

DRAFT: Environment and Planning: SAFETEA-LU – Discussion for Applied Action November 9, 2005

Introduction.

What if we did not have Geographic Information Systems (GIS)? Through the duration of this paper, it is the hope that, for Planning and Environmental GIS data aspects, the question will be answered. It is also the intent of this paper to illustrate the importance of having GIS within the inventories of materials that are at the disposal of Federal, State, Local, Academic and Private entities and agencies. Additionally, its contents are suggestions on various ways to more effectively use GIS between environmental and planning processes and are not intended to be interpreted as steadfast rules. The primary focus will be related to the **SAFETEA-LU** (Safe, Accountable, Flexible, Efficient, Transportation Equity Act – a Legacy for Users) Legislation as it relates to environmental issues.

On August 10, 2005, the President signed SAFETEA-LU into law. With guaranteed funding for highways, highway safety and public transportation totaling \$244.1 billion, SAFETEA-LU represents the largest surface transportation investment in our Nation's history. The two landmark bills that brought surface transportation into the 21st century—the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21)—shaped the highway program to meet the Nation's changing transportation needs. SAFETEA-LU builds on this firm foundation, supplying the funds and refining the programmatic framework for investments needed to maintain and grow our vital transportation infrastructure.

SAFETEA-LU addresses the many challenges facing our transportation system today – challenges such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity and protecting the environment – as well as laying the groundwork for addressing future challenges. SAFETEA-LU promotes more efficient and effective Federal surface transportation programs by focusing on transportation issues of national significance, while giving State and local transportation decision makers more flexibility for solving transportation problems in their communities.

This document will also formulate and guide discussion on environmental and planning aspects that can be used more efficiently in transportation applications. The front line of transportation projects are rooted both in Planning and Environmental issues. Many times, planning groups look at information such as traffic counts, existing roadways, various demographics and local/regional needs in feasibility studies. Environmental groups look at a variety of issues including wetlands, historic structures, American Indian Tribal issues, demographics (such as minorities, elderly and low income populations), hazardous waste, potential relocations and wildlife migratory issues; all of which are required and crucial areas of the NEPA process. Additional environmental constraints also include a variety of sensitive information including endangered species and cultural resources. Normally, environmental issues (other than proprietary data) are reported in cursory environmental reviews as the first data provided in a study.

Unfortunately, the environmental process is often included late in the planning process. Many environmental issues can be assessed (through GIS) either before, or concurrently, with the planning assessment or feasibility study. Using cooperative methods with Federal, State and Local entities, the merging of both the planning and environmental processes will increase overall efficiency, saving both time and money. Therefore, cross-cutting between many databases maintained by various agencies (figure 1) allow one set of data, provided by the source agency, to be used for several different levels and types of studies (figure 2). Additionally, datasets that are provided by the responsible agency will insure that the most current and reliable data is acquired.

How can this be done efficiently and effectively? We accomplish this action with efficient and cooperative use of GIS. Only a few decades ago, GIS was not a tool that could be effectively used as an enterprise application; those that had GIS were predominantly in the research arena and the equipment was unwieldy and costly. Today, we have desktop GIS providing a variety of efficient and affordable GIS programs, numerous reliable databases, GPS technologies as well as methodologies to meet projected goals. Of equal importance is the need to insure that a determination of the quality/completeness of data is assessed for specific needs. Figure 2 illustrates a general overview of GIS capabilities and a variety of Planning/Environment - related datasets.

