

NCHRP Project 20-24(131)

Mapping the Common Interests of AASHTO Committees

Final Report

Prepared for

AASHTO Committee on Knowledge Management

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Disclaimer

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Table of Contents

Background.....	1
Document Overview	3
2. Summary	4
Need for Identifying Common Interests of AASHTO Committees.....	4
Approach to Identifying Common Interests of AASHTO Committees	4
Common Interests Findings	5
Common Interests Products	6
Uses and Maintenance of the Common Interests Products	7
Potential Future Research and Implementation Activities.....	9
3. Methodology for Identifying Common Interests.....	12
Overview	12
Compilation and Review of Resources	12
Creation of AASHTO Committee Summaries	13
Synthesis of Common Interest Topics	13
Development of a Framework for Categorizing Common Interests.....	14
Supplemental Resource Compilation	14
Text Analysis.....	14
Updates to the Framework and Common Interests.....	15
Review and Validation of Common Interests	15
4. Common Interests Across AASHTO Committees.....	16
Overview	16
AASHTO Common Interests Framework	16
Common Interests.....	18
Distribution of Common Interests Across Committees	20
5. Common Interests Products	24
Overview	24
Individual AASHTO Committee Summaries.....	25
AASHTO Common Interests Spreadsheet.....	25
Common Interests Spreadsheet Validation Tool	26
Common Interests Visualization Tool	26
6. Using and Maintaining the Common Interests Products.....	28
Uses of the Common Interests Products	28
Maintenance of the Common Interest Products	34
Future Enhancements	36

Appendix A: AASHTO Committee Descriptions.....	37
Overview	37
Council on Active Transportation	38
Council on Aviation	39
Council on Highways and Streets.....	40
Council on Public Transportation.....	42
Council on Rail	43
Council on Water	45
Special Committee on Freight.....	46
Committee on Planning.....	47
Committee on Environment and Sustainability.....	49
Committee on Design.....	51
Committee on Bridges and Structures	53
Committee on Traffic Engineering	56
Committee on Right of Way, Utilities and Outdoor Advertising Control	58
Committees on Materials and Pavements	59
Committee on Construction	61
Committee on Maintenance.....	62
Committee on Transportation System Operations	64
Committee on Safety	67
Committee on Transportation Communications (TransComm).....	69
Committee on Transportation System Security and Resilience.....	70
Committee on Performance-Based Management	71
Committee on Data Management and Analytics.....	73
Committee on Funding and Finance	74
Committee on Human Resources	75
Committee on Internal and External Audit	76
Committee on Knowledge Management	77
Committee on Civil Rights	78
Special Committee on Research and Innovation	80
Appendix B: Text Analysis Results	81
Overview	81
Keyword Extraction.....	82
Topic Modeling	97
Modifications to the Common Interests Framework.....	118
Key Words and Related Terms for Framework Categories.....	119
Appendix C: List of Common Interests	136
Overview	136

List of Figures

Figure 1. AASHTO Organizational Chart.....	1
Figure 2. Common Interests of AASHTO Committees	19
Figure 3. Number of Committees with Each Common Interest	21
Figure 4. Committees interested in Workforce and Succession Planning.....	22
Figure 5. Committees interested in Connected and Automated Vehicles (CAVs)	22
Figure A-1. Model 1 (single words and noun phrases, unfiltered)	101
Figure A-2. Model 2 (single words, filtered)	102

List of Tables

Table 1. AASHTO Common Interests Products	24
Table 2. Uses of the AASHTO Common Interests Products	28
Table 3. Maintenance of the Common Interests Products.....	34
Table A-1. Top Relevant Terms per Committee	83
Table A-2. Terms Common to Multiple Committees.....	88
Table A-3. Cluster Analysis Model Comparison	99
Table A-4. Cluster Analysis Results – Model 1 (single words and noun phrases, unfiltered)	103
Table A-5. Cluster Analysis Results – Model 2 (single words, filtered terms)	110
Table C-1. List of AASHTO Common Interests	137

1. Introduction

Background

The American Association of State Highway and Transportation Officials’ (AASHTO) primary goal is to “foster the development, operation, and maintenance of an integrated national transportation system”. AASHTO represents highway and transportation departments in all 50 states, the District of Columbia and Puerto Rico, and represents all transportation modes including: air, highways, public transportation, active transportation, rail, and water. AASHTO performs a wide range of policy development, standards setting, and technical activities to meet its goals of providing value to members, providing innovative technical and professional services and products, leading in the development of national transportation policy, and communicating the value of transportation. These activities are largely carried out through volunteer efforts from staff at member organizations, who work through AASHTO’s committees. As stated in AASHTO’s 2019 Annual Report, “It is largely through the work of these committees that AASHTO members realize their greatest value—sharing information and best practices and growing the knowledge and capabilities of the member transportation departments.”

Figure 1 shows AASHTO’s organization chart.

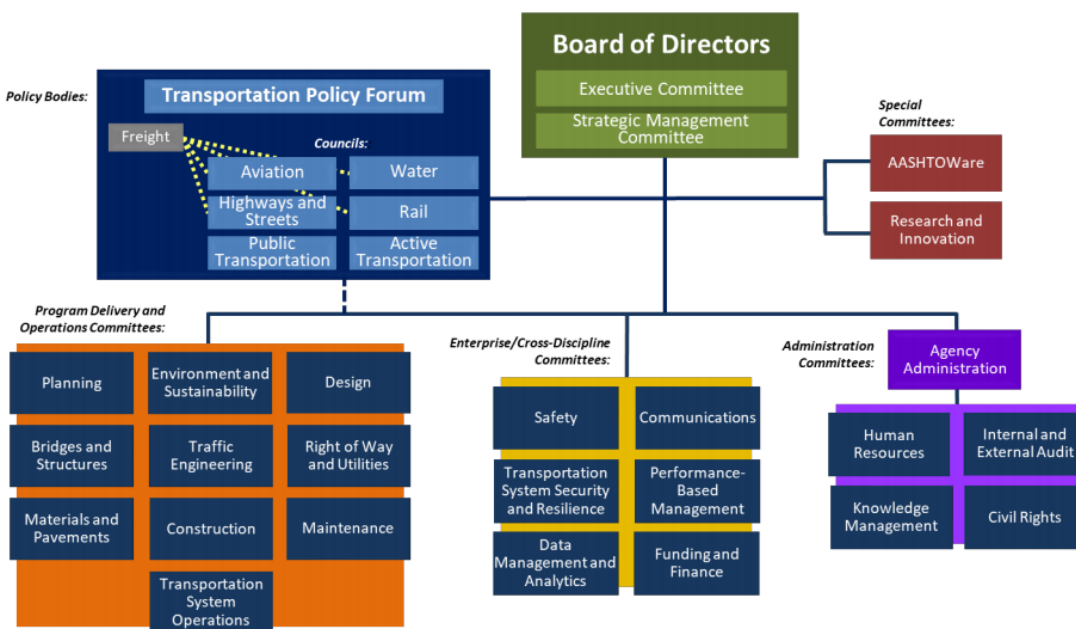


Figure 1. AASHTO Organizational Chart

AASHTO activities are guided by a Board of Directors (BOD) representing member agencies. The Executive Committee consists of elected officers and is responsible for overall management of the activities and affairs of the Association; the Strategic Management Committee identifies emerging national issues and concerns to be addressed; identifies gaps, overlaps, and opportunities for coordination; and advises the councils and committees.

AASHTO's Transportation Policy Forum recommends policies related to legislation, regulation, and other policy matters to the BOD. It is organized into six councils representing different transportation modes. A Special Committee on Freight brings a multimodal perspective to policy development.

There are ten Program Delivery and Operations committees representing different stages of the transportation development life cycle, from planning through maintenance and operations.

Five committees are concerned with transportation agency administrative functions – four topically focused committees that report up to an organizing Agency Administration Managing Committee. A third set of committees are concerned with enterprise-wide or cross-disciplinary functions such as data management and analytics.

