

## TRIENNIAL STRATEGIC PLAN (TSP)

**Evaluation Period: April 15, 2021 to April 14, 2024**

### PART 1: Committee Name and Scope

*This is an opportunity to review the officially approved name and scope that are posted on the TRB website and consider any necessary changes. If changes are needed, include the proposed scope statement and/or name and justification for the changes.*

**NOTE: A proposed committee name and/or scope change must have the approval of 2/3 of the official members of the committee. The balloting done at a committee meeting that has less than 2/3 of the members in attendance must be augmented with e-mail balloting of the members not in attendance.**

Committee Code *	AED20
Committee Name *	Urban Transportation Data and Information Systems
- Date(s) reviewed	[update at end]
- Change, if proposed***	Not Applicable
- No. of official members approving change/total number of members **	XX/33
Committee Scope *	<p>This committee is interested in 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. In particular, the committee is interested in:</p> <ul style="list-style-type: none"> <li>● New and innovative techniques for measuring and monitoring the performance of metropolitan transportation systems;</li> <li>● Impacts associated with changes in demographic and urban travel behavior characteristics;</li> <li>● Effective use of primary (household and other transportation surveys, Big Data) and secondary (census and other federal, state, and local data sources) data;</li> <li>● 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</li> <li>● Common standards and appropriate recommendations to support the interchange and archiving of information and data.</li> </ul>
- Date(s) reviewed	[update at end]
- Change, if proposed ***	Not Applicable
- No. of official members approving change/total number of members **	XX/33
Location of Previous Cycle TSP	<a href="https://sites.google.com/site/trbobj30/documents/draft-triennial-strategic-plan?authuser=0">https://sites.google.com/site/trbobj30/documents/draft-triennial-strategic-plan?authuser=0</a>

\* Show current, as it currently appears in the [TRB Online Directory](#)

\*\* Includes Chair, Standing Committee Members, Emeritus Members, and Young Members

\*\*\* Show proposed, or Not Applicable

## PART 2: Committee Activities

### TRB Mission

**As part of the National Academies of Sciences, Engineering, and Medicine, the Transportation Research Board (TRB) provides leadership in transportation improvements and innovation through trusted, timely, impartial, and evidence-based information exchange, research, and advice regarding all modes of transportation.**

### PART 2.1: Committee Activities Supporting Transportation Research and Innovation

Enumerate and summarize any Research Needs Statements (RNS), Synthesis Statements, or Cooperative Research Program problem statements developed within or with the support of the committee during this TSP cycle. (The RNS identified should match those listed on the TRB RNS Database.) Note whether the statements were submitted for funding through any CRP or any other organizations or “pooled funding” sources and note whether they received support from those selecting projects for support and whether they received funding. Identify any other committee actions to support transportation research that is relevant to the committee, both those that address topics that are related to the critical transportation issues most recently identified for TRB and the Technical Activities Division and those that represent emerging challenges affecting some parts of the industry.

The Committee submitted a National Cooperative Highway Research Program problem statement that was selected into the program, *Impact of spatial segmentation on travel time reliability performance measures – NCHRP 08-143*. The objective of this research is to determine the statistical implications of current methods for determining travel time and its reliability and propose a set of corresponding measures, including consideration for segmentation, that are suitable for roadway systems. A recommendation on how to compare travel time reliability among corridors, regions, or even states can facilitate communications of this measure and is an expected outcome from this project. A panel has been formed for this project, and it is expected to begin in 2021.

Two additional problem statements were submitted to the 2022 NCHRP program. First, the project *Best Practices for Data Fusion of Probe and Point Detector Data (NCHRP 08-157) has been selected for funding*. The objective of this NCHRP project is to identify the data and data fusion algorithms that will enable road operators to better understand the traffic state on their network for both operations and planning applications. This will be achieved by fusing data from multiple traffic data sources that have differing spatial and temporal characteristics. The project will develop a clear pathway from data selection to fusion model selection that is implementable in the field by agency staff or their contractor. The research will promote the adoption of data fusion technology for improving the safety and efficiency of traffic management by:

1. Developing a data characterization catalog that assesses the suitability of sensor data as an input into a data fusion process. This characterization will include properties such as coverage, quality, granularity, time lag, usability, accessibility, and geospatial referencing.

2. Developing a decision process that enables the choice of data fusion model and provides guidance on the expected information gain.
3. Developing methods to estimate the traffic state and the reliability of the estimate considering various traffic flow and data availability scenarios.

The second submitted problem statement is *Data Fusion Techniques for Travel Behavior Analysis*. The objectives of this research are to gather the various public sector and private data sources that explain travel behavior, identify gaps in the dataset to explain travel behavior, identify and develop methods to fuse these data sources together, physically or in a combined framework, to provide a comprehensive picture of travel behavior, and to develop a guidebook for DOTs to use these data for understanding travel behavior. This problem statement is currently under review.

Four Committee-developed RNSs are in the RNS database:

***An Enhanced Urban/Rural Classification System for U.S. Census Geographies:*** The purpose of this research is to create a new methodology for creating a block-level Census urban/rural designation that incorporates varying degrees of urban characteristics and utilizes a variety of geospatial and demographic sources for making this determination. Population density along with land use (LULC) data, road density, and other sources are some of the possibilities. The resulting data set would not be a binary urban/rural designation but a measure by degrees or multiple classifications that would give planners and transportation officials a more nuanced view of development in their area. A single state or region would be selected as a pilot to demonstrate the implementation of the new methodology.

