

**Data and Information Systems Section (ABJ00) Committees**  
**Transportation Research Board (TRB)**  
**Scope: Triennial Strategic Plans 2018 - 2020**

National Transportation Data Requirements and Programs - ABJ10

Focuses on data which are collected at the national or international scale or data that directly informs development of national transportation policies. There is an interest in all national data programs but does not focus on those that are adequately addressed by other committees such as the freight or safety committees. Rather ABJ10 identifies emerging national needs around passenger travel and ensures important nation-to-nation comparisons are possible. As non-daily and long-distance travel increases, in miles and importance, ABJ10 addresses the data that describes passenger travel and the vehicles, including new vehicle technologies and modes, which serve this travel demand.

*Sub-Committee:* Long-distance and Intercity Travel

Statewide Transportation Data and Information Systems - ABJ20

Fosters research and technology transfer activities pertaining to transportation data and information systems for statewide planning, project development, operations, and safety. A primary concern is to promote data integration across systems to support strategic intermodal statewide transportation planning across all modes of transportation. The committee will seek to identify system requirements, techniques and capabilities that reflect best practices for use of statewide data in the areas of data collection, management, analysis, research, visualization, reporting, dissemination and collaboration.

*Sub-Committees:* Bicycle and Pedestrian Data  
Roadway Safety Data  
US-DOT Statewide Data Coordination

Urban Transportation Data and Information Systems - ABJ30

Focuses on the design, collection, analysis, and reporting of transportation supply and demand data and the information systems needed to support the application of that data in urban and metropolitan transportation planning efforts. This includes:

- New and innovative techniques for measuring and monitoring the performance of metropolitan transportation systems;
- Impacts associated with changes in demographic and urban travel behavior characteristics;
- Effective use of primary (household and other transportation surveys) and secondary (census and other federal, state, local and passive data sources) data;
- Advancements in information systems and information technology for improved dissemination and sharing of knowledge about metropolitan transportation systems and urban travel behavior, including the role of big data; and
- Common standards and appropriate recommendations to support the interchange and archiving of information and data.

*Sub-Committees:* Bicycle and Pedestrian Data  
Big Urban Data  
Census Data for Transportation Planning  
Health and Transportation  
Travel Time, Speed, and Reliability

#### Highway Traffic Monitoring - ABJ35

Address all aspects of research in the fields of highway traffic monitoring, including detection, counting, classification, and in-motion weighing. ABJ35 scope encompasses the full range of monitoring technology, including traffic sensors (both intrusive and non-intrusive), installation materials and techniques, signal processing algorithms, analysis and reporting techniques, and comprehensive monitoring programs. The committee is also concerned with highway traffic monitoring standards to ensure the applicability and quality of traffic data in all its applications.

*Sub-Committees:* Bicycle and Pedestrian Data  
Travel Time, Speed, and Reliability  
Weigh-In-Motion

#### Travel Survey Methods - ABJ40

Focuses on all types of transportation modes and customers, including motorized and non-motorized travel, personal and freight travel, household and business travel, private and public modes, short- and long-distance travel, workplace and recreational travel, visitor and other travel. ABJ40's scope encompasses survey design, sampling, instrument development, data collection, data processing, data analysis, and reporting of results to enhance the quality, usefulness and cost-effectiveness of survey products for policy and planning, including project evaluation and systems forecasting. It also includes surveys and data collection that measure activity patterns, including telecommunications, which allow people to fulfill needs without physical travel.

*Sub-Committees:* Freight Surveys  
Household Travel Surveys  
New Technologies  
Stated Response Surveys  
Transit Surveys

#### Information Systems and Technology - ABJ50

Focuses with identifying opportunities, challenges and risks for transportation agencies associated with emerging information technology developments. ABJ50's scope encompasses advancing the state of the practice in the development and application of information systems and technologies in transportation for greater productivity and efficiency. Specific *technologies* of interest include:

- Sensors (broadly defined to include infrastructure sensors, probe vehicles, unmanned aerial vehicles and remote sensing technologies, among others)

- Mobile computing platforms and applications
- Cloud computing; “big data” analytics/data mining; data integration platforms

Specific *applications* of interest include:

- Deployment of connected vehicles and autonomous vehicles;
- Smart infrastructure – using sensor technology to enhance safety and monitor infrastructure condition;
- eConstruction techniques including use of 3D/4D design models to enhance construction efficiencies;
- Data integration/fusion, management, mining and presentation tools that support transportation agency decision making as well as traveler selection of mode/route/time of travel.