Finally, there are two special committees – one for Research and Innovation and a second for AASHTO's cooperative development program (AASHTOWare).

The current committee structure reflects a restructuring effort initiated as a result of the last AASHTO Strategic Plan. The restructuring was designed to meet several objectives including addressing gaps and emerging issues and DOT priorities, increasing multi-modal communication and collaboration, more effectively handling cross-cutting issues, and providing a more efficient and nimble structure for decision making. Several procedural changes were adopted to foster coordination and collaboration across the councils and committees and provide the agility needed to address emerging issues. These included:

- Committees are to establish internal steering committees to address strategic and emerging issues, manage committee work, and communicate and coordinate with other committees.
- Committees may establish permanent or temporary subgroups (subcommittees or task forces) to address specific issues.
- Committees can establish Communities of Practice (COP) to address a specific discipline or topic. COPs may consist of participants from one or multiple committees, and may include other appropriate stakeholders.
- Committees must produce annual action plans and reports of accomplishments.

- Committees may identify cross-cutting issues and appoint liaisons between committees for coordination and communication.
- Committee chairs shall be members of a Council, the Transportation Policy Forum, or the Board of Directors.

While structures and procedural frameworks are in place to facilitate and enable collaboration and coordination, there is a missing element – a clear, accessible understanding of substantive issues and topics that fall within the scope and interests of multiple committees.

Document Overview

This report summarizes development of a framework for describing AASHTO committee interests and a list of topics that are of interest to multiple AASHTO committees. It suggests how the framework and list of common interests can be validated, updated over time, and used by AASHTO committees and staff to support collaboration and avoid duplication of effort. It is organized into five Chapters and several Appendices:

- 1. Introduction.** Provides background on the objectives of this project and reviews the organization of this report.
 - 2. Project Summary.** Summarizes the methodology, products and anticipated uses of these products, and identifies future activities that can build on the results of this project.
 - 3. Methodology.** Describes the approach used to develop the list of common interests.
 - 4. Common Interests Across AASHTO Committees.** Presents the organizing framework for common interests, the list of common interest, and summary-level information about the distribution of interest topics across committees.
 - 5. Common Interests Products.** Describes the common interest products developed as part of this project.
 - 6. Using and Maintaining the Common Interests Products.** Presents applications of the common interest products and suggests an approach for keeping these products updated over time.
- Appendix A. AASHTO Committee Descriptions.** Provides information about each AASHTO Committee that was compiled for this project from charters, strategic plans, action plans and committee websites.
- Appendix B. Text Analysis Methodology and Results.** Provides detailed results of the keyword extraction and topic modeling.
- Appendix C. List of Common Interests.** Presents the list of common interests and maps each common interest topic to a term in the Transportation Research Thesaurus (TRT).

2. Summary

Need for Identifying Common Interests of AASHTO Committees

The purpose of this project was to identify topics of interest that are shared by multiple AASHTO committees to highlight areas for coordination and collaboration across committees. Collaboration across committees is currently occurring and there are several joint subcommittees and task forces. However, with 30 different committees and many more subcommittees, it can be difficult for members of individual committees to understand what other committees do. When a committee or subcommittee is planning future activities, it would be beneficial for them to know which other committees have similar interests and might be consulted or included in the planning process. A more systematic approach to tracking and sharing common interests could result in reduced duplication of effort and improved synergies across committees.

The AASHTO committee structure includes councils and committees focused on:

- transportation modes and user classes (Policy Forum);
- transportation agency program and project development functions (Program Delivery and Operations Committees);
- transportation agency administrative functions (Administration Committees); and
- cross-cutting interests (Enterprise/Cross-Discipline Committees).

While each committee has a distinct set of interests and responsibilities, committees have many overlapping areas of interest. Councils in the Policy Forum are interested in cross-cutting topics such as safety as well as best practices and innovations related to program and project delivery. Program Delivery and Operations Committees are interested in topics related to specific modes and user classes. Administration Committees and Cross-Discipline Committees are interested in how to best support effective program delivery and operations.

Approach to Identifying Common Interests of AASHTO Committees

A methodology for identifying common interests was developed using the following approach:

- Capture the most common areas of collaboration across the different committees, with a particular (but not exclusive) focus on relatively new or emerging areas that may not yet be fully recognized;
- Use committee documents (charters, strategic plans, action plans) to identify common interests, but recognize that these documents may not tell the whole story and build in an opportunity for AASHTO staff and committee members to validate the interests identified based on these documents;
- Recognize that common interests will change over time – so provide a stable framework and process that enables AASHTO to keep the list updated;
- Recognize that different committee members use different terminology for describing topics of interest – so capture variations in language; and
- Strike the right balance between simplicity (so that the list of common interests is easy to use and maintain) and specificity (so that the list of common interests distinguishes meaningful topics where collaboration can occur).
- Creation of an initial framework for organizing common interests and an initial list of common interests;
- Automated keyword extraction and text analysis to document frequently used terminology and identify topics based on common word patterns; and
- Refinement of the initial framework and common interests list to reflect the results of the text analysis and enhance usability.

See Chapter 3 for further information on the methodology for developing the list of common interests.

Common Interests Findings

A total of 68 different common interest topics were identified across the 33 AASHTO committees included in the analysis. The three topics with the greatest number of interested committees (over 10) were:

- Workforce development and succession planning
- Drones
- Project delivery streamlining

An additional 19 topics had between 5 and 10 interested committees:

- Standards and guidance development
- Project delivery streamlining
- Communicating value of transportation investments
- Transportation performance measurement and management

- Sustainable transportation funding/reauthorization
- Work zone safety
- Alternative contracting methods
- Risk management
- Data-driven safety analysis
- Environmental stewardship
- Shared mobility
- Freight mobility
- Geotechnical Assets
- Active Transportation Facility Design
- Diversity/equity/inclusion
- Traffic signals
- Construction materials
- Knowledge management
- Multimodal Transportation

These results highlight the diversity of topic areas for cross-committee collaboration.

Seven of the 33 committees had over 16 different common interests, indicating that these committees have the greatest needs and opportunities for collaboration:

- Design
- Bridges and Structures
- Maintenance
- Transportation System Operations
- Safety
- Planning
- Maintenance

See Chapter 4 for additional information on the distribution of common interests by committee.

Common Interests Products

Products of this effort include this report and an accompanying Common Interests Spreadsheet, Common Interests Validation Tool and Common Interests Visualization Tool. These products provide:

- A summary of each AASHTO committee’s scope, topics of interest, and collaborations (Appendix A of this report)

- A framework for categorizing common interests, consisting of 6 dimensions or facets: Transportation Modes and Users, Transportation Assets, Transportation Development and Delivery Processes, Enabling Disciplines, Concerns, and Innovations/Emergent Practice. Each framework dimension includes several categories, each of which is mapped to elements of the AASHTO Strategic Plan. Categories are also annotated with an associated list of keywords and related terms that can be used to help different communities recognize what the category includes. (Documented in Appendix C with full detail in the Common Interests Spreadsheet)
- A list of common interests, mapped to the framework, identifying which committees have each interest. (Documented in Appendix C with full detail in the Common Interests Spreadsheet)
- An interactive capability to explore the common interests associated with a selected committee and the committees associated with a selected common interest. (Provided in the Common Interests Visualization Tool)
- Individual lists of common interests for each AASHTO Council/Committee mapped to the framework, in a form suitable for review and validation. (Provided in the Common Interests Validation Tool)

See Chapter 5 for further detail on the common interest products.

Uses and Maintenance of the Common Interests Products

The Common Interests Products can be used by AASHTO staff, the Strategic Management Committee, and individual committees in several ways.