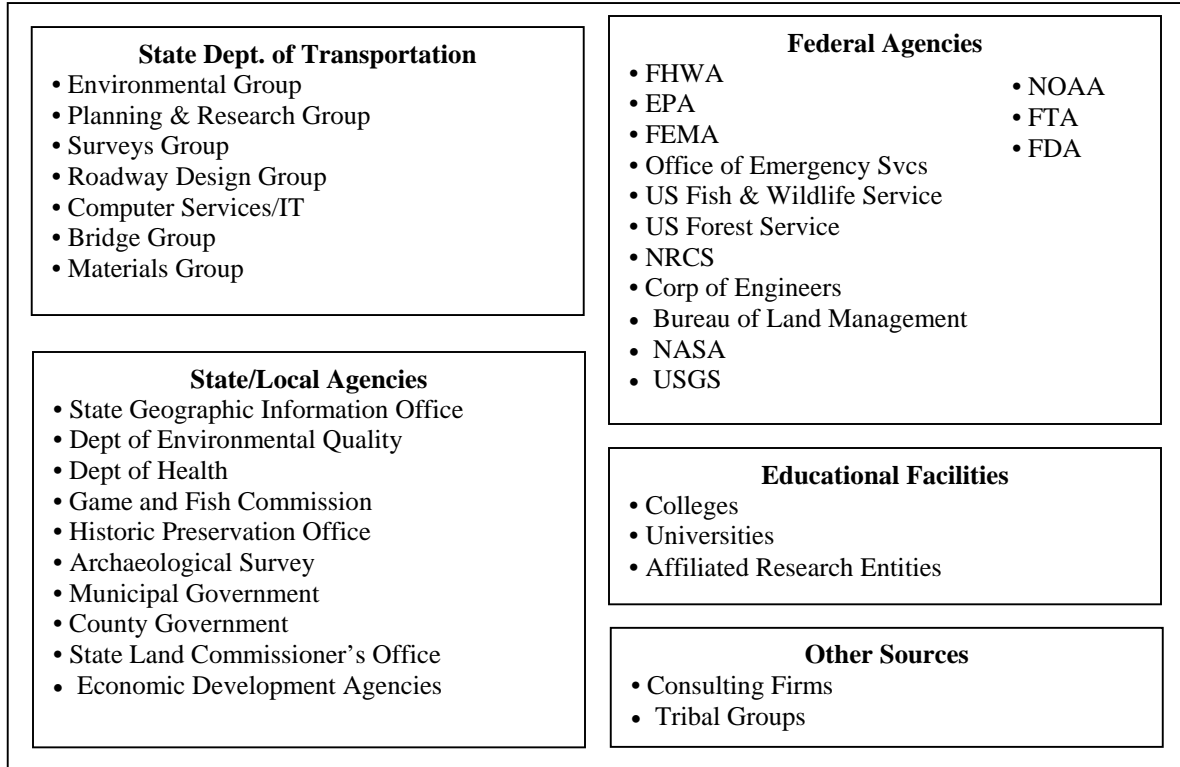


Figure 1 – Examples of Potential Preexisting Dataset Holders

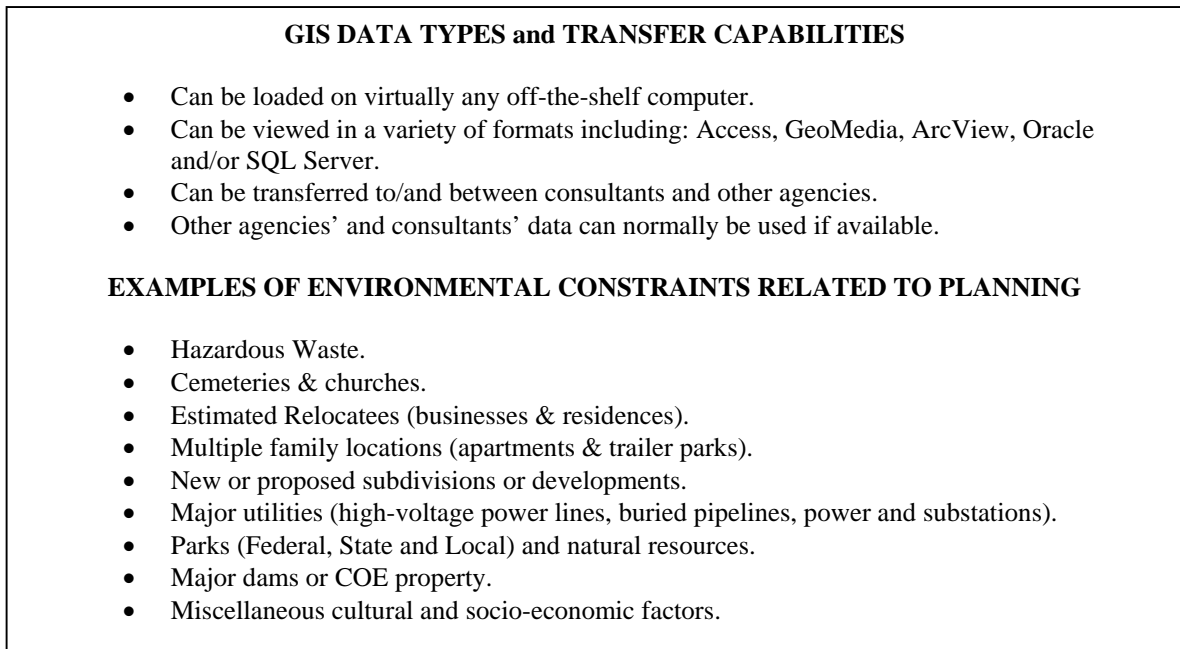


Figure 2 – Overview of GIS Capabilities and Potential Datasets

Document Focus Areas:

The remainder of this document is outlined in 8 *Focus Areas* that cover relevant environmental/planning perspectives associated with GIS technologies, methodologies and the acquisition, coordination and distribution of data relative to SAFETEA-LU.

1. **Topics To Think About** – Relative topics discussed at the TRB ABJ60 Subgroup for the Environment – Robert Fuhler (Robert.Fuhler@Arkansashighways.com).
2. **Discussion Questions** – Challenges, Partnerships and Next Steps. - Robert Copp (Robert.Copp@dot.ca.gov).
3. **Compilation of comments/notes** from conference calls between members of the external workgroup. SAFETEA-LU.
4. **Data Implication (MPO) of SAFETEA-LU** - Planning, Policy and Environment From (the) MPO Perspective – Tom Kane (TJKane@dmampo.org).
5. **Data Implication of SAFETEA-LU** - For Planning, Policy and Environment.
6. **Discretionary Research Funding Possibilities** – FHWA – Contact: Shari Schaftlein (Shari.Schaftlein@fhwa.dot.gov).
7. **Data Implications and SAFETEA-LU: Uses of Environmental Data for Transportation Programs and Project Delivery** - Kimberly Majerus (Kimberly.Majerus@fhwa.dot.gov).
8. **Data Implications and SAFETEA-LU: Detailed Example of Environmental GIS Map Data for Transportation Programs and Project Delivery** - Kimberly Majerus (Kimberly.Majerus@fhwa.dot.gov).

Focus 1 –Topics to Think About. – Robert Fuhler, External Workgroup

This focus area illustrates a variety of topics that were discussed during a subgroup meeting with the ABJ60 group on GIS use with environmental applications at the TRB (Transportation Research Board). They contributed to the development of a mission statement for the subgroup.

1. Development of Universal Applications.
 - a. Definition: Creation of a uniform design of information exchange that can be shared by many
 - b. Training (on how to implement the applications)
 - c. Software interoperability (ESRI/InterGraph/GRASS)
 - d. Data Format Types (Access/Excel/Oracle/Txt)
 - e. Mission Planning
 - f. Data Transfer
 - g. Data Types (Proprietary and General)
2. Develop Universal Methodologies/Standards.
 - a. Definition: Creation of an interchangeable design of project implementation that can be shared by many across different platforms
 - b. Training (on how to use the methodologies)
 - c. Applications/Model Designs
 - d. Dispersal of Information (Lists, Local/State or Agency Organizations or Groups)
 - e. Dispersal of Data (Such as GeoStor)
 - f. Early Notification of Impacted Areas for GIS initiation
 - g. Development of Standards
3. Provide a Coordinated & Cooperative Enterprise-Based Process.
 - a. Definition: Organized partnership for peer exchange of universal information and methods
 - b. Meeting conduction
 - c. Effective use of technology transfer (data repositories, ftp and development of list-serves)
4. Promote Early Detection of Environmental Constraints.
 - a. Definition: Illustrate the advantages of cursory environmental reviews through GIS at the start of projects
 - b. Emphasis on training
 - c. Inclusion of both Planning and Environmental stakeholders early in the analysis process
 - d. Convey savings that can be gained by GIS use early in the environmental analysis process

- e. Enhanced risk avoidance when GIS is used early to identify potential problems to more effectively avoid more comprehensive reviews
5. Accomplish via Effective Communication, Data Integrity Standards and Cooperative Training Programs.
 - a. Definition: Vision goals can be met by interactive discussion, mutual development of data standards and by training program collaboration between peers and colleagues
 - b. Networking through a list serve
 - c. Web-cast meetings
 - d. Collaboration with Universities, Local, Private, State and Federal Agencies
 - e. Effectively communicating within our own agencies to see what data is already available and how GIS can use it

Focus 2 - Discussion Questions – Challenges, Partnerships and Next Steps. – Robert Copp, External Workgroup

In this focus area, Robert Copp illustrates the bare essentials of SAFETEA-LU; looking at issues such as challenges, partnerships and next steps as forward progress is achieved.

SAFETEA-LU

Safe, Accountable, Flexible, Efficient Transportation Equity Act
Legacy for Users (The Tragedy of the Uncommon, Yet Common Data*)

First impression of SAFETEA-LU

- SAFETEA-LU follows previous federal transportation reauthorization legislation (ISTEA and TEA-21) by continuing the federal focus on similar issues: safety, performance measures, intermodalism, mobility, environmental quality and equity.
- ISTEA attempted to strengthen decision-making by integrating environmental issues earlier into decision making. Air quality conformity was the key challenge for California's data community. The other data issues (safety, forecasting changing mobility needs, etc..) were routine and overridden by the need for environmental data and building partnerships. TEA-21 attempted to ameliorate some of ISTEA's shortcomings: intermodalism, partnerships, goods movement, equity, mobility, etc.
- SAFETEA-LU appears to assume that transportation decision support foundation data activities are well established and it is simply a matter of using the data in a focused area or two. Both ISTEA and TEA-21 presented similar challenges that are deemed resolved, or now are less important due to a new reauthorization. The unfinished business remains. Establish transportation data as a crosscutting, corporate asset.

What are the challenges?

- Identify the crosscutting data issues in SAFETEA-LU. For example, modeling, data visualization and minimum data standards across programs.
- Identify who has what data and tools to share and reduce unnecessary duplication of data activities.
- Identify and evaluate data islands and silos.
- Propose strategic approaches to maximize existing data and resources, while minimizing new work to provide SAFETEA-LU requirements.
- Identifying and stopping funding of unnecessary data islands and silos. This requires working with the owners/customers of the islands and silos.
- Key challenge: stop the snowball effect of programs rushing to capture resources and building data islands, silos and new data programs.