***Data Integration for Small Geography Origin-Destination Trip Tables:*** The purpose of this research is to explore ways to combine the CTPP and LEHD flows at small geographic resolutions. This is not an additive exercise since both datasets overlap one another to some degree. The challenge is to determine to what degree the two datasets overlap and what degree they are complementary. This is particularly valuable as inputs into local and regional travel demand models for long range transportation plans, resulting air quality analysis, and environmental impact studies. This is also relevant for transportation planners who utilize model outputs as well as planners conducting analysis using flow input data. This is the first step in a greater effort to combine data from different sources to get at the “truth” in terms of work trip flows that drive so much of the transportation infrastructure.

***Use of Multiple Forms of GPS Data for Understanding Travel Behavior:*** The purpose of this research is to supplement existing travel behavior programs with spatial travel data collected by GPS users.

***Improving Travel Behavior Data for Environmental Vehicle Analyses:*** The primary objective of this research is to develop a framework for better coordinating travel behavior data collection and accessibility across multiple stakeholder groups. In addition to improving data accessibility, this effort should help improve data collection efficiency and potentially reduce costs.

Standard definitions for travel time reliability is a topic of interest and the Committee is formulating a plan on how to move forward with that research. The Committee is also interested in the Management, Integration, and Analysis Methods for Smart Cities Data; Privacy in Big Transport Data; and

Communicating and Visualizing Travel Time and Reliability Concepts. The first two topics are being addressed by committee working groups, and those activities are discussed later in the TSP.

The Bike and Pedestrian Data Joint Subcommittee submitted one synthesis statement, “Bicycle and Pedestrian Traffic Monitoring Data Management for Performance-Based Planning” and supported one statement, “Autonomous and Connected Vehicle Policy and Strategies for Vulnerable Road User Access, Safety, and Use” developed by the Pedestrian Research Committee.

**PART 2.2: Committee Activities & Accomplishments that Support the Exchange and Promulgation of Information within the Committee, the TAC, TRB, and the Transportation Industry**

Provide highlights of any notable activities or accomplishments for the past three years. Examples would include co-sponsoring workshop or conference with committee(s) in another Group or related to an important new topic area or work related to diversity and inclusion. Special circulars or publications completed or supported by the committee. Subcommittee contributions should be briefly mentioned; these will be reported in detail in Section 3 below. Do not include routine Annual Meeting session or paper review details, these will be included in Appendix A.

The Committee launched the Urban Data Wiki page in 2017. The Wiki is a compilation of commonly used data sources and tools. The Wiki was then transitioned to the Travel Forecasting Resource, [tfresource.org](http://tfresource.org).

The Committee sponsored or co-sponsored the Annual Meeting Workshops listed below:

Annual Meeting Workshop	Year	Co-sponsoring Committees
State and Local Safety Data Integration	2018	ABJ20, AED10(2), <b>AED20</b> , AED40, ACS10
Big Data Applications and Methods in Transportation	2018	<b>AED20</b> , AED30, AED40, AED50, AED80, AEP50, A0030C
Let’s Get Real About National Performance Measures, Part 1: Has the Process Driven You Mad Yet?!?	2019	AEP60, AJE20, A0030C, <b>AED20</b> , AEP10, AEP15, AP010
Bridge the Gap: Eliminating Gender Bias in Transportation Research	2019	AME20, ABE70(1), AEP30, AEP30(4), A0020C, <b>AED20</b> , AEP25, ACH10

"Big" Solutions to "Little" Survey Problems: Travel Surveys, Passive Data, Visualization, and More	2019	<b>AED20</b> , AEP25, ABJ45T, AED80, AEP10, AEP15, AEP30, AEP50, AEP10, AEP15
Hands-On Workshop for Virtual Reality in Stated Response Research	2019	AEP25, <b>AED20</b> , AEP30
Travel Behavior and Safety Studies from the Psychological and Neurophysiological Perspective: Application of Virtual Reality	2020	AEP25, <b>AED20</b> , AEP30
Nudging the Commute: Behavioral Science and Mode Choice	2020	AEP60, A0030C, <b>AED20</b> , AP020, AP030
Making Sense of Emerging Data Sources for Nonmotorized Transportation: Tools, Tips, and Knowledge Gaps for Effective Analysis	2020	ACH20, <b>AED20</b> , ACP70(2), AEP50, ADD50(1), ACH10

The committee has also sponsored the Travel Data User's Forum (TDUF) for a number of years (2005-2020). The TDUF is a product of the National (ABJ10), Statewide (ABJ20) and Urban (ABJ30) data committees. It is designed to provide a venue for the discussion of important or emerging issues regarding passenger travel data. The Forum has four objectives: to foster a dialog among all data providers and users, to identify sources of representative and applicable local and national data, to serve as a venue to identify and discuss emerging issues, and to encourage interaction within the passenger-travel-data community." Recent TDUF sessions have focused on:

- The Future of Multimodal Travel Behavior Data (2018)
- Travel Data for Fixing America's Surface Transportation Act Performance Measures and Targets: How's it Going So Far? (2019)
- Mobility Data Specification: A Collaborative Solution to Sharing Private Mobility Data (2020)

AED20 liaises with over 20 committees and 10 NCHRP panels as well as external committees such as the SAE Digital and Shared Mobility Committee.

The subcommittees have sponsored several workshops. The Travel Time, Speed and Reliability Subcommittee developed a data contest for students and showcases the winners at each year's Annual Meeting.