AASHTO committee staff liaisons and steering committees can use them to:

- Guide periodic review of committee scopes and working towards reducing duplication and maximizing synergistic activities across committees;
- Guide communication and information sharing activities – to make sure all interested committees are kept informed about completed and upcoming activities;
- Support planning of meetings, webinars and other events that involve multiple committees with shared interests;
- Guide review and evaluation of proposals for new joint subcommittees and task forces;
- Guide establishment of formal liaisons across committees – and between committees and AASHTO Technical Service Programs (TSPs);
- Support and improve efficiency of engagement, research and implementation activities; and

- Minimize rework from belated discovery of interest by another committee

Individual committee members can use them to:

- Identify collaborative activities to include in strategic plans and action plans;
- Guide collaboration with other AASHTO committee members within their agencies; and
- Guide establishment and management of relationships with external parties.

The AASHTO Strategic Management Committee can use them to:

- Refine charters and strategic plans to sharpen boundaries between different committee scopes;
- Guide activities to align individual committee action plans with the AASHTO strategic plan;
- Guide decisions about establishing new joint subcommittees and joint task forces;
- Guide development, funding and review of new initiatives to address emerging topics of common interest.

Developing the list of common interests was a time-consuming manual process that relied on strong domain understanding and familiarity with transportation terminology usage in different contexts. Text analytics techniques were also applied to explore the extent to which the process of identifying common interests could be fully or partially automated. These techniques identified clusters of common interests as well as commonly used words and phrases. We found that these techniques were valuable for validating and extending our initial manually created list of topics, but would not provide an acceptable substitute for the manually created topic list. This was due in large part to the limited number and length of documents included in the analysis as well as the lack of consistency across committees in content that was descriptive of substantive topics of interest (as was noted above). It is also important to note that some AASHTO committees are relatively new and have not yet established much of a knowledge base. Further efforts could be attempted to repeat the text analytics exercise with an expanded set of resources for each committee (including conference presentations, web site contents and potentially technical standards and manuals.) Such an effort could be of interest to inform scoping of future similar projects. However, it would not be a cost-effective way to approach future updating of the AASHTO Common Interests Products. A manual approach involving regular review and adjustment could be pursued with a relatively modest level of effort. This conclusion can be revisited in the future as newer committees become more established and steps are taken to improve the consistency and substantive content of the committee plans.

The following activities can be pursued to keep the Common Interests Products current so that they can continue to add value:

- Designate an AASHTO staff person to be the steward of the Common Interests Products and manage the update process;
- Consider involving the AASHTO Information Resources Manager in maintaining the Common Interests Framework and associated keywords/related terms;
- Post the Common Interests Products on the AASHTO website where they can be viewed and downloaded;
- Conduct an annual review of the framework and common interests list, coordinated with the annual action plan update process – this review would consist of two stages:
 - First, a representative of each Committee (can be the AASHTO staff liaison, the Committee chair, or another designated Committee member) updates their individual committee summary and list of common interests;
 - Second, the AASHTO Common Interests Product Steward updates the Framework and the List of Common Interests based on updates made by each Committee.
- Establish a mechanism by which Committee members or AASHTO staff members can submit suggested modifications to framework categories, individual Committee interests, or common interests during the year – separate from the annual review and update process. Actual updates would be managed by the AASHTO Common Interests Product Steward.

Chapter 6 provides further details on the uses and maintenance of the Common Interests Products.

Potential Future Research and Implementation Activities

In addition to the process outlined above and detailed in Chapter 6 for maintaining the Common Interests Products, the following efforts can be considered to build on the results of this project. The first two would be implemented by AASHTO; the third would be implemented by the Transportation Research Board (TRB).

Improving Management of Information about AASHTO Committees and Subcommittees

In compiling information about the various AASHTO committees, we found that there is no online, up to date master list that identifies formal subcommittees as well as task forces, joint technical committees and other groups. In addition, subgroup leads are often missing

from websites making it challenging for committee members to know who to contact in order to pursue collaboration.

Identifying the subgroups under the various committees is extremely valuable for understanding both individual and common committee interests. We were able to create a list of the subgroups through review of charters (these include formally established subcommittees) and committee web pages. Creating a process by which committees can update a centrally-maintained list of subgroups (ideally, with lead contacts) would make it easier for all committee members to understand the emphasis areas and structures of other committees. It would also facilitate collaboration by providing a central directory of existing joint committees.

A second related initiative would be to clarify naming conventions for AASHTO subgroups. Currently there are a variety of names used for subgroups – including Subcommittee, Technical Committee, Joint Technical Committee, Technical Subcommittee, Technical Council, Work Group, Technical Working Group, Task Force, and Community of Practice. AASHTO could develop and share guidance on standard names to use for different types of subgroups. This could improve understanding about the nature and role of each group.

A third related initiative would be to institute a quality review process for strategic plans and action plans to ensure that current committee names are used in these documents. Strategic plans and action plans reviewed for this project sometimes referenced older or incomplete committee names or names of non-existent committees (e.g. “Committee on Bridges and Pavements”, “Committee on Data”). Some plans mistakenly referenced coordination with the Committee on Planning rather than the Committee on Performance-Based Management for asset management-related activities (since asset management was formerly under the Standing Committee on Planning).

Improving Consistency of AASHTO Strategic Plans and Action Plans

Committee strategic plans and action plans reviewed for this project all contained goals, strategies and actions/tasks, but varied substantially with respect to content and level of specificity. Some included detail on the substantive topics of interest (e.g. work zone safety, use of drones, etc.) while others focused almost exclusively on committee processes (e.g. collaboration, professional development, conference planning, etc.) and didn’t cover the committee’s interests. In addition, some committees were highly specific in identifying collaboration opportunities whereas others were quite general, referencing the need to collaborate with “all committees” or “all relevant committees.” This made it challenging to use these documents to ascertain common interests across committees.

AASHTO is currently working to align committee planning processes with their new organization-wide strategic plan to better track progress and take advantage of opportunities for collaboration. Encouraging committees to be substantive with respect to topics of concern in their strategic plan and action plan updates would improve the value of these plans for enhancing collaboration and synergistic efforts.

Using Project Results to Enhance the TRT

In conjunction with identifying topics of common interest, this project noted variations in terminology and compiled lists of synonyms for each common interest topic. Information gathered on terminology may be useful to ongoing efforts by TRB and others to compile standardized terminology to support indexing and retrieval of information resources. To support such efforts, Appendix D presents the common interest topic and their synonyms, mapped to terms in the TRT. Information in this Appendix can be reviewed by TRB staff and others involved in updating the TRT as they consider future expansion and modification to terminology.

3. Methodology for Identifying Common Interests

Overview

A list of AASHTO committee common interests was developed using the following process:

1. Compilation and review of resources for each committee – including charters, strategic plans, and action plans
2. Manual synthesis to identify topics of interest to multiple committees
3. Development of a framework for categorizing common interests – and preparation of an initial draft list of common interests
4. Compilation of supplemental resources for each committee and application of text analysis techniques on committee documents to extract keywords/phrases and identify topics
5. Updates to the initial framework and common interest list based on the results of the text analysis and review of supplemental resources.
6. Review and validation of the common interests by AASHTO committee staff liaisons.

Compilation and Review of Resources

AASHTO provided copies of charters, strategic plans and action plans for each committee, as well as a listing of AASHTO technical services programs, contracts and cooperative agreements. In addition, the research team reviewed committee websites.

- **Charters** – contain the committee’s official name and purpose and describe its membership, structure and operating rules. Most charters were dated 2018.
- **Strategic Plans** – include the committee’s goals and associated strategies. Some plans also include implementation actions. Strategic Plans were dated 2018 or 2019.
- **Action Plans** – include a list of tasks that the committee intends to accomplish within a one-year timeframe, organized by committee goal/strategy. Each task has a brief description, and may also have assigned responsibilities, coordinating committees/councils, due date, comments and associated AASHTO goals. All of the Action Plans were dated 2020.
- **AASHTO Programs** – this catalog from 2015 described Technical Services Programs, Contracts and Cooperative Agreements and their associated committees.