What partnerships should be developed?

The obvious partnerships are between areas with the belief that new requirements exist and the existing data community.

- Data collectors, owners, external agencies and federal agencies developing guidance.

- Stakeholders and decision makers.

Next steps:

- Complete section-by-section SAFETEA-LU review focused on linking data and data activities with programs.
- Identify crosscutting opportunities to streamline meeting SAFETEA-LU requirements.
- Identify unmet data issues.

***Data operates in a “tragedy of the commons” environment.**

Focus 3 - Compilation of comments/notes from conference calls between members of the external workgroup

The following compilation consists of various information and discussion topics that have been compiled from a series of conference calls conducted through September 2005. The conference calls were between members of the external workgroup addressing planning, policy and environmental data issues.

Objectives:

1. Breakout topics for workshops:
 - a. Data Issues
 - b. Data Impacts
 - c. Emerging Strategies and Directions
2. Priorities:
 - a. Coordination/reduction in redundancy of work
 - b. More efficient implementation of projects
 - c. Development of Partnerships
 - d. Funding issues
 - e. Stay away from getting bogged down in best practice applications (keep focus on looking at case studies)
 - f. Creation of a paper.
 - g. Identification of how the National Data Set be helpful.
3. Develop an External Workgroup.
4. Identify data implications of the provisions of the Bill.
5. Prepare a white paper on the findings of the group.
6. Determine the best use of time at the Conference for dialogue on data implementation issues.

Method to Meet Objectives:

1. Conference Calls.
2. Transcription of information.
3. Sharing of information and existing methods.

Focus 4 - Data Implication of SAFETEA-LU - For Planning, Policy and Environment From (the) MPO Perspective – Tom Kane, External Workgroup.

In this section, Tom has identified several sections in the Legislation that involve MPO perspectives.

Key: RA=Rated As; PSD=Potential Source for Data; PE=Performance Expectations; CR=Changing Roles.

Section 1107 – Metropolitan Planning§1107(1) Fiscal Tracking System - Appropriations

RA	Mandatory
PSD	FHWA – Annual appropriations figure for Interstate maintenance, national highway system, surface transportation, congestion mitigation and air quality improvement, and highway bridge replacement and rehabilitation programs authorized under this title.
PE	Annual set-aside of 1.25 percent of those funds identified in #1, for metropolitan planning
CR	MPO release to State DOT of unused metropolitan planning funds; ongoing

1107(1) Fiscal Tracking System - Expenditures

RA	Mandatory
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PSD	FHWA/State DOT– Annual metropolitan planning funds expenditures, by MPO in a state
PE	Annual tabulation of metropolitan planning funds expended – contact a MPO with carryover funds to determine if the MPO wishes to release those funds.
CR	MPO release to State DOT of unused metropolitan planning funds; ongoing

Section 1201– Real-Time System Information System

§1201(b) Data Exchange Formats – Federal Agencies

RA	Mandatory
PSD	USDOT, State DOTs, MPOs, Transit Operators
PE	Data exchange formats shall be developed to ensure that the data provided by highway and transit monitoring systems can readily be exchanged across jurisdictional boundaries
CR	Data interoperability among Federal agencies, State DOTs, MPOs, Transit Operators, to share that data among those partners and with the public

§1201(c)(2) Data Exchange Formats – State DOTs

RA	Mandatory
PSD	USDOT, State DOTs, MPOs, Transit Operators
PE	Data exchange formats shall be incorporated to ensure that the data provided by highway and transit monitoring systems may be readily exchanged with State and local governments, and shared with the public
CR	Data interoperability among Federal agencies, State DOTs, MPOs, Transit Operators, to share that data among those partners and with the public

Section 1303– Coordinated Border Infrastructure Program

§1303(c) Apportionment of Funds

RA	Mandatory
PSD	USDOT, State DOTs
PE	Fiscal system to distribute and monitor fund expenditures
CR	Ongoing

§1303(c)(1)(A) & (B) Data As Base for Apportioning Funds to Border States

RA	Mandatory
PSD	USDOT, State DOTs
PE	Apportionment shall be based partially on the total number of incoming commercial trucks that pass through such ports of entry within the boundaries of all the border states
CR	USDOT shall apportion funds on this newly collected data; ongoing

§1303(c)(2)(A) & (B) Data As Base for Apportioning Funds to Border States

RA	Mandatory
PSD	USDOT, State DOTs
PE	Apportionment shall be based partially on the total number of incoming personal vehicles and buses that pass through land border ports of entry within the boundaries of all the border states
CR	USDOT shall apportion funds on this newly collected data; ongoing

§1303(c)(3)(A) & (B) Data As Base for Apportioning Funds to Border States

RA	Mandatory
PSD	USDOT, State DOTs
PE	Apportionment shall be based partially on the total weight of incoming cargo by commercial trucks that pass through such ports of entry within the boundaries of all the border states
CR	USDOT shall apportion funds on this newly collected data; ongoing

§1303(c)(4)(A) & (B) Data As Base for Apportioning Funds to Border States

RA	Mandatory
PSD	USDOT, State DOTs
PE	Apportionment shall be based partially on the total number of land border ports of entry within the boundaries of a border state
CR	USDOT shall apportion funds on this newly collected data; ongoing

Section 1305– Truck Parking Facilities

§1305(b)(1) Apportionment of Funds

RA	Mandatory
PSD	USDOT, State DOTs
PE	Fiscal system to distribute and monitor fund expenditures
CR	Ongoing

§1305(c) Inventory of Existing Safety Rest Areas, State Safety Rest Area Plan & State Administrative Rules on Safety Rest Areas

RA	Mandatory
PSD	State DOT Rest Area Coordinator
PE	Report to Congress not less than 3 years after enactment
CR	Need to involve MPOs, private sector (truck stops/truck plazas), local governments, motor truck associations in the safety rest area truck parking issue; ongoing.

§1305(c) Inventory of State Weigh Stations

RA	Mandatory
PSD	State Office of Motor Carrier Services
PE	Report to Congress not less than 3 years after enactment
CR	Need to involve MPOs, private sector (truck stops/truck plazas), local governments, motor truck associations in the safety rest area truck parking issue; ongoing.

§1305(c) State DOT's NHS

RA	Mandatory
PSD	State Highway Engineer
PE	Report to Congress not less than 3 years after enactment
CR	Need to involve MPOs, private sector (truck stops/truck plazas), local governments, motor truck associations in the safety rest area truck parking issue; ongoing.

§1305(c) Local Land Use Files & Regional ITS Architecture

RA	Mandatory
PSD	MPO
PE	Report to Congress not less than 3 years after enactment
CR	Need to involve MPOs, private sector (truck stops/truck plazas), local governments, motor truck associations in the safety rest area truck parking issue; ongoing.

§1305(c) Develop and Maintain an Inventory of Needs from Trucking Industry

RA	Mandatory
PSD	State Motor Truck Association
PE	Report to Congress not less than 3 years after enactment
CR	Need to involve MPOs, private sector (truck stops/truck plazas), local governments, motor truck associations in the safety rest area truck parking issue; ongoing.

