

DATA AND INFORMATION SYSTEMS SECTION RETREAT



PARTICIPATING COMMITTEES

ABJ10	National Transportation Data Requirements and Programs
ABJ20	Statewide Transportation Data and Information Systems
ABJ25T	Task Force on the Traffic Monitoring Conferences
ABJ30	Urban Transportation Data and Information Systems
ABJ35	Highway Traffic Monitoring
ABJ40	Travel Survey Methods
ABJ50	Information Systems and Technology
ABJ60	Geographic Information Science and Applications
ABJ70	Artificial Intelligence and Advanced Computing Applications
ABJ80	Statistical Methodology and Statistical Computer Software in Transportation Research
ABJ90	Freight Transportation Data
ABJ95	Visualization in Transportation

**March 19 and 20, 2008
NAS Beckman Center
Irvine, California**

DATA AND INFORMATION SYSTEMS SECTION RETREAT

INTRODUCTION

On March 19 and 20, the Data and Information Systems Section held a Retreat at the Beckman Center in Irvine, California. The purpose of the Retreat was to develop a shared near term vision, 3-5 years, and to clarify how best to advance and communicate the value of the vision to others in the profession and to policymakers. Retreat participants included representatives from each of the Section's 11 committees, its two subcommittees, as well as its at-large members and invited guests from partnering agencies (see Appendix A for the participant list).

There has never before been an extended meeting of a TRB Section, hence this was in some ways an exercise to explore the potential and necessity of Section-level dialogue. The breadth and diversity of Retreat participants were productive in two primary ways. First, the event provided a rich environment for cross-fertilization of issues and ideas from among the Section's members -- many of whom had not met or spoken together prior to the Retreat. Second, the resulting initiatives reflected the interests of the Section as a single entity -- distinct from the individual committees. In addition to developing a shared vision for the Section, participants identified where interests and priority issues overlapped, and identified several initiatives for the Section to pursue. The Retreat was a success in reaching all of these goals.

SECTION VISION STATEMENT

After 1½ days of discussion and idea sharing, the Retreat participants produced mission and scope statements for the Section. This activity was actually a thought-provoking exercise because it required disentangling the Section's mission and scope from those of individual committees within the Section. It also necessitated considering the dual perspective embraced by the section, namely (1) data and (2) information systems. The mission and scope statements are provided below. It is anticipated that these are not final but *living* statements that need further thought and discussion.

Mission

The mission of the Data and Information Systems section is to advance the application of data and information systems to address transportation needs. Section activities should advance the state of the practice and build awareness of data and technology applications and their value for transportation practitioners, researchers, and decision makers. The Section achieves this mission by providing focused opportunities for collaboration and support for its member committees.

Scope

- Advancing knowledge about transportation data and information systems among practitioners, researchers, and decision makers and nurturing new perspectives, interests, and ideas;
- Promoting the development and use of new methods and technologies for data handling,

including survey design, data acquisition (whether by technological or institutional means), visualization, sharing, mining, analysis and modeling;

- Raising awareness about weaknesses or gaps in transportation data and highlighting effective techniques for strengthening our nation’s transportation data infrastructure; and
- Developing and advocating cross-cutting recommendations to advance the state of science and to take advantage of emerging technologies in data and information science in order to better address the needs of transportation practitioners and users.

As these mission and scope statements are fine-tuned to represent the common interests of its committees, task force, and subcommittees, there are big picture issues to be considered. What is the role of the Section? Is the Section the “parent” of the committees or are the committees the “guiding lights” of the Section, or both? Does the Section originate crosscutting issues? Does the Section only serve the interests of the committees? At the Retreat, the role of the Section (relative to its committees) was clarified as the following four domain areas:

1. Incubator for new “things” that do not have a home in any individual committee;
2. Issues that bridge committees within the Section;
3. Issues that cross Sections;
4. Issues that go outside of TRB.

These domain areas should be considered in any future clarification of the Section’s role. These ideas and others will be pursued during mid-year, annual, and other meeting discussions.

SECTION INTERESTS AND CROSSCUTTING ISSUES

The Retreat resulted in the identification of 12 crosscutting issues that could be pursued as Section initiatives. These issues were drawn from the priorities identified by the individual committees, task force, and subcommittees (see Table 1) prior to the Retreat. In the table below, the priority issues have been summarized and/ or combined when more than one committee identified the same issue. The issues have been worded not to be committee-specific, but instead to list the issues as representing the interests across committees, task force, and subcommittees. The information is provided in this way to spur thinking on crosscutting initiatives that might take place at the committee or Section level – above and beyond those initiatives that evolved during the Retreat. A Section-sponsored “Listserv” is being developed that could be used to foster discussion on crosscutting activities.