- **Web Pages** – each committee has a web site. Committee web sites vary widely with respect to the type, amount and degree of current-ness of content. Many committees maintain links to recent conference agendas and presentations, as well as separate pages for each of their subcommittees.

Creation of AASHTO Committee Summaries

Following the review of these resources, the research team compiled a summary of each committee’s interests and activities. These summaries, provided in Appendix A, include:

- The committee name and purpose statement from the Charter.
- A list of subcommittees (and other sub-groups) from the Charter (focusing on those that are based on substantive topics, as opposed to operational functions like research). In some cases, additional subcommittees or work groups not listed in the Charter were identified from web pages or the other documents.
- A list of substantive committee interest topics, based primarily on the purpose statement and list of subcommittees from the charter; and the goals, strategies and actions from the Strategic Plans and Action Plans. Where the Strategic Plans and Action Plans were too generic to obtain a substantive understanding of committee interests, additional review was conducted of the committee web pages and recent conference presentations to identify topics of interest.
- A list of collaborations with other committees, based on the Action Plan entries that named one or more specific committees in the “coordinating committees/councils” column for tasks.
- Related AASHTO TSPs/Centers of Excellence, based on the 2015 catalog (which required mapping the old committees to the current committee structure), as well as the Strategic Plans and Action Plans noting activities related to these programs/centers.
- External Partners/Stakeholders, based on specific mentions of organizations within Action Plans. This information was included because it may be instructive to examine stakeholders that are common to multiple committees.

Synthesis of Common Interest Topics

The compilations of committee information were used to identify topics that were of interest to more than one committee. These were based on the collaborative activities included in the action plans, the existence of joint committees, and references to identical or similar topics in multiple plans.

Development of a Framework for Categorizing Common Interests

Based on the initial list of topics, an organizing framework was created. Then, the topics were categorized according to the framework, and variations in terminology used across committees were identified. The framework is documented in Chapter 4 and Appendix C.

Supplemental Resource Compilation

Additional resources were gathered to supplement the charters, strategic plans and action plans. These additional resources included:

- Research problem statements submitted to the NCHRP program for years 2018-2020 that were sponsored by one or more AASHTO committees.
- AASHTO committee annual conference agendas for 2018-2020, limited to those posted on committee websites. Where possible, agendas for conferences sponsored by more than one committee were split into individual committee-specific files. Agendas that could not be split by committee were not used for text analysis, but were manually reviewed to identify additional common interest topics.

Text Analysis

We created a series of text files for each committee from its associated documents: the purpose and subgroup information from charters, full text of strategic and action plans, full text of applicable NCHRP research problem statements and full text of committee annual conference agendas. Problem statements sponsored by multiple committees were included for each of their associated committees for purposes of analyzing term frequencies for individual committees. These text files were used as the input for two types of text analysis: keyword extraction and topic modeling.

Keyword Extraction. Natural Language Processing (NLP) methods to identify the most frequently used words for each committee and the terms that were common to multiple committees. The terms common to multiple committees were mapped to the initial framework categories and were used to augment lists of synonyms and related terms for each of the common interest framework categories.

Topic Modeling. A topic modeling technique called Latent Dirichlet Allocation (LDA) was used to discover topics included within the collection of committee documents. LDA looks at the patterns of words and phrases appearing in the documents, and creates clusters that best describe the content of the documents.

Appendix B provides further details on the methodology and results of the text analysis.

Updates to the Framework and Common Interests

The framework and initial common interests list were refined to reflect the results of the text analysis and review of supplemental resources.

Review and Validation of Common Interests

The results were made available to the AASHTO Committee staff liaisons, who were asked to review the common interests assigned to their committees and make modifications as appropriate. Staff responsible for the following eight committees provided feedback:

- Active Transportation Council
- Committee on Construction
- Committee on Materials and Pavements
- Committee on Right of Way, Utilities and Outdoor Advertising Control
- Committee on Safety
- Committee on Funding and Finance
- Committee on Knowledge Management
- Committee on Data Management and Analytics

This feedback resulted in associating these committees to additional common interests. It also resulted in addition of several additional common interests.

4. Common Interests Across AASHTO Committees

Overview

This chapter presents an analysis of the common interests that were identified through the methodology described in Chapter 3. This information highlights key areas for collaboration across committees.

AASHTO Common Interests Framework

A framework for categorizing common interests of AASHTO committees was created to provide a logical structure that allows for new topics to be added as they are identified. The framework also will allow for AASHTO committee members and others to navigate the list and find topics of interest. The framework consists of a 2-level hierarchy. The first level consists of *facets* - different ways of categorizing topics. These were selected based on the observation that common interests are typically based on one or more of the following:

- Transportation modes (e.g., highways, rail) or user classes (e.g., pedestrians and bicyclists)
- Transportation assets (e.g., pavement, highway lighting)
- Transportation development and delivery processes (e.g., planning, design, construction, maintenance, operations)
- Concerns (e.g., safety, mobility)
- Enabling Disciplines (e.g., performance management, workforce management)
- Innovations/Emergent practices (e.g., connected and automated vehicles, drones)

Note that transportation modes and users are two distinct concepts combined into a single facet for simplicity.

The second level identifies categories within each facet. These categories are intended to cover the *common interests* that may be identified; they are not intended to be all-encompassing of the interests of each AASHTO committee. Framework facets and categories are shown below.

Transportation Modes and Users

- Multimodal Transportation System (General)
- Highway and Street Transportation

- Rail Transportation
- Public Transportation
- Water Transportation
- Air Transportation
- Active Transportation
- Freight Transportation

Transportation Assets

- Transportation Assets (General/Other)
- Pavement
- Bridges and Structures
- Traffic and Safety Assets
- Operations/Telecommunications Assets
- Drainage Assets
- Geotechnical Assets
- Transit/Rail Assets

Transportation Development and Delivery

- Transportation Development & Delivery (General)
- Planning
- Design
- Traffic Engineering
- Construction
- Maintenance
- Operations
- Contracting/Procurement

Enabling Disciplines

- Performance Management
- Asset Management
- Right of Way/Utility Management
- Data Management, Modeling & Analysis
- Communication and Collaboration
- Knowledge Management
- Research Management
- Workforce Management & Development
- Risk Management
- Project Management
- Standardization

Concerns

- Safety
- Environmental Sustainability and Stewardship
- Diversity/Equity/Inclusion
- Security/Risk/Resilience
- Climate Adaptation
- Funding & Finance
- Policy & Regulation

Innovations/Emergent Practice

- Technology Advancement/Innovation (General)
- Connected and Automated Vehicles (CAV)
- Data Analytics/Artificial Intelligence
- Unmanned Aerial Systems (UAS)
- Smart Mobility (including Mobility as a Service, Mobility on Demand)
- Electric Vehicles/Alternative Fuels
- Building Information Modeling (BIM) for Infrastructure
- Construction Technology
- Advanced Materials

Common Interests

A total of 74 topics of interest to two or more AASHTO committees were identified across the six framework facets. These topics are illustrated below in Figure 2; Appendix C shows the common interests associated with each facet and category. The Common Interests Spreadsheet, provided as a companion product shows the committees associated with each common interest topic. The common interests can be explored further using the visualization tool available at: <https://common-committee-interests.herokuapp.com/>.