The Travel Time, Speed and Reliability Subcommittee members contributed to an e-circular, *Advancing Highway Traffic Monitoring Through Strategic Research* (<http://onlinepubs.trb.org/onlinepubs/circulars/ec227.pdf>).

### **PART 2.3: Committee Activities and Organizational Actions to Realize Committee and TRB Goals for Diversity, Inclusion, and Representation**

Summarize committee actions and decisions in support of the goals and milestones for including and involving under-represented groups and demographics in committee activities.

The committee is focused on increasing diversity, inclusion, and representation. The committee surveyed its members and is developing activities around active outreach to underrepresented communities, building a diverse/inclusive/and representative membership pipeline, and forging connections with other TRB committees. The committee also will promote data sets that support these goals.

Membership diversity was an important consideration in the last committee rotation that occurred in 2020. Diversity in gender, race, geography, and employer was all considered when new members were added. The current committee has the following characteristics:

- Gender: Male: 45%, Female 52%, Prefer Not to Answer: 3%
- Race: White: 73%, Asian: 18%, Black: 3%, Prefer Not to Answer: 6%
- Region: Northeast: 27%, Southeast: 36%, Central: 18%, Southwest: 12%, International: 6%
- Employer: Federal: 6%, State: 12%, Local/regional: 15%, Industry/Research/Non-Profit: 6%, Consultant: 36%, Academia: 21%, Other: 3%

While the committee has been successful in creating a diverse group from the perspectives of gender, geography, and employer, there are still opportunities to increase racial diversity. This will be a focus of the next committee rotation.

### PART 3: Report of Activities of Subcommittees

Provide the following information on any of the identified formal Subcommittees which are structured underneath this committee. These descriptions should provide a solid understanding of the Subcommittee in a concise manner.

(Note: Information for informal committee working groups are not required)

AED20 has a number of active subcommittees. Major activities for the TSP period are discussed separately by subcommittee below.

- Census Data Subcommittee (AED20(1))
  - The Census Data Subcommittee is very interested in census data matters as they relate to transportation planning. As a result, their focus spans the entire spectrum of census related activities including applied uses of the data, the content of censuses, collection procedures and dissemination programs all within the context of past, present and future censuses. In line with the scope of AED20, this Subcommittee promotes understanding of Census data, Census Transportation Planning Products (CTPP), and other data sources for metropolitan transportation planning. The Subcommittee is currently working with the Census Bureau to educate the transportation community on differential privacy.
  - Activities of Subcommittee:
    - Encouraged feedback and input from transportation planners into the Census Bureau updated boundaries for blocks, Block Groups, and Tracts in advance of the 2020 Census.
    - Participated in the Census conference organized by TRB with support from USDOT/AASHTO. The conference reflected on past accomplishments, current lessons learned, and the future of the Census and related data products.
    - Provided regular updates to Committee membership and Census data users on various data products and other Census news.
    - Sponsored a call for papers on CTPP 2012-2016: New Data Analyses and Uses.
    - Hosted a poster session at TRB (12 posters presented).
- Urban Big Data Subcommittee (AED20(2))
  - The mission of the Urban Big Data (UBD) subcommittee of AED20 is to identify, disseminate, and advance research and resources related to the application of big data and related technology to urban transportation. Topics of particular interest to the subcommittee include but are not limited to applications of big data to urban transportation system planning, operation and management; methods, tools, and techniques for the processing of big data; methods, tools, and techniques for the visualization of big data; validation of novel sources of big data against traditional data sources; integration, reconciliation, and fusion of big data sources with each other and with traditional data sources; data privacy and data security related to big data; and institutional issues related to big data including ownership, licensing, and access.
  - Activities of the subcommittee include:
    - Sponsored a workshop on big data at the 2018 Annual Meeting that covered applications, case studies, and methods and tools. Over 200 people attended.
    - Conducted a survey of members and friends to better understand interest and priorities.
    - The subcommittee conducts annual paper reviews for the annual meeting, typically reviewing 20 to 60 submitted papers.
    - The subcommittee typically organizes one podium or poster session and one or two workshops for the TRB annual meeting.