§1305(c) Develop and Maintain an Inventory of Needs from Truck Stop/Truck Plaza Operators

RA	Mandatory
PSD	Truck Stop/Truck Plaza Operators
PE	Report to Congress not less than 3 years after enactment
CR	Need to involve MPOs, private sector (truck stops/truck plazas), local governments, motor truck associations in the safety rest area truck parking issue; ongoing.

Section 1401 – Highway Safety Program**§1401(c)(2) Develop and/or maintain crash data**

RA	Mandatory
PSD	State Crash Data System
PE	Annual Report to the Secretary containing not less than five (5) percent of the identified by the State as having the most severe safety needs
CR	Ongoing.

Section 1404 – Safe Routes to Schools Program**§1404(h)(2) Develop a Report to Congress**

RA	Mandatory
PSD	State DOTs, MPOs
PE	The Secretary shall submit, not later than March 31, 2006, a report on the strategy developed for advancing safe routes to schools programs nationwide, and information on the use of funds for infrastructure and non-infrastructure activities of this program
CR	Ongoing; such a complex groups of public, private, and non-profit groups that this program will a challenge to coordinate, at least initially

Section 1804 – National Historic Covered Bridge Preservation**§1804(b) Inventory of Historic Covered Bridges**

RA	Mandatory
PSD	State DOTs, MPOs, State Historic Preservation Office, National Registry of Historic Places
PE	Inventory of historic covered bridges from which to determine which State DOTs are eligible to apply to USDOT for these funds
CR	Ongoing

§1804(d) Apportionment of Funds

RA	Mandatory
PSD	USDOT, State DOTs
PE	Fiscal system to distribute and monitor fund expenditures
CR	Ongoing

Section 1909 – Future of Surface Transportation System - National Surface Transportation Policy and Revenue Commission**§1909(b)(3)(B) Design and Operational Standards, Federal Policies & Legislative Changes**

RA	Mandatory
PSD	Federal Highway Administration, State DOTs, Transportation Research Board, Commission's Technical Advisory Committee
PE	Not later than July 1, 2007, the Commission shall submit to Congress – (1) a final report with findings and conclusions and (2) recommendations for legislation and administrative actions considered to be appropriate
CR	Commission will offer recommendations regarding design and operational standards, Federal policies, and legislative changes; actions that should be taken to support the Highway Trust Fund

Section 1954 – Bicycle Transportation and Pedestrian Walkways**Deletion of Bicycle and Pedestrian Projects from Federal Lands Highway Program**

RA	Necessary
PSD	Federal Lands Highway Program
PE	Bicycle Transportation and Pedestrian Walkways no longer required for Federal Lands Highway Program projects
CR	Federal Lands Highway Program projects-now for roadway projects only; ongoing

Section 3005 – Metropolitan Transportation Planning**§3005(c)(1) Socioeconomic Base Data/Projections**

RA	Necessary
PSD	MPO
PE	MPO now required to provide planning data for the MPO-defined metropolitan area (urbanized area and 'to-be-urbanized in 30 years' area), not just the urbanized area (May not affect that many MPOs – primarily small MPOs)
CR	Metropolitan area is the base, not the urbanized area; ongoing

§3005(g) and (g)(3) Develop and Maintain an Inventory of 'Other Planning Officials'

RA	Necessary
PSD	MPO, Other Planning Agencies
PE	MPO now encouraged to consult with other planning officials (State and Local planned growth, economic development, environmental protection, airport operations, and freight movements) in developing long-range transportation plans and TIPs
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups in the process

§3005(h)(1)(E) Develop and Maintain an Inventory of 'State Economic Development Plans', 'Local Economic Development Plans', 'Local Land Use Plans'

RA	Necessary
PSD	MPO, State Department of Economic Development, local and regional economic development agencies, land use planning agencies
PE	MPO now shall provide for consideration to promote consistency between transportation improvements and State and local planned growth and economic development patterns
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the process

§3005(i)(2)(B) Develop and Maintain an Inventory of 'Potential Areas Requiring Environmental Mitigation'

RA	Necessary
PSD	MPO, State Department of Natural Resources, State Environmental Protection Agency, Corps of Engineers, etc
PE	MPO now shall consult with such groups for discussion on of types of potential environmental mitigation activities and potential areas to carry out these activities, . . . to restore and maintain the environmental functions affected by the plan
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the process; ongoing

§3005(i)(2)(D) Develop and Maintain a Roadway Operational Data Inventory (Travel Times, Traffic Volumes, Vehicle Classifications, Traffic Signal Timing Plans, Regional ITS Architecture, Transit On-Time Performance, etc)

RA	Necessary
PSD	MPO, Local Traffic Engineers, Traffic Management Center, State Traffic Engineer, Transit Authority, ITS Working Group
PE	MPO now has to generate measures of operations and management to be able to evaluate which strategies might be beneficial for a metropolitan area
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the process; goes beyond the regional ITS architecture requirement; MPO will have to manage data bases for the operations and management information to evaluate strategies; ongoing

§3005(i)(4)(A) & (B) Develop and Maintain an Inventory of Land Use Planning Agencies, Natural Resource Agencies, Conservation Agencies, Environmental Agencies, Historic Preservation Agencies in the MPO Planning Area

RA	Necessary
PSD	MPO, local land use planning agencies, State Department of Natural Resources, State Environmental Protection Agency, Corps of Engineers, County Conservation Commissions, State Historic Preservation Office, etc
PE	MPO now <u>shall consult</u> with agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation . . . ; natural resource inventory data base; historic resource inventory data base
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the process; MPO evaluation of conflicts and/or inconsistencies between the inventories and the plan; ongoing

§3005(i)(5)(B) Develop and Maintain a Public Input Contact List

RA	Mandatory
PSD	MPO
PE	MPO now <u>shall develop</u> a Participation Plan for public input on the plan
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the Participation Plan process; not clear yet if this plan is more than the required public participation plan MPOs must have or is new wording for that old program, ongoing

§3005(i)(5)(C)(ii) & (iii) Electronic Data Bases/World Wide Web Access/Web Page Maintenance

RA	Mandatory
PSD	MPO
PE	MPO, as part of the Participation Plan for public input on the plan will ‘(ii) . . . will employ visualization . . .’ and ‘(iii) . . . make public information available in electronically accessible format and means . . .’
CR	MPO now required to use certain prescribed technologies for public involvement; may be an issue for smaller MPOs; ongoing

§3005(i)(6) Electronic Data Bases/World Wide Web Access/Web Page Maintenance

RA	Mandatory
PSD	MPO, USDOT
PE	MPO, as part of the Participation Plan for public input on the plan, ‘. . . make public information available in electronically accessible format and means . . .’ and ‘. . . submitted for information purposes to . . . in such manner as the Secretary shall establish.’
CR	USDOT must set a schedule; MPO required to prepare and submit this plan to USDOT via the Governor; ongoing

§3005(j)(1)(D) Four (4) Year TIP& Update and §3005(j)(2)(A) TIP Priority List

RA	Mandatory
PSD	MPO
PE	MPO shall prepare a four (4) year TIP, no longer the three (3) year TIP
CR	MPO must now include an additional set of transportation projects for an additional TIP year; ongoing