Modes & Users	Transportation Assets	Enabling Disciplines
<ul style="list-style-type: none"> • Multimodal transportation • Border crossings • Multi-agency joint procurements (Transit) • Railroad grade crossings • Railroad agreements • Ferry systems • Environmental impacts of firefighting foams (PFAS) • Active transportation facility design • Active transportation data • Active transportation safety • Freight mobility • Truck Parking 	<ul style="list-style-type: none"> • Pavement management • Bridge management • Scour protection • Historic bridges • Ancillary structures • Accelerated Bridge Construction • Guardrails • Roadway lighting • Traffic signals • Operations/Telecomm. Assets • Drainage structures • Geotechnical assets • Public transportation facility design 	<ul style="list-style-type: none"> • Transportation performance measurement and management • Agency performance measurement and management • Transit asset management • Highway asset management • Communications infrastructure in Highway ROW • Utility accommodation • Data governance • Geographic information systems • Communicating value of transportation investments • Communicating asset condition and performance • Community engagement/public participation • Knowledge management • Technology transfer • Workforce development and succession planning • Risk management • Standards & guidance development • Data analysis • Employee safety
Transportation Development & Delivery	Concerns	Innovation/Emergent Practice
<ul style="list-style-type: none"> • Project delivery streamlining • Practical design • Travel demand management • Barrier-free design • Construction materials • Winter maintenance • Road weather management • Traffic incident management • Harmonizing freight regulations across states • Alternative contracting methods • Long-range planning • Speed management 	<ul style="list-style-type: none"> • Roadside safety • Work zone safety • Data-driven safety analysis • Transportation and health • Environmental stewardship • Congestion mitigation and air quality (CMAQ) • Diversity/equity/inclusion • Weather and Climate • Sustainable Transportation Funding/Reauthorization 	<ul style="list-style-type: none"> • Impacts of digitalization • Connected and Automated Vehicles • Big Data Analytics • Drones • Urban Air Mobility (UAM) • Shared Mobility • Electric Vehicles • BIM for Infrastructure/ Civil Integrated Management • eConstruction • Automated machine guidance (AMG)

Figure 2. Common Interests of AASHTO Committees

Distribution of Common Interests Across Committees

Figure 3 shows the number of committees that are associated with each of the 76 common interests. About a third of the 76 common interest topics (26 topics or 34% of the total) are shared by 2-3 committees only. An additional 28 topics (37% of the total) are shared by 4-5 committees. Twenty two of the 76 common interest topics (29% of the total) are shared by 6 or more committees.

The three most popular topics were: Workforce Development and Succession Planning, Connected and Automated Vehicles, and Drones – shared by 13-17 committees each.

Figures 4 through 6 show the committees interested in these three topics.

The next cluster of nine topics were shared by 8-10 committees:

- Standards and Guidance Development
- Transportation Performance Measurement and Management
- Project Delivery Streamlining
- Communicating the Value of Transportation Investments
- Work Zone Safety
- Risk Management
- Sustainable Transportation Funding/Reauthorization
- Diversity/Equity/Inclusion
- Environmental Stewardship