- The subcommittee develops calls for papers for the TRB annual meeting and research needs statements for both NCHRP Syntheses and Research Projects on topics related to its scope and mission. Current topics include:
      - Privacy Protection and Information Loss in Big Data
      - Equity in Big Data
      - Before & After Studies with Big Data
    - The subcommittee also helps to organize information related to its scope and mission. In the past, contributions were made to TFResource.org. A subcommittee website is now being developed and the development of a Transportation Big Data Primer web resource is being explored.
- Travel Time, Speed and Reliability Joint Subcommittee (AED20(3))
  - The mission of the TRB Travel Time, Speed, and Reliability (TTSR) joint subcommittee of AED20 and ACP70 is to identify and advance research related to new and innovative approaches to collect, quantify, and analyze data related to the rate of travel of transportation modes. Its scope includes a broad range of topics related to this type of data. Topics include, but are not limited to, the evaluation of new methods for collecting speed and travel time data; the development of new methods to assess data quality and remove outliers from this data; the development of new methods to predict or model travel times, speed, or their variability; the development of performance measures related to speed, travel time, or reliability; and methods to fuse data streams coming from different sources, including fusion with volume data. The subcommittee is interested in data generated from both probe data sources such as crowdsourced travel time data, WiFi/Bluetooth probes, GPS probes, connected vehicles, and private sector data streams as well as point detectors.
  - Activities of Subcommittee include:
    - The subcommittee is typically assigned 35-55 papers on topics related to its mission.
    - The subcommittee typically organizes one poster session for the TRB annual meeting, and in the past two years has also organized a session for a student data contest.
    - The TTSR subcommittee has and continues to develop Research Needs Statements (RNS) for funding through NCHRP or other sources on topics related to its mission. Such RNS topics include Development of Standard Definitions for Travel Time Reliability Concepts (in progress), Best Practices for Data Fusion Between Probe and Point Detector Data (selected for funding by NCHRP), and Impact of Spatial Segmentation on Travel Time Reliability Performance Measures (in progress).
    - The subcommittee is currently updating a website, and in the past provided an inventory of TTSR data and tools for the Urban Data committee wiki.
    - Sponsored a student data poster contest for the TRB Annual Meeting.
    - The subcommittee every year formally recognizes a Best Paper winner at its Annual meeting, and through vendor support provides a cash prize to the winner of the student data contest.
    - The subcommittee, working with its parent committees, is developing webinars on the topics of estimation of traffic volumes with probe data and uses for GPS Trajectory data.
    - Subcommittee members contributed to the Urban Data Wiki and e-circular focusing on research needs.
- Bike and Pedestrian Data Joint Subcommittee (ACP70(3))
  - The mission of the Bicycle and Pedestrian Data Subcommittee (ACP70(3)) is to provide national support and guidance to enhance, enable, and advance bicycle and pedestrian data collection technologies, methods, and management techniques. The Bicycle and Pedestrian Data Subcommittee supports and serves the needs of four different TRB standing committees. Its parent committee is the Highway Traffic Monitoring Committee (ACP70), and it is sponsored by the Bicycle Transportation Committee (ANF20), the Pedestrian Committee



(ANF10), and the Urban Transportation Data and Information Systems Committee (AED20). The subcommittee also coordinates with the Pedestrian Committee (ACH10), Bicycle Committee (ACH20), and the Council on City Transportation (A0030C). The scope of this subcommittee focuses on national bicycle and pedestrian data collection, access, sharing, and integration and is organized around three major topic areas:

- (T1) Travel volume
- (T2) Understanding traveler behavior
- (T3) Capturing relevant supporting transportation data
- Activities of Subcommittee
  - Developed and submitted a number of research statements.
  - Sponsored a conversation with Colleagues' web series, topics included:
    - Bike and pedestrian traffic monitoring
    - Technology
    - Standardizing and Collecting Data with Local Partners
    - Measuring and Estimating Exposure for Safety Analysis
  - Overhauled website.
  - Paper reviews.

The relevance of each subcommittee is reviewed during each TSP by both AED20 and any con-sponsoring committees. The results of the review of the subcommittees during this TSP cycle is discussed below:

- AED20(1) remains an active group that fulfills a role in educating planners in uses of census data. The subcommittee was extremely valuable during the leadup to the 2020 census and maintains a high level of engagement with its members. It supports the mission of AED20 and will be retained.
- AED20(2) represents an area of continued growth within AED20's scope. The subcommittee has been very active in developing workshops and research needs, and consistently receives a high number of TRB Annual Meeting papers for review. This subcommittee supports AED20's mission and will be retained.
- AED20(3) also represents a growth area in AED20's scope. Federal performance measure requirements, continued growth in crowdsourced data streams, and emerging connected vehicle data streams are all part of the scope of AED20(3). Given the prominence of these issues, this subcommittee will also be retained by AED20.
- The activities of ACP70(3) align with AED20 through the lens of bicycle and pedestrian data collection technologies, methods, and management. Bicycle and pedestrian data is important for inclusive and effective transportation planning efforts. Similar to AED20, ACP70(3) is interested in providing resources, support, and guidance to enhance, enable, and advance the state of the practice of bicycle and pedestrian data, including the design, collection, analysis, and reporting of these data to support transportation planning efforts and other applications.

## **PART 4: Committee Future Outlook Statement and Committee Three-Year Plan (Limit 1,500 words total)**

### **Part 4.1: Committee Future Outlook Statement**

*The committee future outlook statement should include a discussion of the primary factors and influences that will shape the transportation community and topic(s) within the committee's scope over the short- (one to three years) and long-term (four to seven years). This statement should include:*

- *identification of emerging, critical, and cross-cutting issues **within the committee scope** (these issues could have been identified by the committee, Section, Group, Technical Activities Council, TRB Executive Committee, or other transportation committees and organizations);*
- *Committees should review and shall site specific reference to TRB Critical Issues in Transportation 2019 where applicable (publication located <https://www.nap.edu/resource/25314/criticalissues/>)*
- *Committees should review and identify areas which also align with the current TRB Strategic Plan located [http://onlinepubs.trb.org/onlinepubs/general/trb\\_strategic\\_plan.pdf](http://onlinepubs.trb.org/onlinepubs/general/trb_strategic_plan.pdf)*
- *identification of emerging, critical, and cross-cutting issues **outside the committee scope** that provide opportunities for liaison and collaborative efforts with other TRB committees, sections and Groups as well as outside organizations (these issues could also come from a wide range of sources).*

#### **Introduction**

According to the U.S. Census, 80.7% of the U.S. population resided in an urban area (<https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/ua-facts.html>). Within the TRB Committee structure, Urban Transportation Data and Information Systems Committee (AED20) serves as the primary focal point for research and outreach related to the collection, analysis, and application of traditional and emerging data sets to urban and metropolitan transportation planning applications. Given the tremendous range in the types of data and data applications used in metropolitan transportation planning, the committee has developed a diverse committee membership (in terms of profession, age, gender, and geography) to cover all aspects of interest to the committee. AED20 serves as a unifying group where various data users can come together to discuss opportunities and challenges affecting urban areas.