TABLE 1: INTERESTS OF ABJ00 COMMITTEES, TASK FORCE, AND SUBCOMMITTEES

INTERESTS	NOTES
National stewardship and infrastructure for transportation information sharing	Developing guidelines to treat data as an asset, develop shared awareness and appreciation of the issue, maintain dialog with USDOT officials, provide technical review and comment to address data and information system needs and opportunities, advance research statements to pilot elements of “information infrastructure” including the standards and taxonomy development, metadata repositories. Work with the TRB LIST committee and others to develop an information infrastructure that improves user access to transportation information resources regardless of type or source.
New data paradigm	Address data collecting, archiving, use limitations that are new, emphasize

INTERESTS	NOTES
	research in areas of non-intrusive detection, data mining, and visualization, Develop synthesis, ask for new data centers in next legislation, develop exploratory research on challenges that make complementing traditional with innovative data collection methods feasible and attractive; research to evaluate alternative data collection methods
Emerging data needs	Adapting data programs to meet emerging needs (i.e., performance measurement), develop synthesis of available existing data sources for meeting emerging needs, new research on data life cycles for areas of need
National surveys revitalization and sustainability	Scope out new methods, determine modeled variables, review past designs, articulate uses, focus on institutional arrangements that might provide a more stable homes and support alternate data collections, gather information on costs of national data collection, illustrate savings with continuous processes, consider implications of systematized data collection
Data professionals	Data program skill development and retention, skill set identification, knowledge transfer
Data value/ collection cost	ROI of data, benefit / costs of data, importance of data as an input, reconciling different answers from different data source, modeled versus actual data
Data management	Tying data systems together, IT issues of storing and access, data quality, business case for data collection, data surety (making sure access remains the same – not denigrated)
Data cooperation, sharing,	Clearinghouse, partnering with local agencies for data sharing, technology / tools to share best practices or data programs, approaches to build cooperative and collaborative public/ private information programs
Business process and data standardization	Provide data integration and standardization leadership and a venue for information exchange for all states, consultants, and vendors; show others how to overcome institutional barriers to integrated data programs.
Privacy issues in data use	Clarify and define issues; survey of sunset laws at national level, clear listing of data applications and specific data uses; synthesis project, research establishing protocol similar to the ES-202 for releasing private sector data to government agencies with demonstrated need
Funding for transport data collection	Articulate gaps and opportunities in transportation data collection, summarize trends, needs, challenges in data collection, emergent technologies, compare US with peers, identify opportunities for public/ private collaboration, educate users and potential users of data uses
Extending technology	Scan to learn more about technologies deployed for different transportation sector needs, research to create architecture needed to support technologies. Scan other fields to identify technologies that could help the transportation sector.
Alternate models for delivery information services and data	Create model for transportation organizations to address barriers that hinder adoption of more efficient use of scarce IT resources, research to look at different ways to host and provide data to growing number of users
Extracting knowledge from intensively monitored transportation systems	Research on topics like data infrastructure and representation, data integration and access, knowledge extraction and communication, decision support that advance basic science while remaining firmly grounded in real problems
National statewide safety data	Develop research problem statements for applicable funding programs and encourage support from decision-makers, specifically develop a NCHRP problem statement and encourage support from AASHTO reps, inform transportation decision-makers about needs, costs and benefits of improved national level geospatial data for highway safety.
Elevating awareness of and appreciations for visualization	Develop resources of ROI, compile data that clear show how and where visualization benefits transportation, Produce convincing data on measured value of working in 3D, compile data that shows visualization can reduce professional liability and risk, engage educational institutions, plan Visualization Summit

INTERESTS	NOTES
Increase collaboration with committees inside TRB and organizations outside TRB	Direct, personal outreach, enabled liaison activities, non-annual meeting environments, bridge the gap between committee expertise and meeting the needs of real-world customers.

In an initial brain-storing activity at the Retreat, the diverse issues represented in Table 1 were categorized into three broad areas: (1) data as an asset, (2) addressing emerging and evolving issues, and (3) identifying applications for tools. Then these issues were used as the foundation for small-group brainstorming on potential collaborative initiatives for the Section to focus upon over the next 3-5 years.

SECTION INITIATIVES

The Retreat participants settled upon 12 activities or initiatives that represented crosscutting issues. These initiatives have been placed in categories to show their connection to the Section Mission and Scope statements. The definition for what would constitute an initiative was intentionally left somewhat ambiguous to encourage brainstorming. For this reason, there is a wide variation in the types of activities that were identified as initiatives. It was also recognized that some initiatives could be inter-related. Section initiatives are defined as activities that represent crosscutting priorities that require a Section focus rather than a committee focus. The Section initiatives are not meant to compete with individual committee initiatives. All initiatives identified during the Retreat are listed below and briefly described. For more information or to become involved in these efforts, please contact your committee chair.