Specific *concerns* of interest include:

- Keeping critical transportation infrastructure safe and resilient
- Organizational, workforce, and management strategies needed to meet the accelerated pace of technology changes impacting the industry
- How to implement new technologies into day-to-day use
- Addressing expectations for open data available everywhere

*Sub-Committees:* Construction Information Technology  
Sensing Technologies

#### Task Force on Data Privacy, Security and Protection Policy - ABJ55T

Fosters research on the legal, technical, and societal issues relevant to data privacy, security and protection in the transportation context in which there are both public and private interests in the data. The task force focus is mainly on data privacy and protection—less so on security as there is a TRB sub-committee (Cyber Security Subcommittee (ABR10(7)) of the Critical Transportation Infrastructure Protection Committee (ABR10)) that has a unique focus on that topic.

While discussions of “privacy”, “security”, and “protection” naturally go hand-in-hand, the task force distinguishes among the concepts.

- Privacy entails the general right an individual has to determine how his or her personal information is or will be used.
- Privacy protection refers to the techniques or policies that are used to safeguard personal data.
- Security entails the logical, physical, administrative, and technical controls that are employed by a party in possession of sensitive information, which can include personal information.

The Task Force scope encompasses the issues to address the balance between beneficial uses of data and the protection of individual privacy. The Task Force will frame the discussion, define key terms, and inform national, state, and local planning and policy.

### Geographic Information Science and Applications - ABJ60

Focuses on all aspects of the spatial, locational and temporal data, analytics used in transportation. The committee is interested in both research into and applications of this information and its associated information systems, commonly referred to as Geographic Information Systems in Transportation (GIS-T). The committee will provide a focal point for and promote coordination of GIS-T activities within the TRB committee structure. Relevant activities include the application of spatial data and spatial sciences across the entire domain of transportation information systems. Research is focused on seven areas: environment, infrastructure, operations, planning, safety, science, and security.

### Artificial Intelligence and Advanced Computing Methods - ABJ70

Provides a focal point for all forms of artificial intelligence research activities across the various transportation-related disciplines and a forum for the evaluation and dissemination of information relative to the benefits of the technology to the transportation profession. Big Data sources and the Internet of Things call for artificial intelligence and deep machine learning tools to develop self-learning algorithms that are capable of performing calculations on all data, and consequently, eliminating sampling errors and producing more accurate and precise prediction and prescriptive analytics for a wide spectrum of transportation applications. Key research areas of expertise are grouped into eight broad categories of artificial intelligence and advanced computing methods: (1) Artificial Intelligence, (2) Fuzzy Systems, (3) Genetic Algorithms, (4) Neural Networks, (5) Intelligent Agents, (6) Soft Computing, (7) Data Fusion, and (8) Decision Support Systems.

*Sub-Committees:* Communication  
Education and Outreach  
Research

### Statistical Methods - ABJ80

Focuses on the appropriate application of statistical and econometric methods in the field of transportation. The committee serves as a resource on statistical and econometric matters for all TRB committees and related committees for the National Academies; fosters understanding and use of statistics and econometrics through dissemination of educational activities; and identifies and fosters research needed in statistics and econometrics within the transportation community.

This scope translates to the following committee objectives:

1. Provide statistical and econometric methods education for TRB committees, members, and friends.
2. Broaden the influence of ABJ80 on the State of the Practice on Statistical and Econometric Methods to committees and members across TRB.
3. Raise awareness regarding the debates and discussions surrounding the merits and limitations of competing statistical and econometric methods applied in transportation research.
4. Identify connections between statistical and econometric methods and transportation applications within TRB.
5. Recognize significant contributions toward the advancement of statistical and econometric methods.
6. Promote implementation of state-of-the-art statistical and econometric methods within TRB.

## Freight Transportation Data - ABJ90

The committee's scope is:

- to identify and publicize sources of and needs for data on commodity movements, international trade, freight transportation activity, and the economics and organization of establishments engaged in freight transportation
- to advise data collection agencies on cost-effective means of fulfilling essential data needs; and
- to assist analysts and decision makers in the effective use of freight transportation data.

## Visualization in Transportation - ABJ95

The goal is to use visualization to identify and address critical transportation issues of today, and to develop innovative visualization approaches to meet society's transportation needs of the future.

In broad terms, there are four overarching areas:

- Visual Analytics
  - Scientific visualization
  - Information visualization
  - Visual analytics (including GIS technologies)
- BIM for Infrastructure
- System Performance
- Interactive Visual Simulation

Factors and influences that support visualization include: communicating problem-solving concepts to the public; visualizing freight movement and its consequences; providing insights by visually exploring data; merging geographic information systems and other visualization technologies; providing online resources and communities that offer new tools for the visual examination of data; facilitating collaboration between transportation planners, land use planners, and all other stakeholders in a project; ability to experiment; understand complex interactions; visualizing a variety of conditions/scenarios.

*Sub-Committees:* BIM for Infrastructure  
Computational Transportation and Society  
Inactive Simulation  
Outreach  
Symposium  
System Performance