    - Highway Trust Fund
    - Financial Oversight
  - Operations:
    - Recognizing Benefits of Operations
  - Planning:
    - Fiscal Constraint
    - Travel Forecasting
  - Right of Way:
    - Relocation/Acquisition
    - Outdoor Advertising
  - Safety:
    - Safety Data
    - HSIP and SHSP Implementation
  - Transportation System Preservation:
    - Bridge Condition
- \* See "Draft 2008 Risk Management Report of Results"

# Opportunities/Collaborations /Applications

- What applied GIS Tools are needed to Manage Highway Investments at State Level
- Executive Management System
- Planning
  - Green House Gases
  - Land Uses
  - Trans. Modeling/Micro. Sim.
  - Long Range Plans
  - Transportation Improvement Plan (TIP,STIP)



# Environment/NEPA

## Environmental Streamlining

- Consider Envir. In Planning Process
- Shorter time to do NEPA
- Partner with Resource Agencies
- Look at Regional/Multi-State impacts



# Infrastructure/Safety

- Infrastructure
  - Asset Management System
    - Bridge Management
    - Pavement Management
    - Other
- Safety
  - Safety Management System
  - Location/Causes/Envir. Factors/Medical

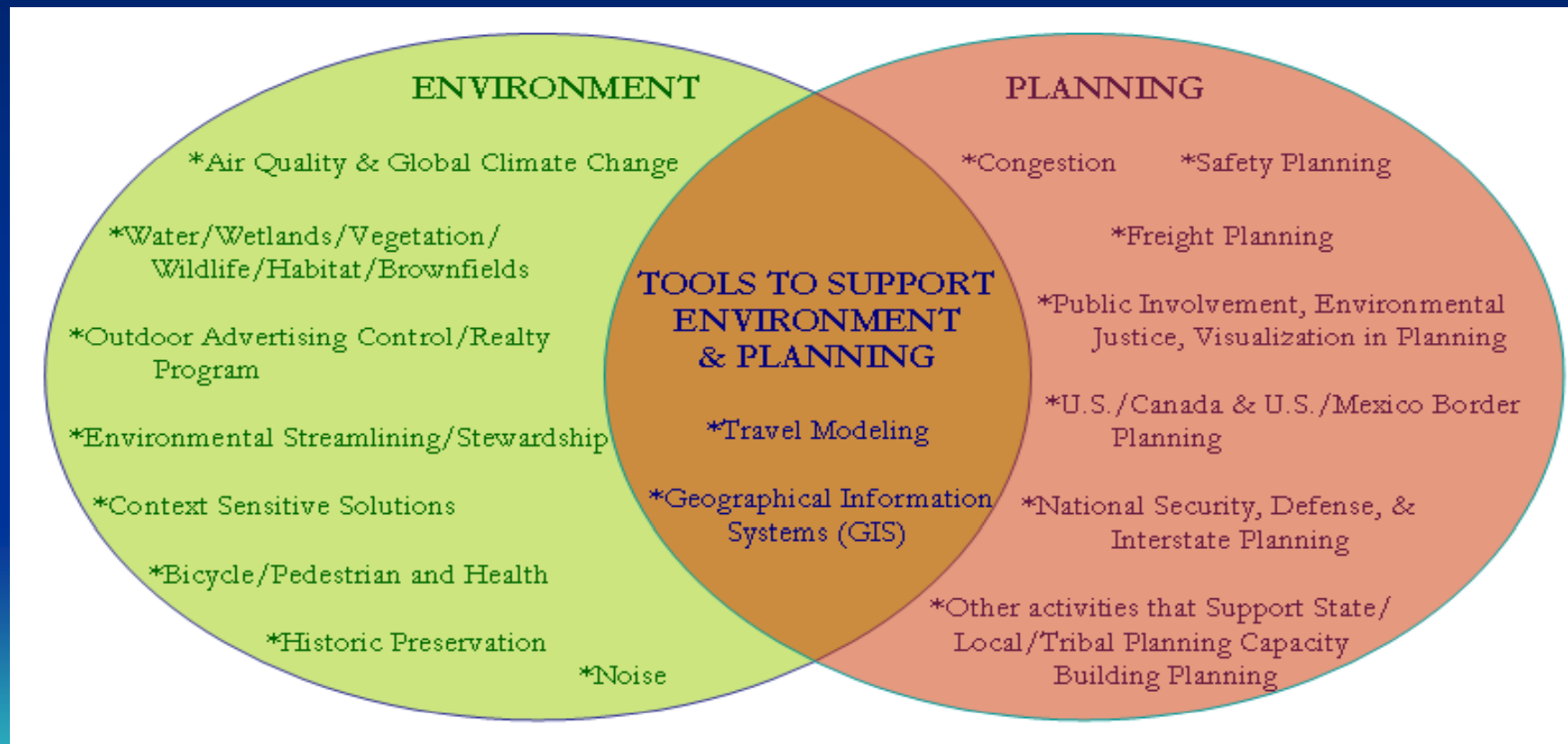


# Operations

- Real Time Management of Transportation System
  - Performance Measures
- Traffic Operation Centers
  - Weather Data
  - Probe Vehicles
  - Security/DHS
- Freight Management/Analysis
  - Truck Data Collection System (ATRI)



# FHWA's STEP Emphasis Areas



# SAFETEA-LU

- Public Law 109-59: SAFETEA-LU, modified chapter 5 of Title 23 to establish an Exploratory Advanced Research Program.
- \$14 Million per year Fy2005 to Fy2009
- \$70 million total
- The Broad Agency Announcement (number DTFH61-09-R-00004) is open February 4, 2009



# GIS-AREAS OF INTEREST

- High resolution environmental monitoring systems such as satellite and airborne remote sensing;
- Location-aware technologies that allow fine-grained tracking of vehicles, objects and people;
- Databases for managing spatial-temporal and moving objects data;
- Tools for exploring and analyzing complex and massive spatial-temporal data;
- Methods for simulating transportation at the micro level
- Data standards and information
- Others



# Pooled Fund Studies

- States DOT Pool Research Dollars to Support a specific research Project
- Washington State DOT - Software Tools for Sharing and Integrating GIS Data - \$465,000`
- Iowa DOT – Enhanced Reference Systems (Starting)
- 100% federal SPR