Committees with Each Common Interest

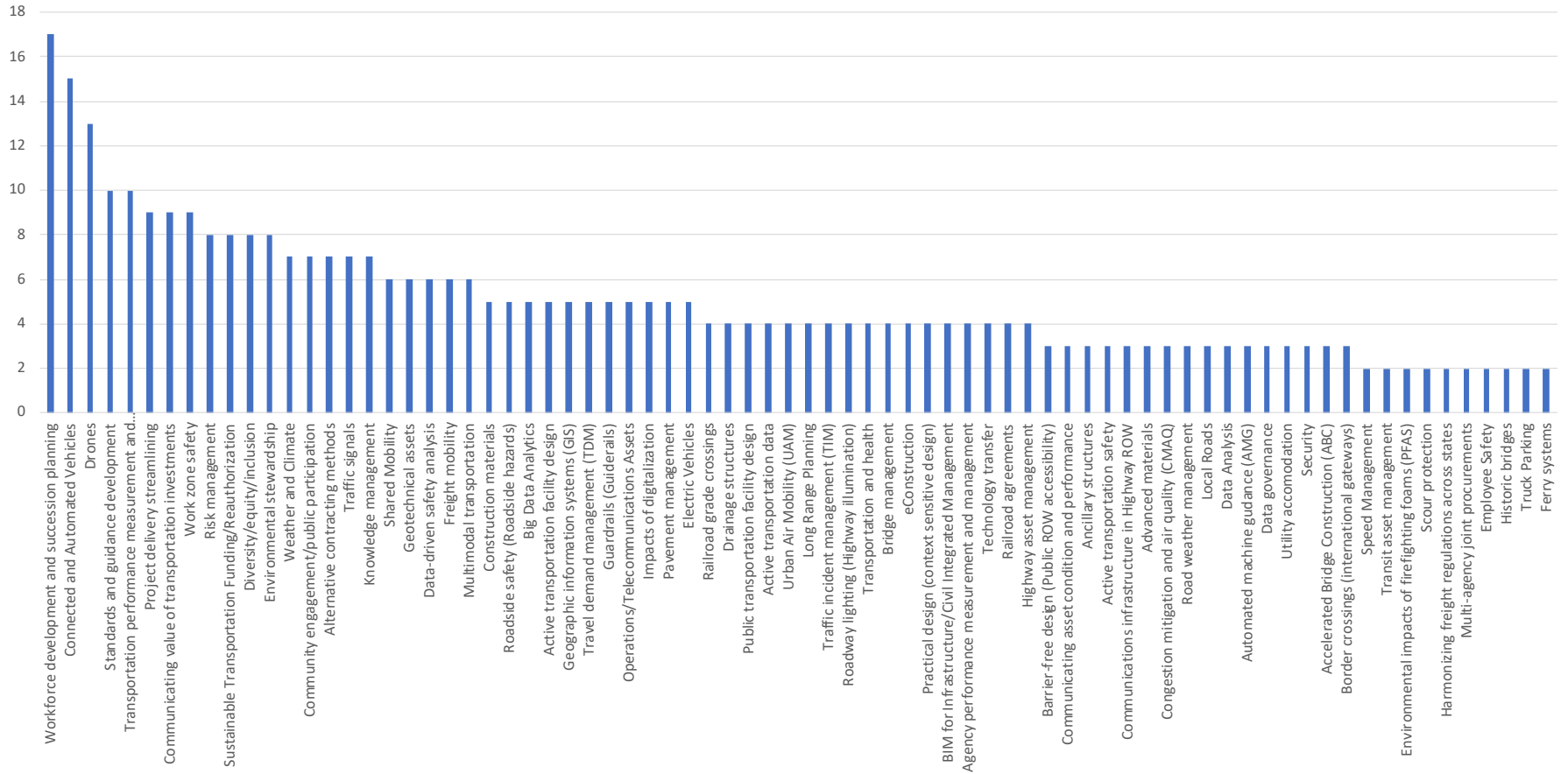


Figure 3. Number of Committees with Each Common Interest

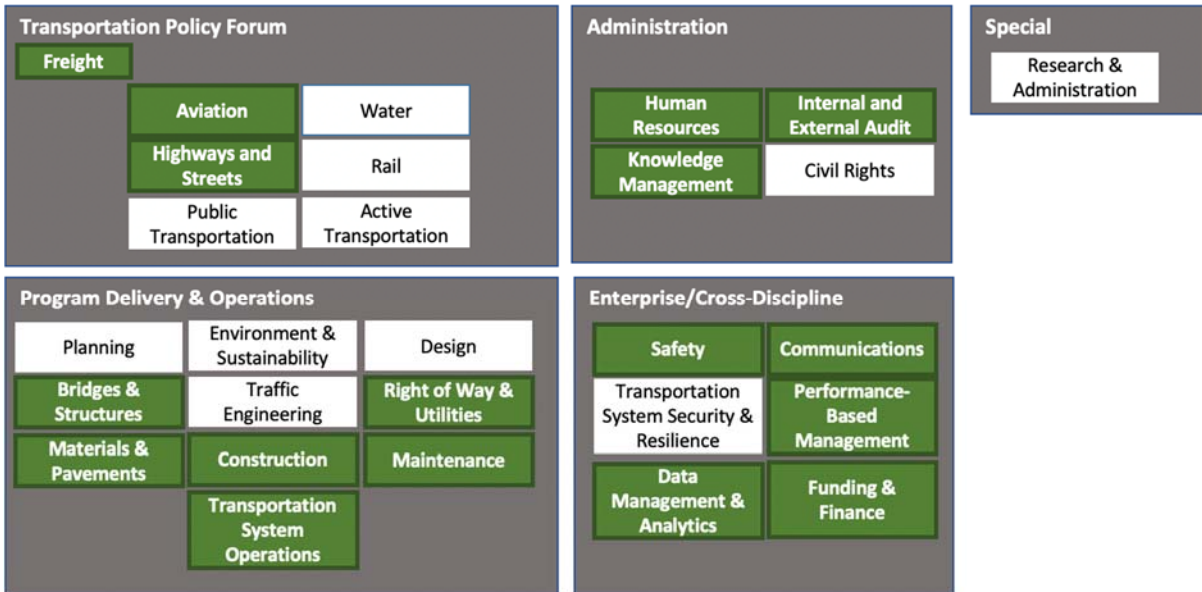


Figure 4. Committees interested in Workforce and Succession Planning

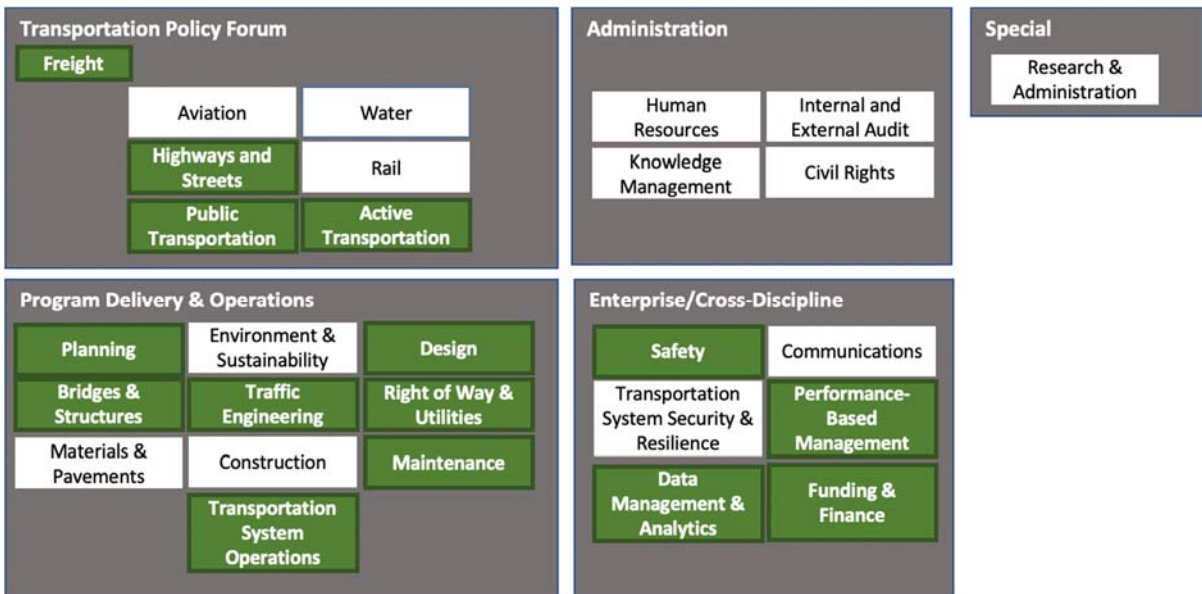


Figure 5. Committees interested in Connected and Automated Vehicles (CAVs)

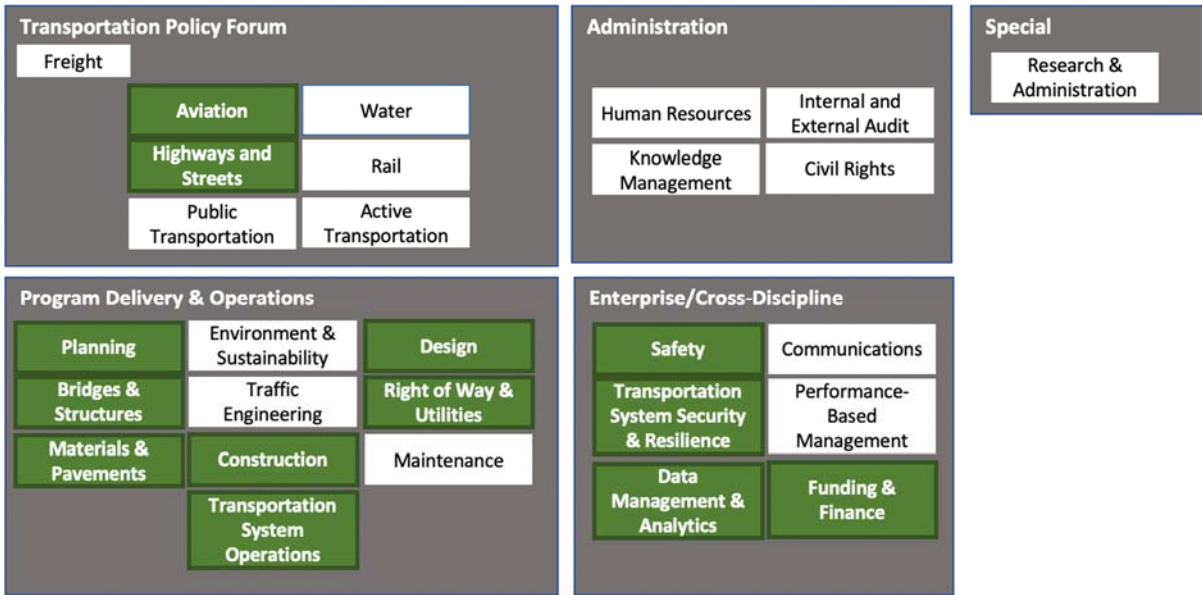


Figure 6. Committees interested in Drones

5. Common Interests Products

Overview

This project yielded several products that can be used together to support future AASHTO committee coordination and collaboration. These products are listed in Table 1 and described below.

Table 1. AASHTO Common Interests Products

Product	Description
AASHTO Committee Summaries	Summaries of each Committee’s scope and interests (Appendix A)
AASHTO Common Interests Spreadsheet	An accompanying spreadsheet containing: <ul style="list-style-type: none">• The common interest framework of facets and categories, including associated keywords/related terms• Mapping of the framework categories to related AASHTO Strategic Plan Goals and Strategies• A list of AASHTO Committees associated with each common interest• A list of subgroups (e.g. joint technical committees) and Technical Service Programs (TSPs) associated with each common interest• Transportation Research Thesaurus terms associated with each common interest
Common Interests Validation Tool	A spreadsheet tool that AASHTO Committees can use to validate and update the common interests assigned to them.

Product	Description
Common Interests Visualization Tool	A tool that allows people to explore the common interests results – showing the common interests for a given committee, and the committees associated with a given common interest topic.

Each of these products is described further below.

Individual AASHTO Committee Summaries

These are summaries of each AASHTO Council/Committee’s scope, subgroups, topics of interest, and collaborations. This information was compiled from charters, strategic plans, action plans, and committee web sites.

AASHTO Common Interests Spreadsheet

This spreadsheet contains several tabs:

- **Framework X AASHTO SP.** This tab shows the framework facets and categories, and maps each framework category to the goals and strategies of the AASHTO Strategic Plan. This mapping was done to support current and ongoing efforts to ensure that Committee action plans include coordinated activities for accomplishing the goals and strategies in the AASHTO strategic plan.
- **Committees.** This tab lists each AASHTO committee included in the common interest analysis, along with their assigned abbreviations.
- **Common Interests.** This tab lists the common interest topics associated with each framework category and the committees interested in each topic. It also lists related subgroups and TSPs. Because different committees use varying terminology to describe the same topic, framework categories were annotated with an associated list of keywords and related terms. Where there were commonly used synonyms for topics that varied from the terms listed for framework categories, they were incorporated into the title of the topic, using parentheses. In addition, for each common interest topic, the most closely associated term(s) from the Transportation Research Thesaurus (TRT) is included. Where the name of the topic does not match the TRT preferred term, a comment is included to explain why the TRT preferred term was not selected.
- **Nodes and Committee X Interest.** These tabs organize the framework elements and committee interests information into a form required for input to the visualization tool.