Advancing Knowledge and Nurturing New Perspectives

- Critical Issue Publication
 - An annual publication that represents the Section’s response or “take” on one critical issue
- Conference with Invited Participants from all Types of Data Providers and Users¹
 - An annual conference (perhaps tied to TRB summer meeting) to communicate with decision makers, data providers, and data users across multiple subject areas to develop a better understanding of the information needs of our “customers.”
- Two-Way Communications with decision makers in Support of a National Transportation Knowledge Network
 - Develop mechanisms for two-way communication in support of an improved National Transportation Knowledge Network – become “go-to” entity for data and information systems questions
- Focus on next generation labor force
 - Work with other Sections to ensure the stability in skill sets and personnel needed to maintain and sustain data programs

Raising Awareness of Information Gaps and Highlighting Effective Solutions

- Data Report Card

¹ While not ranked in the top two initiatives, this conference was highly considered by retreat participants.

- Develop a process and tool for self-assessment of data programs and databases, including such measures as availability, quality, timeliness, coverage
- 20 Questions Brochure
 - Create a communications piece that identifies the “20 questions” that can not be answered because the data do not exist or are not reliable
- Synthesis of Private Sector Issues with Data Collection and Analysis
 - Develop knowledge of why private sector data can fill information coverage gaps and how this might be accomplished
- Guide to Managing Data as an Asset
 - How to define data as an asset with a particular program and how to communicate its value to users
- Developing a Research Roadmap
 - Use research needs statement database as a foundation to build a research roadmap for the Section

Promoting Use of Technology

- Explore Technology to Enhance Collaboration
 - Identify the best technology solutions for engendering collaboration within TRB and among TRB, its partners, and its customers
- Just Do It: Use of Internet Technologies to Communicate
 - Enhance communications within the Section and with outside constituents by more intensive use of internet technologies, in particular, on-line access to Section activities, resources and pointers.
- Focus on “Findability”
 - Promote use of information systems technology and knowledge management principles to enhance information dissemination

THE “NOW” INITIATIVES

In the Retreat, the top two initiatives were explored in greater detail than the other identified initiatives. These initiatives were the (1) Critical Issues publication and (2) the Data Report Card. Also, ABJ95 (Visualization) volunteered to take the lead on the “Promoting Use of Technology” initiatives and welcomes any other committees to partner with it. Other committees are welcome to take the lead on other issues in the list above.

1. Data and Information Systems Section Annual Critical Issue Publication

In voting among retreat participants, this initiative received the top rating. The initiative entails the section working primarily at the committee level to produce a cross-section perspective on critical issues. An important aspect of this initiative is to pilot test a process for how this annual publication would be developed. For the pilot test (1st year publication), the group selected the theme of the 2009 Annual Meeting – Energy and Climate Change.

A subgroup of retreat participants volunteered to flesh out and focus this pilot test effort – Johanna Zmud (lead), Mark McCourt, Ed Christopher, Kate Lawson, and Val Noronha. At the retreat, a rough view of the initiative was discussed as follows.

- The first order of business is to meet with the newly formed TRB Task Force on Energy and Climate Change to have them provide scope and context for the Data Section “take” on this issue.
- Key information needs in this area will be identified and provided to committees to determine how each committee would bring its areas of expertise to bear on the information needs.
- Then an “online jam” will be held among all committee members to translate the committees’ “take” on the issue into (1) an annual meeting session and (2) the annual publication.
- The publication will be drafted prior to the annual meeting and discussed at the annual meeting session.
- After the annual meeting, the publication would be produced. It would have the standing title: Data and Information Systems Section Annual Report on Critical Issues: {the critical issue}.

This report could also be distributed in a non-paper format, such as pod cast or webinar. It could also be followed by a conference (item #3 below) as a mid-year meeting of the Section.

2. Data Report Card

There was consensus that the Section should take a leadership role in assessing available data and identifying gaps – across multiple levels (Federal, state, local) and across diverse types of data (traffic counts, survey databases, etc.). While a TRB-associated entity cannot produce a document that “grades” databases and data programs, it can provide guidance on how an agency might do this. The data report card initiative, therefore, is focused on developing the content and process for a self-assessment Data Report Card. In terms of content, it might identify the criteria and categories of data to be self-assessed. Another way of looking at this initiative is to produce a highway data reference manual – potential sources, how to collect data, how to analyze data, and how to use data. Ed Christopher offered to take the lead on this initiative, with Anita Vandervalk, Joe Schofer, Frances Harrison, Kate Lawson, Matthew Barrett, and a BTS representative working on it. The first steps were identified as a literature search and a synthesis of opportunities.

SUMMARY

The Retreat met its goal of team building within the Section. While there is a tremendous amount of overlap among committee scopes and memberships, there is also a gap in awareness and knowledge about other committees in the Section. The Retreat was a step toward bridging the gap. Also the Retreat provided core issues for the Section members to rally around and discuss – without regard to individual committee agendas. So, in these respects, it was a start in the right direction.

Some ideas for further thought and further work include – clarifying the role of the Section vis-à-vis the individual committees, bringing our vision as being the “go-to-group” for data and information systems issues to fruition, promoting technology use by “walking our talk”, and continuing to champion the concept of data as an asset. This latter concept resonates with our partner agencies – Which data should be acquired? Which data should be maintained?

Appendix A: Roster Data Section Retreat

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