The urban transportation data landscape is increasingly broad and diverse, just as urban areas and transportation systems are themselves. Similarly, the potential range of issues and activities of interest to AED20 is extremely vast and constantly changing. For this reason, it must utilize its triennial strategic plan: (1) to maintain focus on the most critical issues as defined by its membership, and (2) as a living document that allows flexibility to respond to and incorporate new, emerging issues as they arise.

As it looks towards the future, AED20's core strategy is to monitor the changing urban transportation data landscape in terms of both supply and demand, engage the urban data user community, and guide TRB activities towards addressing the most critical needs for this audience.

#### **Emerging, critical, and cross-cutting issues**

Based on prior Committee input, the following issues have been identified as highest priority for AED20. Within each topic area, the Committee will regularly be engaged to refine and update details as these issues evolve. The primary focus within these, and others that may emerge, will be addressing the needs of the data user community.

- ***Data fusion and integration***
  - The supply of urban transportation data is exploding, with myriad sources that vary in terms of source, frequency, coverage, schemas, size, etc. While each data source has value on its own, additional value is often created by combining different sources. As such, the urban data community has identified the need for research and guidance on best practices for data fusion and integration.
- ***Big data (privacy, quality/standards, competency/accessibility)***
  - Big Data is an expansive topic, and the list of data research needs is almost as large as the data itself. One concept is abundantly clear: Big Data has established itself as a key part of the transportation data ecosystem and its presence will continue to grow and evolve in the future. The Committee has identified the following sub-categories related to Big Data that are priorities for the coming TSP period:
    - (1) Privacy – The concept of privacy is not new to transportation data, as anyone working with U.S. Census data will understand. Privacy laws are evolving in the U.S. and around the world, and these will directly impact how Big Data is used by the transportation profession.
    - (2) Quality and standards – Because Big Data is still relatively new and is constantly changing, there aren't as many standards established in relation to transportation data and metrics derived from it. AED20 and other Committees focused on this subject have an opportunity and obligation to participate in a dialogue around defining standards for quality, accuracy, etc.
    - (3) Competency, tools, and accessibility – Big Data involves a new and different set of competencies due to how it's collected, processed, and interpreted by the transportation community. Additionally, the technologies needed to work with and access Big Data are often different in many ways than those for traditional transportation data. There is a need for research and guidance in these areas to help practitioners and decision-makers alike, to ensure the transportation industry derives full benefit from Big Data.
- ***Practical applications (capacity, knowledge sharing/resources)***
  - While the urban data community appreciates advanced academic research on data, there is also a need to collect, compile, and share information on practical applications of urban transportation data. The user community produces an incredible wealth of creative data applications, and AED20 has a role to play in identifying and sharing these examples with the broader community. This is an area where collaboration and outreach will be key.
- ***Data sharing***
  - Transportation agencies are constantly looking for ways to maximize their data and research budgets, and one obvious way to do this is to jointly purchase and/or share data resources. AED20 has an interest in pursuing research into how agencies and data users in general are sharing data to make better, consistent decisions.

- **Multimodal data (bike, pedestrian, transit, other)**
  - Modes of transportation are becoming increasingly diverse, especially in urban areas. The emergence of micro and shared mobility, shifts towards active transportation modes, and post-pandemic uncertainty about public transportation ridership are just a few of the contributing factors. The sources of data are as varied and complex as the multimodal landscape, and AED20 must stay committed to monitoring and researching best practices in the collection, use, and application of data for all modes.
- **Consolidation of sources/tools**
  - There is an ongoing need to track and catalog data sources and tools for the urban transportation data user community. Building on the (collaborative) success of the Urban Data Wiki, AED20 is committed to prioritizing this need, and recognizes the work is never finished.

### **Equity**

- While it's been an important focus area for many years, the issue of social equity is rightfully gaining attention and priority within the transportation profession. This issue and its relationship with transportation is complex. In the short-term, AED20 activities will focus on exploring and defining the relationship between urban transportation data and social equity. In the long-term, the goal of AED20 is to establish social equity as a permanent lens through which all other issues and activities are viewed.

## **Committee membership and collaboration**

### *Committee membership*

AED20 takes pride in having maintained a membership roster that is diverse in terms of age, race, ethnicity, gender, geography and employer type. The committee is committed to maintaining and increasing this diversity in the future, and this TSP will identify concrete actions to achieving this goal.

### *Collaboration*

Historically, AED20 has collaborated with over 20 TRB committees and 10 NCHRP panels as well as external committees such as the SAE Digital and Shared Mobility Committee. Opportunities for additional, strategic collaboration should be specifically discussed at every committee/subcommittee meeting and when developing action plans.

## **Alignment with TRB Critical Issues**

In 2019, the Transportation Research Board (TRB) identified and organized an array of important issues under 12 key topics. Additional details are available online [here](#).