Common Interests Spreadsheet Validation Tool

This is a spreadsheet designed to allow each Committee to review, validate and update their common interests – and to annotate each topic with a description of their committee’s specific related interests. For example, “drones” might be a common interest of both the Council on Aviation and the Committee on Bridges and Structures. The Council on Aviation might annotate this common interest to say they are primarily interest in regulatory and safety aspects whereas the Committee on Bridges and Structures might say they are interested in use of drones for inspections.

Once each Committee updates their information in this spreadsheet, the updated common interests can be used to refresh the master data source used by the visualization tool.

Common Interests Visualization Tool

This tool can be used to explore the common interests results. It includes two views – one showing the common interests for a given committee, and a second showing the committees associated with a given common interest topic. Instructions on using this tool are as follows:

1. **Access the Tool.** In any browser, go to: <https://common-committee-interests.herokuapp.com/>
2. **Select Committee or Interest View.** Use the toggle at the top of the screen to select either a view starting with AASHTO committees, or a view starting with common interests of committees. The different views should be used based on what you’d like to search for (e.g., someone hoping to find the committees that are interested in a specific topic would choose the Interest view).
3. **Select a Category.** Select a category of committee or category of interest on the left. (These are color-coded using a key that you can find in the bottom right-hand corner of the screen.) The view will expand to show the committees or topics associated with that category.
4. **Select a Committee or Common Interest Topic.** Select a committee or common interest topic:
 - a. If you select a committee, the view will expand to show the interests associated with that committee.
 - b. If you select a common interest topic, the view will expand to show the committees with that interest.
 - c. You can then click on the interests or committees that appear to see their connections.

5. Explore the Common Interests.

- a. Click again to de-select a box.
- b. Hover over a box to see a classification of the committee or the common interest.

Some connectors appear as thicker lines. You can hover over these to see more information about the committee's specific interests related to the common interest topic. Note that the committee specific interests were not fully populated as part of this effort. Illustrative entries were created for the Council on Active Transportation, and some of the AASHTO staff liaisons added entries as part of the validation process.

6. Using and Maintaining the Common Interests Products

Uses of the Common Interests Products

The Common Interests Products described in Chapter 5 can be used for a variety of purposes to facilitate coordination and collaboration across committees and to adjust or align individual committee scopes over time. A better understanding of committee interests and connections could help inform AASHTO Emphasis Areas, identify strengths and gaps in topic coverage, clarify committee roles, and support cross committee work such as review and comment on policies, briefing papers, standards, and research problem statements.

Four illustrative example applications are shown in Table 2 and described below. These examples cover three user types:

1. The AASHTO Strategic Management Committee
2. AASHTO Staff providing Committee support/liaison functions and
3. Members of AASHTO Committees (including Steering Committee members)

Two examples are provided for Committee members – one related to strategic and action planning, and a second related to new members wishing to establish communication with members of related AASHTO committees that work in their agency.

Table 2. Uses of the AASHTO Common Interests Products

Who	Context	Purpose	Example
AASHTO Strategic Management Committee	AASHTO Strategic Plan Implementation	Identify collaborative efforts aligned with the AASHTO Strategic Plan and reflect these efforts in committee action plans	1
AASHTO Staff	Review proposal for new joint technical committee and recommend action	Identify committees interested in the topic and review their past and current activities; evaluation collaboration needs and options	2

Who	Context	Purpose	Example
AASHTO Committee Members	Strategic and Action Plan Updates	Find other committees interested in a topic to identify and further discuss specific areas of collaboration	3
AASHTO Committee Members	Onboarding to the new committee and coordination within member’s agency	Find other committees with interests overlapping mine and identify members that work for my agency to guide future outreach and coordination activities	4

Example 1

This example illustrates steps that the AASHTO Strategic Management Committee might take to align committee action plans with the AASHTO Strategic Plan. One topic area – Diversity, Equity and Inclusion (DEI) was selected for this example since it is relevant to multiple goals and strategies of the Strategic Plan.

Step 1: Identify AASHTO Goals and Strategies related to DEI – use the Framework X AASHTO SP Tab of the Common Interests spreadsheet.

- Goal 1: Safety, Mobility and Access for Everyone
 - Goal 1.2: Connect community, economy, land use and the environment
 - Goal 1.3: Advance equity and social justice
- Strategy 1: Policy, Implementation and Research
 - Strategy 1.4: Develop policies and provide resources that support ensuring access to transportation systems for everyone
 - Strategy 1.8: Be intentionally inclusive as transportation policies are formed
- Strategy 2: Partnerships and Collaboration
 - Strategy 2.2: Collaborate to support equity and social justice objectives
- Strategy 3: Workforce Development
 - Strategy 3.8: Increase diversity, equity and inclusion
- Strategy 4: Member Engagement
 - Strategy 4.4: Support diversity and succession management in committee leadership
 - Strategy 5.3: Promote diversity in all activities

Step 2: Identify committees with common interests related to the DEI framework element – use the Common Interests tab of the spreadsheet.

- There is a single common interest identified for this framework element – Diversity, Equity and Inclusion. Five committees have this interest. Their specific areas of interest related to this topic are:
 - Freight – social equity issues related to freight; community impacts of freight transportation
 - Environment and Sustainability – inclusive community engagement, environmental justice, social equity
 - Civil Rights – workforce diversity and inclusion, implementation of disadvantaged business enterprise (DBE) and Americans with Disabilities Act (ADA) laws, policy and guidance
 - Human Resources – recruiting, hiring and workforce management practices supporting diversity and inclusion
 - Knowledge Management – promoting inclusive engagement and collaboration, multilingual information search and navigation
 - The Joint Task Force on the Impacts of Digitalization is considering equity and inclusion issues (Including engagement with external stakeholders) from the lens of agency adaptation to increased digitalization.

Step 3: Identify collaborative actions to advance the Goals and Strategies through engagement of relevant committees.

- Strategy 2: Partnerships and Collaboration – engage committees interested in DEI from the perspective of transportation system development and management: Committee on Freight, Committee on Environment and Sustainability
- Strategy 3: Workforce Development – engage committees interested in DEI from the perspective of individual transportation agencies: Committee on Civil Rights, Committee on Human Resources, Committee on Knowledge Management, Joint Task Force on the Impacts of Digitalization
- Strategy 4: Member Engagement –potentially all committees could be engaged in this strategy given its internal AASHTO focus – but the same committees to be engaged in Strategy 3 would likely be well-positioned to suggest actions.
- Communicating value of transportation
- Innovations/Emergent practices
- Workforce capabilities

Example 2

This example describes steps that might be taken by AASHTO Staff to review a proposal for a new Joint Technical Committee on Workforce Development and determine what actions (if any) to recommend.

Step 1: Identify committees with an interest in workforce development & succession planning– use the Common Interests tab of the spreadsheet

- Human Resources
- Knowledge Management
- Aviation
- Highways and Streets
- Bridges and Structures
- Safety
- Construction
- Maintenance
- Transportation System Operations
- Transportation Communications
- Performance-Based Management
- Data Management & Analytics
- Funding & Finance
- Internal & External Audit

Step 2: Convene a meeting of interested committees to review prior and ongoing objectives, activities and points of collaboration:

- Several NCHRP studies on evolving workforce needs for different types of professionals/practitioners – planners, traffic engineers, data scientists, right-of-way professionals, auditors, etc.
- TC3 training program
- National Operations Center of Excellence with position descriptions
- etc.