§3005(j)(7)(C) Regulations on Data Requirements for Annual Listing in TIP

RA	Mandatory
PSD	USDOT
PE	Not later than 180 days after the date of enactment of the Federal Public Transportation Act of 2005
CR	New data regulation

§3005(k)(3) Congestion Management Process

RA	Necessary
PSD	MPO
PE	MPO designated a Transportation Management Area <u>no longer required</u> to have a Congestion Management System, <u>only to have a Congestion Management Process</u>

CR	Ongoing
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§3005(k)(3) Inventory of New and Existing Transportation Facilities Eligible for Funding Under Congestion Management

RA	Mandatory
PSD	MPO
PE	Reduced congestion by selecting projects that reduce travel demand and improve operations
CR	Ongoing

§3005(k)(5)(A)(ii) Certification of Transportation Management Area

RA	Mandatory
PSD	MPO
PE	Certification by federal funding agencies not less than once every 4 years; formally not less than once every 3 years
CR	Ongoing

§3005(m)(1) Non-Attainment Areas and a Congestion Management Process

RA	Necessary
PSD	MPO
PE	Federal funds may be expended in non-attainment areas to a highway project as long as the result is not a significant increase in the carrying capacity for single-occupant vehicles unless the project is addressed through a congestion management process; previous wording stated that the project is part of an approved congestion management system
CR	Ongoing

§3005(b) Schedule for Implementation (Not sure this citation is correct, but that is how it is listed in H.R.3)

RA	Mandatory
PSD	USDOT
PE	Schedule for implementation of the metropolitan transportation planning regulations; to begin July 1, 2007
CR	Ongoing

Section 3007 – Planning Programs

Reviewed; No Comment

Section 5207 – Surface Transportation Environment Planning Cooperative Research Program

§507(b)(1) Inventory of Transportation Control Measure and Transportation System Design Models

RA	Desirable
PSD	USDOT, State DOTs, MPOs, Consultants, Universities
PE	Evaluate these models for accuracy; support those models deemed useful for such evaluation
CR	Ongoing

§507(b)(3) Collect Indicators of Economic, Social, and Environmental Performance

RA	Desirable
PSD	USDOT, State DOTs, MPOs, Consultants, Universities
PE	Indicator data will be used to facilitate analysis of alternatives
CR	Ongoing

Section 5502 – Surface Transportation Congestion Relief Solutions Research Initiative

§5502(b)(1)(B) Collect Inventory of Surface Transportation Congestion Management Systems (First Research Program)

RA	Desirable
PSD	USDOT, State DOTs, MPOs, Consultants, Universities
PE	Base for evaluating best case examples of locally designed reporting methods, use in research on national models for developing and recommending improved congestion measurement and reporting
CR	Ongoing

§5502(b)(2)(B) Collect Inventory of Surface Transportation Congestion Management Systems (Second Research Program)

RA	Desirable
PSD	USDOT, State DOTs, MPOs, Consultants, Universities
PE	Base for evaluating best case examples of locally designed reporting methods, use to identify methods to ensure congestion analyses lead to funding of programs, projects, or services proven to be effective in reducing congestion

CR	Ongoing
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Section 5512 – TRANSIMS**§5502(b)(2)(B) Develop Inventory of Transportation Management Areas' Travel Demand Modeling Capabilities**

RA	Desirable
PSD	USDOT, State DOTs, MPOs, Consultants, Universities
PE	Inventory to provide information on diversity of population, geographic region, and analytic need of TMAs in order to make funding decisions to State DOTs and MPOs that are TMAs
CR	Ongoing

Section 6001 – Metropolitan Transportation Planning**§134(c)(1) Socioeconomic Base Data/Projections**

RA	Necessary
PSD	MPO
PE	MPO now required to provide planning data for the MPO-defined metropolitan area (urbanized area and 'to-be-urbanized in 30 years' area), not just the urbanized area (May not affect that many MPOs – primarily small MPOs)
CR	Metropolitan area is the base, not the urbanized area; ongoing

§134(g) and (g)(3) Develop and Maintain an Inventory of 'Other Planning Officials'

RA	Necessary
PSD	MPO, Other Planning Agencies
PE	MPO now <u>encouraged</u> to consult with other planning officials (State and Local planned growth, economic development, environmental protection, airport operations, and freight movements) in developing long-range transportation plans and TIPs
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups in the process

§134(h)(1)E) Develop and Maintain an Inventory of 'State Economic Development Plans', 'Local Economic Development Plans', 'Local Land Use Plans'

RA	Necessary
PSD	MPO, State Department of Economic Development, local and regional economic development agencies, land use planning agencies
PE	MPO now <u>shall provide for consideration</u> to promote consistency between transportation improvements and State and local planned growth and economic development patterns
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the process

§134(i)(2)(B) Develop and Maintain an Inventory of 'Potential Areas Requiring Environmental Mitigation'

RA	Necessary
PSD	MPO, State Department of Natural Resources, State Environmental Protection Agency, Corps of Engineers, etc
PE	MPO now <u>shall consult</u> with such groups for discussion on of types of potential environmental mitigation activities and potential areas to carry out these activities, . . . to restore and maintain the environmental functions affected by the plan
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the process; ongoing

§134(i)(2)(D) Develop and Maintain a Roadway Operational Data Inventory (Travel Times, Traffic Volumes, Vehicle Classifications, Traffic Signal Timing Plans, Regional ITS Architecture, Transit On-Time Performance, etc)

RA	Necessary
PSD	MPO, Local Traffic Engineers, Traffic Management Center, State Traffic Engineer, Transit Authority, ITS Working Group
PE	MPO now has to generate measures of operations and management to be able to evaluate which strategies might be beneficial for a metropolitan area
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the process; goes beyond the regional ITS architecture requirement; MPO will have to manage data bases for the operations and management information to evaluate strategies; ongoing

§134(i)(4)(A) Develop and Maintain an Inventory of Land Use Planning Agencies, Natural Resource Agencies, Conservation Agencies, Environmental Agencies, Historic Preservation Agencies in the MPO Planning Area

RA	Necessary
PSD	MPO, local land use planning agencies, State Department of Natural Resources, State Environmental Protection Agency, Corps of Engineers, County Conservation Commissions, State Historic Preservation Office, etc
PE	MPO now <u>shall consult</u> with agencies responsible for land use management, natural resources, environmental protection,

	conservation, and historic preservation . . . ; natural resource inventory data base; historic resource inventory data base
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the process; MPO evaluation of conflicts and/or inconsistencies between the inventories and the plan; ongoing

§134(i)(4)(B) Develop and Maintain an Inventory of Land Use Planning Agencies, Natural Resource Agencies, Conservation Agencies, Historic Preservation Agencies in the MPO Planning Area

RA	Necessary
PSD	MPO, State Department of Natural Resources, State Environmental Protection Agency, Corps of Engineers, etc
PE	MPO now <u>shall consult</u> with agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation .
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the process, ongoing

§134(i)(5)(B) Develop and Maintain a Public Input Contact List

RA	Mandatory
PSD	MPO
PE	MPO now <u>shall develop</u> a Participation Plan for public input on the plan
CR	Broader MPO involvement and more work in identifying, meeting with, and including these groups and their activities in the Participation Plan process; not clear yet if this plan is more than the required public participation plan MPOs must have or is new wording for that old program, ongoing