1. TRANSFORMATIONAL TECHNOLOGIES AND SERVICES: STEERING THE TECHNOLOGY REVOLUTION
2. SERVING A GROWING AND SHIFTING POPULATION
3. ENERGY AND SUSTAINABILITY: PROTECTING THE PLANET
4. RESILIENCE AND SECURITY: PREPARING FOR THREATS
5. SAFETY AND PUBLIC HEALTH: SAFEGUARDING THE PUBLIC

- 6. EQUITY: SERVING THE DISADVANTAGED
- 7. GOVERNANCE: MANAGING OUR SYSTEMS
- 8. SYSTEM PERFORMANCE AND MANAGEMENT: IMPROVING THE PERFORMANCE OF TRANSPORTATION NETWORKS
- 9. FUNDING AND FINANCE: PAYING THE TAB
- 10. GOODS MOVEMENT: MOVING FREIGHT
- 11. INSTITUTIONAL AND WORKFORCE CAPACITY: PROVIDING A CAPABLE AND DIVERSE WORKFORCE
- 12. RESEARCH AND INNOVATION: PREPARING FOR THE FUTURE

The matrix below illustrates the alignment between critical issues and priority topics identified by AED20, and the 12 TRB Critical Issues. The following symbols are used to convey the completeness or strength of such alignment.

- - Strong/complete alignment
- ◐ - Moderate/partial alignment
- - No or very weak alignment

	1	2	3	4	5	6	7	8	9	10	11	12
Data fusion and integration	●	◐	●	●	●	●	◐	●	◐	●	○	●
Big data	●	●	◐	◐	●	●	◐	●	◐	◐	◐	●
Practical applications	●	●	●	●	●	●	●	●	●	●	◐	◐
Data sharing	●	○	○	●	◐	○	●	◐	◐	◐	○	●
Multimodal	◐	◐	●	◐	◐	●	◐	●	○	●	○	◐
Consolidation of sources/tools	○	○	○	○	○	○	●	◐	◐	○	◐	●

Equity	◐	◐	●	◐	●	●	◐	◐	○	○	●	○
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**Part 4.2: Committee Three-Year Plan**

*The committee plan is a short, focused statement of where the committee wants to go and how to get there. The committee plan may include, but is not limited to:*

- **projects, activities and products** that the committee will undertake during the next three years to address the TRB critical issues, emerging, and cross-cutting issues identified above;
- *how the current or proposed changed membership composition will respond to issues identified above with the group or section’s goals for diversity and inclusion;*
- *strategies to encourage significant involvement by the committee’s Young Members, state DOT members, special sponsors, and other key constituents, both during committee meetings and at other times;*
- *strategies for specific implementation to encourage mentoring future leaders*
- *committee’s communication activities, and efforts to provide assistance and technology transfer to the transportation community;*
- *research – for the TRB committees, “research” is a very broad concept that can begin with providing the user perspective on research needs, writing research needs statements, tracking research, understanding the funding available for research in their topic area, developing case studies, lessons learned, disseminating research, technology transfer, and other activities that will advance the state of the practice. Potential research activities are:*
  - *research directions, results, and needs or gaps;*
  - *plan for maintaining and augmenting the Research Need Statements (RNS) database;*
  - *efforts to address research implementation and user needs, and ways to identify research use and implementation.*

To maintain Committee focus on the emerging, critical, and cross-cutting issues identified in Part 4.1, AED20 will undertake the following projects, activities, and products in the next 3 years. In addition to the emphasis areas identified in Part 4.1, activities supporting critical TRB committee activities of supporting research and mentoring future leaders will also be conducted. The activities, emphasis areas and responsible groups are summarized below..

Activity	Emphasis Area(s)	Responsibility	Timeline
Sponsor Travel Data Users Forum sessions at the Annual Meetings that focus on emerging, critical and cross-cutting issues	Practical Applications; Equity; Multimodal Data	Full Committee	Annual

Develop a succession plan for the committee, to promote diversity in gender, race, geography, and employer	Equity; Develop Future Leaders	Full Committee	Before next committee rotation
Website development and maintenance	Data Sharing	Full Committee Big Urban Data Subcommittee Bike and Pedestrian Data Joint Subcommittee	Ongoing
Host midyear and annual meeting	Research	Full committee and all subcommittees	Annually
Continue to develop RNSs and syntheses ideas	Research	Full committee and all subcommittees	Annually
Host a webinar on privacy/disclosure issues for Census Data products	Practical applications; Equity; Data Sharing	Census Data Subcommittee	By end of 2022
Expand on existing wiki materials to begin Transportation Big Data Primer	Big Data; Data Sharing	Big Data Subcommittee	Annually
Develop a new Call for Papers and RNS on Equity of Representation in Big Data	Big Data; Equity; Research	Big Data Subcommittee	Fall 2021
Develop new Call for Papers on Before & After Studies with Big Data	Big Data; Practical applications; Research	Big Data Subcommittee	Summer 2022
Co-sponsor & assist AED80's Visualization Symposium	Big Data	Big Data Subcommittee	Fall 2022
Continue to conduct a data contest for students	Data Sharing; Develop future leaders	Travel Time, Speed and Reliability Joint Subcommittee	Annually
Host "Conversations with Colleagues" web forum series	Data Sharing	Bike and Pedestrian Data Joint Subcommittee	Ongoing
Host poster session for the TRB Annual Meeting	Data Sharing; Research	Subcommittee on Census Data Big Urban Data Subcommittee Travel Time, Speed, and Reliability Joint Subcommittee	Annually
Develop RNS related to Smart Cities Data	Big Data, Data Fusion, Data Sharing,	Smart Cities working group	Fall 2022

	Research		
Develop webinar idea related to Smart Cities Data	Big Data, Data Fusion, Data Sharing, Research	Smart Cities working group	Fall 2021
Develop RNS related to Big Data Privacy	Big Data, Research	Big Data privacy working group	Fall 2021