# AASHTO (States) GIS for Transportation Task Force

- 22nd Annual Symposium/Tech. Hall  
– April 5-8, 2009 Oklahoma City
- Annual Survey of States
- Annual Report on State of the Practice
- Focus is on Applications
- State Transportation Contact list
- [www.gis-t.org](http://www.gis-t.org)



# Trends Within State DOT's

- The need for data standards or ways of dealing with data in different formats and detail,
- The need for data confidentiality balanced with the optimum use of that data. Privacy issues and protection of sensitive archeological areas are examples of two topics that need to be dealt with in an effective manner,
- Methods of visualizing geospatial data for non-technical users like the general public and transportation decisionmakers.
- More data and innovative, efficient/affordable ways of collecting that data,
- 



# TRB Committee on (ABJ60) Geographic Information Science and Applications

- **Workshop – Improving National Transportation Geospatial Information – Dec. 14, 2007**
- **Workshop On Advanced Research**
- **Grand Challenges in Transportation GIS – Harvey Miller**
- **Research Road Map for GIS in Transportation**



# Why A Research Road Map for GIS for Transportation

- Comprehensive Look at what research is need to address specific needs - Transportation
- Each Organization can support the specific studies as they can – Pools Resources
- Help communicates research needs and what is the end product
- Help justify funding specific research projects



# GIS-T Research Roadmap

- Workshop on Advanced Research in Geospatial Information Technologies for Transportation September 20-21, 2007
- Nov. 13-14, Develop Research Roadmap
- Jan. 2009 TRB Workshop on Research Roadmap
- TRB is developing Draft Roadmap



# RESEARCH ROADMAP VISION FOR GEOSPATIAL INFORMATION TECHNOLOGIES IN TRANSPORTATION

- Information: Real Time, Integrated, Comprehensive, Interactive, Discoverable, Detailed Transportation System for Better Decision Making both tactically and strategically, involving public, private, and citizens.
- **RESEARCH ROADMAP GOALS**
- Pervasive data for transportation
- Integrated geospatial infrastructure
- Integrated knowledge for better management and decision making
- Multi simulation environments
- Effective institutional and educational processes
- The research needs cover major business functions and critical areas in transportation.



## Additional Information at

<http://www.gis.fhwa.dot.gov/>

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