§134(i)(5)(C)(ii) & (iii) Electronic Data Bases/World Wide Web Access/Web Page Maintenance

RA	Mandatory
PSD	MPO
PE	MPO, as part of the Participation Plan for public input on the plan will ‘(ii) . . . will employ visualization . . . ’ and ‘(iii) . . . make public information available in electronically accessible format and means . . . ’
CR	MPO now required to use certain prescribed technologies for public involvement; may be an issue for smaller MPOs; ongoing

§134(i)(6) Electronic Data Bases/World Wide Web Access/Web Page Maintenance

RA	Mandatory
PSD	MPO, USDOT
PE	MPO, as part of the Participation Plan for public input on the plan, ‘. . . make public information available in electronically accessible format and means . . . ’ and ‘. . . submitted for information purposes to . . . in such manner as the Secretary shall establish.’
CR	USDOT must set a schedule; MPO required to prepare and submit this plan to USDOT via the Governor; ongoing

§134(j)(1)(D) Four (4) Year TIP

RA	Mandatory
PSD	MPO
PE	MPO shall prepare a four (4) year TIP, no longer the three (3) year TIP
CR	MPO must now include an additional set of transportation projects for an additional TIP year; ongoing

§134(j)(1)(D) Four (4) Year TIP Update

RA	Mandatory
PSD	MPO
PE	MPO shall update the four (4) year TIP at least every 4 years, no longer the requirement of updating the TIP at least every two years three (3) year TIP
CR	MPO’s TIP may be the Existing Plus Committed element of its Long-Range Transportation Plan; may be a much closer link between projects in first five years of a 20-year plan and the adopted four-year TIP; ongoing

§134(j)(2)(A) Four (4) Year TIP Priority List

RA	Mandatory
PSD	MPO
PE	MPO shall prepare a four (4) year TIP, no longer the three (3) year TIP
CR	MPO must now include an additional set of transportation projects for an additional TIP year; ongoing

§134(k)(3) Congestion Management Process

RA	Necessary
PSD	MPO
PE	MPO designated a Transportation Management Area <u>no longer required</u> to have a Congestion Management System, <u>only to have a Congestion Management Process</u>
CR	Ongoing

§134(k)(3) Inventory of New and Existing Transportation Facilities Eligible for Funding Under Congestion Management

RA	Mandatory
PSD	MPO
PE	Reduced congestion by selecting projects that reduce travel demand and improve operations
CR	Ongoing

§134(k)(5)(A)(ii) Certification of Transportation Management Area

RA	Mandatory
PSD	MPO
PE	Certification by federal funding agencies not less than once every 4 years; formally not less than once every 3 years
CR	Ongoing

§134(m)(1) Non-Attainment Areas and a Congestion Management Process

RA	Necessary
PSD	MPO
PE	Federal funds may be expended in non-attainment areas to a highway project as long as the result is not a significant increase in the carrying capacity for single-occupant vehicles unless the project is addressed through a congestion management process; previous wording stated that the project is part of an approved congestion management system
CR	Ongoing

Focus 5 - Data Implication of SAFETEA-LU, For Planning, Policy and Environment – FHWA, External Workgroup.

In this section, the FHWA has identified several sections in the Legislation that involve planning, policy and environmental perspectives.

Key: RA=Rated As; PSD=Potential Source for Data; PE=Performance Expectations; CR=Changing Roles.

Section 1108 – Transfer of Highway and Transit Funds

RA	Mandatory
PSD	Internal Revenue Service tracking of transfer of transit or highway funds.
PE	Fiscal, establish if funds are transferred.
CR	New fiscal tracking system

Section 1925 – Community Enhancement Study

RA	Mandatory
PSD	USDOT, Community Enhancement Study
PE	One time collection of data for study.
CR	New study

Section 6001 – Transportation Planning and Project Delivery**§6001(i),2(B) Mitigation Activities & 6001(i),4, Consultation**

RA	Necessary
PSD	Metropolitan Planning Organization will need to identify sources of data and coordinate data analysis to identify potential impacts of planned projects with resource agencies.
PE	New coordination effort
CR	Ongoing

§6001 (c) i(5)(C)(ii)Methods

RA	Necessary
PSD	Metropolitan Planning Organization may need to update technology and gather data to employ visualization techniques.
PE	New technology
CR	Ongoing

§6001 (i)(5)(C)(iii) Methods

RA	Necessary
PSD	Metropolitan Planning Organization may need to update technology and gather data to make public information accessible on the World Wide Web.
PE	New technology or technology upgrades.
CR	Ongoing

§6001 (f)(2,D, ii) Comparison and Consideration

RA	Necessary
PSD	Identify sources of data and coordinate data analysis to identify potential impacts of planned projects with resource agencies, states.
PE	New coordination effort.
CR	Ongoing

§6001(f)(3,B, ii) Methods

RA	Necessary
PSD	May need to update technology and gather data to make public information accessible on the World Wide Web, states.
PE	New coordination effort
CR	Ongoing

§6001 (f, 4, A) Mitigation Activities

RA	Necessary
PSD	Mitigation activities need to be identified in a long-range plan.
PE	New planning activity using existing data, additional analysis
CR	Ongoing.

Section 5208 - Transportation Research and Development Strategic Planning.

RA	Necessary
PSD	Research and development plan
PE	Data collection to develop plan
CR	Once.

Section 1201 - Real Time System Management Information Program (b) Data Exchange Formats

RA	Mandatory
PSD	Establish data exchange formats to be used transit, transportation, etc
PE	Data format established
CR	Not later than 2 years

Section 1923 - Transportation Assets and Needs of Delta Region

RA	Necessary
PSD	Plan
PE	Study
CR	Once.

Section 1119 - Federal Lands Highways§1119 (f) National Tribal Transportation Facility Inventor & (g) National Tribal Bridge Inventor

RA	Mandate
PSD	Comprehensive national transportation facility inventory
PE	Verification and identification of tribal transportation facilities, extensive effort to coordinate tribal, Federal Lands Highway and Bureau of Indian Affairs data.
CR	Not later than 2 years Secretary of Interior and Transportation

§1119 (m, 3, n) Wildlife Vehicle Collision Reduction Study

RA	Mandate
PSD	Study
PE	Reduce wildlife collisions.
CR	Once

Section 1401 - Highway Safety§1401 (a, 6, A, ii) State Strategic Highway Safety Plan

RA	Mandate
PSD	Plan
PE	Plan development based on consultation efforts.
CR	State Transportation Plan Development in consultation with MPO, locals, motor carrier

Section - 1604 Tolling

RA	Mandatory
PSD	Fiscal accounting of tolls

PE	
CR	Ongoing

Section 1801 - Ferry Boat

RA	Mandatory
PSD	Ferryboat system information regarding routes, vessels, passengers, funding, etc.
PE	New data collection by states
CR	Ongoing

Focus 6 - Discretionary Research Funding Possibilities (FHWA)