Several performance measures will be used to assess the performance of the committee during this TSP cycle. These performance measures are tied to the three TRB goals of research, outreach to the community, and diversity discussed in section 2 and reported annually at the TRB Annual Meeting. The performance measures include both items within the control of the committee (such as number of workshops proposed) and items outside of the control of AED20 (such as number of RNSs funded). AED20 feels that both types of measures are valuable since the internal measures focus on committee activity and the external measures are measures of committee impact. The performance measures selected are:

- Measures of research impact:
  - Number of TRB Annual Meeting Papers (1) reviewed, (2) recommended for presentation, and (3) transferred to the Editorial Board
  - Number of committee-developed Research Needs Statements (1) developed, (2) submitted for funding consideration, and (3) selected for funding
- Measures of impact on information exchange and education to the urban transportation data community:
  - Number of (1) webinars proposed, (2) webinars delivered, and (3) attendance at the webinars
  - Number of Annual Meeting (1) workshops proposed, (2) workshops selected, and (3) attendance at those workshops
  - Number of additional practitioner-centered publications produced by the committee such as white papers, wikis, e-circulars, or other documents
- Measures of diversity:
  - Composition of the committee membership to include underrepresented groups and young members (internally focused)
  - Number of research products focused on diversity, inclusion, and representation and applications of data to support these goals (externally focused)

**Section Level Activities that Could Support AED20**

AED20 has also identified several potential section-level activities that could help support AED20 plan over the next three years:

- Provide a forum for committees to discuss and share best practices for improving diversity, representation, and inclusion issues. This will remain a high level cross-cutting goal that affects many committees, so section level interaction will be beneficial for AED20 and other data section committees. Data section coordination with other sections to identify and promulgate best practices would also be useful.
- Continue to support collaboration and connections between committees on AED20 strategic issues like applications of Big Data and Data Fusion. A number of other committees like AED10 and AED50 have interested in topics identified by AED20 as strategic needs. The section has previously helped to identify connections between committees through the use of keyword matching, but additional collaboration would be useful to ensure that efforts are complementary and no duplicative.



### Part 4.3: Committee Longer Term Plan

*This is an area where a committee plan could have a longer-term focused statement of where the committee wants to go and how to get there beyond the next TSP cycle, including the development and encouragement of young leaders and young committee members, and the continued inclusion of committee members from international and demographically underrepresented groups who are professionally engaged in the committee's fields of expertise and focus. This committee plan could also look at ways to tackle longer term TRB critical issues and look for areas of collaboration with other committees and concerns.*

As noted in Section 4.2, AED20 plans to use the working group model to address emerging topics in the longer term. This will allow small groups to work on a targeted topic, develop products, and then disband to move on to another topic. By keeping working groups small, it is expected that the group can work quickly to develop products and plans. This will also provide opportunities to expand participation by committee members and friends, helping with succession planning. Since each working group will have a specific charge, a timeline for completing work will be established to end the group. This will also provide a mechanism for ongoing discussions within the broader committee about needed emphasis areas. This model has already proven to be successful, with several RNS ideas in development and a TRB webinar already scheduled for October 2021.

The priority areas of big data, practical applications, and data sharing are being addressed within the current TSP. The activities discussed below will most likely take place outside of the 3-year timeframe covered by this TSP. They include longer-term activities related to the emerging, critical and cross-cutting issues. Initial concepts for these priority areas are listed, and it is expected that working groups will be convened to further develop ideas in each of these areas.

#### Outstanding issues that could impact AED20 beyond this TSP timeframe

##### **Diversity, Equity and Inclusion (DEI)**

- The Committee intends to address each of its focus areas through a broader DEI lens.
- For the next committee rotation, establish a diversity working group to assess roster diversity and develop a specific recruitment plan to recruit underrepresented groups.

##### **Data fusion and integration**

- It is expected that this topic will be examined both by the main committee and each specific subcommittee of AED20 given their application needs. Specific issues to be addressed may include:
  - Data fusion is a broad term that may mean different things to different audiences. Is there a need to define data fusion (or its different elements) to strategically move forward with this issue?
  - Methods to improve spatial conflation across multiple datasets, including issues integrating data provided by private sector companies on proprietary networks.
  - Fusion/integration with land use data

##### **Multimodal**

- Methods to address issues of data bias in multimodal data streams
- What is the data user community doing with shared mobility data?
- Incorporation of emerging modes into planning (data format, modeling implications, etc.)

- Telecommuting (Is this the new normal? How will we know? What frequency of data refresh is needed to even answer these questions?)
- Methods to improve multimodal infrastructure information. Asset inventory data for many modes is incomplete, but absolutely necessary for planning/operations.

**Consolidation of sources/tools**

- Develop and maintain an inventory of data sources and tools, both those in common use and those emerging in the industry. This is a rapidly evolving area and the Committee has heard from members and data users there is a great need for this sort of working inventory.

*The Appendices are still very tentative. The concept is that this is where most of the usual data supplied by TRB staff would belong.*

Appendix A

NOTE: We have provided much of the information you need for boxes 2.2, 2.4, and 2.7 below and in attachments A, B, and C. We ask that you provide the remaining information.

**A.1**

Year	2018	2019	2020	2021
Number of Members in Attendance at Annual Meeting				
Number of Visitors in Attendance at Annual Meeting				
Number of Papers Reviewed				
Total Number in Attendance at Mid-Year Meeting			N/A	

**A.2**

Sessions and workshops sponsored/cosponsored at the Mid-Year meeting, including name of co-sponsoring committee(s) if applicable (by year):

NOTE: Sessions and workshops sponsored/cosponsored at the Annual Meeting are listed in attachment A. **List** below all sessions and workshops sponsored/cosponsored at Mid-Year meeting, including name of co-sponsoring committee(s) if applicable (by year).

Given the emphasis on ensuring that Annual Meeting Workshops are truly workshops with meaningful interactions among participants, descriptions of past workshops should include information about the types of “take aways” or learning opportunities that the workshop made available for participants.

No mid-year sessions/workshops at midyear meetings

**A.3**

Provide title(s) and presenter(s) for informal presentations made at Annual Meeting and Mid-Year Committee meetings (by year), including informal presentations at meetings of sponsored subcommittees:

Subcommittee presentations are indicated by the name of the subcommittee in parentheses

2018 Annual Meeting

- NextGen NHTS – Wenjing Pu
- Quantifying Transit Travel Experiences from the Users’ Perspective with High-Resolution Smartphone and Vehicle Location Data - Andre Carrel
- GTFS is about more than the next bus: wrangling real-time data to support performance measurement - Ted Mansfield, Logan Nash, and Paul Teicher
- Deriving volume estimates from probe data, Stan Young (TTSR Subcommittee)
- Census 2020 PSAP Program - Vince Osier and Josh Coutts (Census Data Subcommittee)
- Estimating Paratransit Demand Forecasting Models Using ACS Disability and Income Data - Daniel Rodriguez Roman and Sarah Hernandez (Census Data)

2019 Annual Meeting

- BTS LATCH - Clara Reschovsky
- Assessing the Evolution of Transit User Behavior from Smart Card Data -Martin Trépanier

- Ohio experience to date with private sector trajectory data - Sam Granato (TTSR)
  - Census 2020 PSAP Update - Mara Kaminowitz (Census)
  - ACS Content Test, Clara Reschovsky (Census)
  - GENESIS: Trip Generation Model using ACS, CTPP and NHTS data - Kyeongsu Steve Kim and Yohan Chang (Census)
  -
- 2020 Annual Meeting
- TCRP Report 209 – Analysis of Recent Public Transit Ridership Trends – Kari Watkins
  - Vision Eval – Daniel Flynn and Jeremy Raw
  - Truck Dwell Times at Ports - Kyle Titlow (TTSR)
  - Split lane Speeds and Warnings - Weimin Huang (TTSR)
  - Data Collection at Low Speeds - James Li (TTSR)
  - Vehicle Availability Patterns and Trends including Commuting Trends for Zero-Vehicle Households - Evelyn Blumenberg and Julene Paul (Census)
  - The Changing Nature of Work – Nancy McGuckin (Census)
  - Using Available Data Sources on Work-at-Home Characteristics to Forecast Potential Effects of Telecommuting Incentives - Kevin Tierney (Census)
- 2020 Midyear Meeting
- Preliminary Exploration of Wejo Data; Safety and Planning - Michael Martin and Gargi Singh
- 2021 Annual Meeting
- First mile/Last Mile – Collecting Traffic Volumes for Safety and Assessing Exposure at and around Transit Facilities - Liz Stolz
  - 2021 Vehicle Inventory and Use Survey (VIUS) – Janine McFadden [Presentation by Clara Reschovsky]
  - Privacy Modernization for Surveys – Rolando Rodríguez (Census)
  - Vehicle Availability Patterns and Trends including Commuting Trends for Zero-Vehicle Households - Evelyn Blumenberg and Gregory Pierce (Census)
  - The Changing Nature of Work, Trends that Accelerated During 2020 – Nancy McGuckin (Census)
  - An Overview of ATRI’s Truck GPS Data and its Applications to Freight Planning and Operations Analysis – Jeff Short (Urban Big Data Subcommittee)
  - An Overview of Streetlight Data’s Web Platform and Data, Research Partnerships and Priorities – Laura Schewel (Urban Big Data)
  - Applied Research on Map Matching Trace Data using Sampling – Ted Mansfield (Urban Big Data)

**A.4**

Membership Make-up: Please see Attachment C provided by TRB for summary details.

NOTE: Comment on demographics, balance or lack of balance of membership. Provide an action plan to address any deficiencies. See attachment C for summary details.

Membership diversity was an important consideration in the last committee rotation that occurred in 2020. Diversity in gender, race, geography, and employer was all considered when new members were added. The current committee has the following characteristics:

- Gender: Male: 45%, Female 52%, Prefer Not to Answer: 3%
- Race: White: 73%, Asian: 18%, Black: 3%, Prefer Not to Answer: 6%
- Region: Northeast: 27%, Southeast: 36%, Central: 18%, Southwest: 12%, International: 6%
- Employer: Federal: 6%, State: 12%, Local/regional: 15%, Industry/Research/Non-Profit: 6%, Consultant: 36%, Academia: 21%, Other: 3%

While the committee has been successful in creating a diverse group from the perspectives of gender, geography, and employer, there are still opportunities to increase racial diversity. This will be a focus of the next committee rotation.

**Appendix B – Additional Committee Work**

**B.2**

Briefly Discuss the Committee’s Performance of the following:

- How the activities identified correlate back to the previous TSP 3-year goals
- How the activities of this committee during the previous 3-year cycle have accomplished work towards the emerging, critical, TRB Critical Issues and align with the TRB Executive Strategic Plan
- Whether some of the critical and emerging topic areas have changed or been altered during this time period