Citation	Program Name	Possibility	Funding
Sec. 5207(b) (Sec. 507)	ST-ECRP	Possibly conformity research under 507(b)(1), Air Quality/Noise/Water research under 507(b)(3)	16,875,000/FY
Sec. 5201(g) (Sec. 502(e))	Exploratory Advanced Research Program	Environmental research (502(e)(2)(D)), Health effects of transportation decisions (502(e)(2)(B))	14,000,000/FY
Sec. 5201(i)(Sec. 502(f))	Long-Term Pavement Performance Program	Possibly Noise research (quiet pavements, cool pavements)	10,120,000/FY
5303(a)(3) & 5306(4)(Sec. 513)	Intelligent Transportation System	Includes protection of natural environment in goals statement	110,000,000/FY
Sec. 5308(a)(2)	Road Weather Research and Development Program	Includes statement of "...minimizing environmental impacts"	5,000,000/FY
Sec. 5203(b)(2)(H)	Innovative Pavement Research & Deployment Program	Includes "the development of designs and materials to reduce storm water runoff"	14,750,000/FY
Sec. 5502	Surface Transportation Congestion Relief Solutions Research Initiative	Congestion management systems, reporting and measuring congestion information, best practices at state DOT and MPOs.	9,000,000/FY

Focus 7 - Data Implications and SAFETEA-LU: Uses of Environmental Data for Transportation Programs and Project Delivery

This focus area discusses opportunities and uses for environmental data for SAFETEA-LU provisions, transportation programs and project delivery.

**Data Implications and SAFETEA-LU:
Uses of Environmental Data for Transportation Programs and Project Delivery**

Kimberly Majerus, FHWA-Resource Center, Environmental Team

Data Implications

The use of environmental data to support decision-making and processes for transportation programs and project delivery has received a large amount of attention and investment. One example is the Transportation Research Board (TRB) Conference on Environmental Spatial Information for Transportation: A Peer Exchange (sponsored by FHWA). Discussion focus papers from the SAFETEA-LU data implications work groups have summarized provisions of SAFETEA-LU and implications for data with highlights for topics relevant to environmental factors as data considered necessary and with ongoing use. It is recognized that information can exist in various formats. Information can be compiled in an organized manner and stored and managed for documentation purposes and for ongoing access and future updating. Prior to the availability of computers, information was created and stored as some type of hard-copy media such as paper, with diverse ways of filing and accessing by users of the information. Hard-copy information continues to remain useful. With the onset of computer tools and networks, an expanded set of options has unfolded for developing and processing information into computer formats, commonly referred to as data. The following discussion focuses on considerations for the use of environmental data to support transportation program and project delivery cycles and includes details to consider relevant to SAFETEA-LU legislation. It is important to note that processes such as rulemaking are formal mechanisms for determining SAFETEA-LU final requirements. The content below offers discussion for consideration.

How Environmental Data Supports Transportation Programs and Project Delivery

Environmental factors and information can be considered relevant throughout the full cycle of needs for transportation program and project delivery processes for:

- programming/funding,
- long-range planning,
- project management,
- project planning,
- studies,
- design,
- permitting,
- real estate,
- construction,
- operations and maintenance, and
- public involvement.

Several factors and considerations form the foundation of success in using data. The discussion below focuses on environmental data and offers consideration of:

- Strategies can be developed to use environmental data for cross-cutting purposes throughout transportation program and project delivery cycles and processes.
- There is a need to clearly define the questions that needs to be answered or the decisions that need to be made, and to match information and data needs and uses to the question or decision.
- Methods exist that can be adopted as ways to compile environmental data sets for reuse rather than duplicating information/data gathering efforts every 4 or 5 years or as an ongoing cycle.
- Processes can be used to allow ongoing use of environmental data on an as needed basis.
- Seek and use already existing plans and inventories and environmental data publicly available from the source responsible for data (such as GIS data sources registered with the National Spatial Data Infrastructure (NSDI) data clearinghouses and existing databases).
- Environmental and public agencies are common sources of data that is available within the public domain.
- Methods exist to support sharing and reuse of consistent datasets between data providers and data consumers to achieve multiple, long-term benefits.
- Environmental resource agencies are typically aware of environmental data sets and data sources and use this data in their agency reviews. Has been beneficial to prepare information prior to coordination, consultation, and reviews with environmental agencies.
- Approaches can be developed to gain consistency for the gathering of information and use of environmental data across the nation that would prevent duplication of effort and provide common data that could be shared and used repeatedly over time and across state lines - as an option for MPOs, states, transportation programs, and project delivery.
- Common approaches for using and analyzing data and providing outputs could be developed for environmental data.
- Data and new analysis methods could be compiled based on identified needs and gaps.
- Use of environmental data could improve site selection and coordination steps for compensatory mitigation for what are determined as unavoidable adverse impacts.
- Several types of data can be used alone and integrated for visualization to support decisions and assist with public involvement and communication.
- Investment in environmental data for long-range transportation planning can continue to be capitalized upon for STIP/TIP purposes, programming/budgeting, and throughout the project delivery cycle by using a flexible and scalable approach to data.

Environmental data and information contained within inventories and plans and data clearinghouses include:

- Conservation plans and maps
- Natural Resources including Wetland and Biological Resources including Threatened/Endangered Species & State Heritage Program Data (NatureServe)
- Elevation and Topography and Public Land Survey (USGS Quad Topo Maps)
- Environmental protection; Water Quality, Soil Erosion/Sedimentation, Hazardous Waste, Special Waste, Air Quality, Noise
- Historic and Archeological Resources and Tribal Coordination
- 4 (f) and 6 (f) Resources, Parks, Recreation Areas, Wildlife and Waterfowl Refuges
- Social and community priorities, economic, population, and census data
- Land use, land management, agriculture, zoning and comprehensive plans
- Aerial photography, ground photos, and remotely sensed data (e.g. digital orthophotos, ground penetrating radar, satellite imagery, etc)
- Data for visualization purposes
- Integrated data sets

Sources for the environmental data listed above are typically environmental and public agencies as federal, regional, tribal, state, county, and local and academic entities that provide publicly available data that can be viewed, displayed, printed, and/or downloaded from the web or acquired through the agency. One example of data opportunities to capitalize upon is established within the decades of results within the National Spatial Data Infrastructure (NSDI) with benefits for both data providers and data consumers by making data that is publicly available for free. The National Spatial Data Infrastructure offers consistent ways of sharing geographic data across international, national, regional, state, county, and local levels and purposes. Documenting data quality and data creation steps is a cornerstone of the NSDI approach.

Environmental Data in Support of SAFETEA-LU Provisions

Several provisions of SAFETEA-LU mention environmental factors and inventories relevant to accomplishing transportation programs and project delivery cycles. Information and data can be geographic/locational, maps, tables, drawings, graphics, photos, and as other formats. Provisions of SAFETEA-LU can be supported by the use of environmental data. The following table organizes categories of environmental data that could be used to support provisions within the SAFETEA-LU legislation. This table was compiled to offer options for consideration.

Table of Environmental Data to Support Transportation Programs and Project Delivery	
Categories of Environmental Data	In support of SAFETEA-LU Provisions:
Conservation Plans and Maps	3005 6001 6002 6006 6008 1503
Natural Resources/Wetlands/Biological/Threatened and Endangered Species	3005 6001 6002 6006 6008 1503
Elevation/Topography/Public Land Survey, Contours	3005 6001 6002 6006 1503
Parks, Recreation Areas, Wildlife Refuges	3005 6001 6002 6006

	6008 6009 1503
Social, community, economic, and population	3005 6001 6002 6008 1503
Land use and management, agriculture, zoning, comprehensive plans	3005 6001 6002 6006 6008 1503
Aerial photography, ground photos, remote sensing	3005 6001 6002 6006 6008 1503
	Kimberly Majerus, FHWA-Resource Center, Environmental Team

Considerations for New Data Needs and Management of Data

- See data needs within TRB report 2004 (Environmental Spatial Data for Transportation: A Peer Exchange on Partnerships) for recommendations on needs for new environmental data (e.g. to support modeling).
- Seek out available and existing environmental data and use it. Where data is lacking, compile list of data gaps and data needs. Consider strategy/methods to define if and when new data and/or more detailed data or scales could be needed – follow up to confirm or identify locations and appropriateness of scale. . Data follow-up for details could involve in-office review of boundary, cadastral, property, etc, and support decisions to pursue further data and/or field surveys. Consider the benefit of improving methodologies for consistent, defensible approaches to data analyses and outputs and formats. Guidelines would be beneficial to offer methods to capture detailed information and conduct field surveys and store electronically (e.g. scanning and/or use of GPS or GIS) as accessible dataset/database.
- Develop example language for contracts/scopes of work with private sector to assist with consistency for studies and data products,
- Identify steps to determine gaps in data, needs for updating data, and to capitalize upon newly available data types and sources and include in data management methods and strategies
- Allow data flexibility and scalability to meet the changing needs of transportation practitioners at various phases of the transportation programs and project delivery cycles.
- Strategies can be developed to support data providers and data consumers

Partnerships and Changing Roles

The role of public and private sector participants in transportation planning and project delivery is important. Roles for data producers and data consumers could change in concert with the considerations offered above. Previous discussion has highlighted that various public agencies are sources of environmental data that is publicly available at no cost. A strong potential exists for improving consistency in the creation and delivery of data products from the private sector through example language for contracts/scopes of work that allow delivery of data in formats that can be stored and organized and accessed for reuse in the future. A variety of options exist and approaches can include the needs of data providers and data consumers.

Performance Expectations

- Strategies can be developed to invest in environmental data for use throughout transportation program and project delivery cycles and processes
- Investment in environmental data for long-range planning can also be capitalized upon for STIP/TIP purposes, programming/budgeting, and project delivery and interagency and tribal coordination by using a flexible and scalable approach.
- Data analysis can be used as basis for determining need for follow-up with more detailed information/data and/or field surveys. Data updates and data quality improvements could be coordinated with relevant environmental data sources/providers and data consumers. Environmental data supports cross-cutting purposes as sections/provisions of SAFETEA-LU legislation and throughout transportation program and project delivery cycles.
- Environmental data used separately and integrated with other information supports visualization for decision-making and public involvement.

It is important to clearly define and incorporate data quality, scale of data, and data update considerations to match the decision or questions that data supports within the transportation program and project delivery cycles.

Focus 8 - Data Implications and SAFETEA-LU: Detailed Example of Environmental GIS Map Data for Transportation Programs and Project Delivery

Detailed Example of Environmental GIS Map Data for Transportation Programs and Project Delivery *Kimberly Majerus, FHWA-Resource Center, Environmental Team*

GIS Map of National Wildlife Refuges (Source: US Fish and Wildlife Service)

This focus area summary serves as an example of detailed information on one data GIS map layer to support SAFETEA-LU provisions and transportation program and project delivery cycles.

Data Implications: Emphasis – one digital GIS map layer, National Wildlife Refuges. For transportation, information on National Wildlife Refuges is useful throughout delivery of transportation programs and projects and also supports responsibilities toward wildlife and waterfowl refuges, 4 (f), and is valuable for threatened and endangered species (T&E species), land use, natural resources, and compensatory mitigation and other purposes.

- Implications would be to use already existing, free data available from the agency with expertise in the environmental topic and responsible for data development and management and as a data source registered with the National Spatial Data Infrastructure (NSDI) Clearinghouse.
- The U.S. Fish and Wildlife Service (US FWS) exists as the data provider and has made this data publicly available for free through the NSDI web site.
- Environmental resource agencies are typically aware of these environmental data sets and data sources and use this data in their agency reviews. Use of this available GIS map data would serve to prepare a knowledge base for use in coordination, consultation, and reviews with environmental agencies.

Considerations for Program Options: See summaries of benefits in TRB report (Environmental Spatial Information: A Peer Exchange on Partnerships, Conference Proceedings). Suggested Option: Reduce duplication of efforts and inconsistency, reduce costs and improve efficiencies and working relationships across agencies through download and use of free data from web site from the source already developing and managing the data as US FWS, coordination toward programmatic approach that offers an option for consistency across transportation efforts and projects, provide guidelines and options for consistency, pursue guidelines for use with private sector contracts with transportation community, support long-term goal of reuse of and access to shared GIS dataset/database. Follow-up to identify data gaps and needs for new data. The benefits of a consistent option would be consistent results and an opportunity to avoid highly variable approaches within transportation programs and the project delivery cycle.

Changing Roles of Partners:

Transportation programs and project delivery could consider coordination with US FWS that could involve:

- Inclusion of transportation community on relevant distribution lists for notification as updated and new data is available
- Discuss transportation data needs and data formats with US FWS for purposes of compiling refuge and state information into multi-state, regional, and national level datasets
- Coordinate with US FWS as National Wildlife Refuge planning and designations are developed toward a goal of compatible land uses
- Coordinate with US FWS for site selection and cooperation toward compensatory mitigation for unavoidable adverse impacts
- Private sector: Transportation community could offer guidelines for contracts and to be used in scopes of work for data preparation and delivery in electronic format for re-use for future transportation efforts and projects and to support a long-term goal of data access from a common, shared dataset/database. The benefit is a consistent data product delivered by the private sector would be a standardized, sharable, reusable GIS data map for National Wildlife Refuges.

Performance Expectations of National Wildlife Refuge GIS Map Data

- Investments in compiling a common data set for National Wildlife Refuges offer benefits throughout transportation programs and project delivery cycles. The data is useful to transportation planning for long-range (> 20 year planning horizon), TIP/STIP (5 year planning horizon), programming (1 to 3 year planning horizon), project delivery cycle, and as a basis for decision-making for need to follow-up with more detailed information/data and/or field surveys.
- The US FWS is the data provider and has prepared a summary of intended purpose and use of data as well as information about how the data was developed and the quality of the data. These summaries are in keeping with the approach of the National Spatial Data Infrastructure.
- Currently there is data for more than 500 refuges. As more boundary data is automated and quality checked, the US Fish and Wildlife Service will add links to the data, and update the interactive mapping application.

Conclusion.

It is inherently important for discussion to continue towards action to insure that the large issues of data and data standardization are met. This is especially true for transportation projects, as their initiation starts with the efforts of planning and environmental colleagues on the front end of any given transportation study. The incorporation of environmental analysis with the planning process will provide savings in time, effort and cost. However, since planning and environmental data are so varied and numerous, GIS platforms will provide the means to organize, analyze and maintain databases from both fronts.

All efforts should be taken to allow GIS technologies to provide the means that we need to effectively join the legions of data that can be used in applying them between planning and NEPA processes and regulations. This is our opportunity to make a difference relevant to the way these data are used and provided.

Robert Fuhler - September 30, 2005; rev. November 9, 2005 including revisions by Kimberly Majerus November 2, 2005.