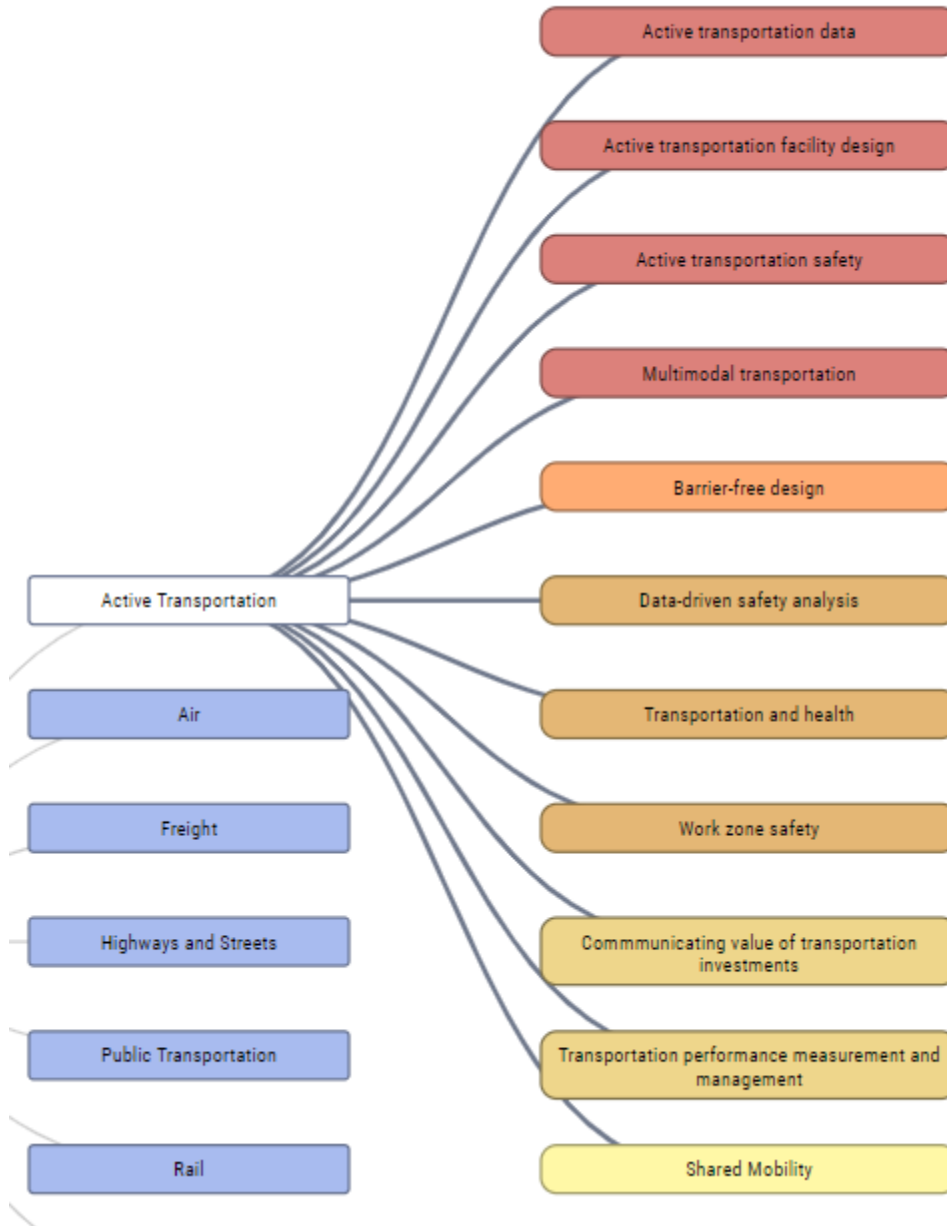
Step 3: Assess needs and options for collaboration/coordination

- Note strengths and opportunities
- Designate a lead committee to serve a coordination function (e.g., Human Resources or Agency Administration)
- Conduct a synthesis of completed research to further identify common ground
- Establish a community of practice, joint committee or other work group on workforce development

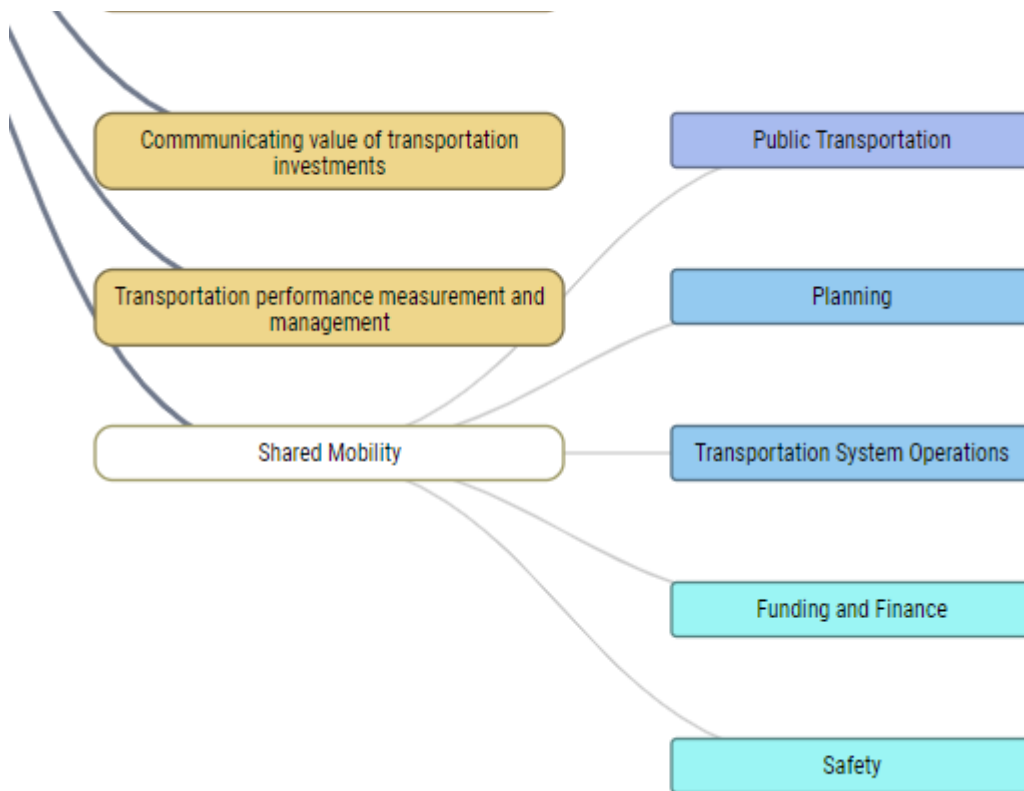
Example 3

This example illustrates steps that might be taken by the AASHTO Council on Active Transportation (CAT) to identify possible collaborative activities as part of developing their next annual action plan.

Step 1: Use the visualization tool to view the common interests held by the Council on Active Transportation:



Step 2: Use the visualization tool to Identify other committees with an interest in Shared Mobility:



Step 3: Review the Public Transportation, Planning, Transportation System Operations, Funding and Finance and Safety committee summaries to narrow down the list of potential collaborators.

Step 4: Contact potential collaborators to discuss potential collaborative actions.

Example 4

This example illustrates steps that might be taken by a new member of the Council on Active Transportation to understand the role of the Council in relation to other AASHTO Committees, and identify individuals in his/her agency on Committees with related interests.

Step 1: Use the visualization tool to identify the common interests held by the Council on Active Transportation.

Step 2: Use the visualization tool to Identify other committees sharing these interests.

Step 3: Identify members of related committees that work for my agency

- Highways & Streets - <name>
- Public Transportation- <name>

- Rail- <name>
- Water- <name>
- Planning - <name>
- Design - <name>
- Traffic Engineering - <name>
- Construction - <name>
- Transportation System Operations - <name>
- Right-of Way, Utilities & Outdoor Advertising Control - <name>
- Safety - <name>
- Data Management & Analytics - <name>

Step 4: Set up email list(s) and send out initial email letting people know of your new appointment and your interest in sharing information and collaboration. Use the email list(s) for ongoing outreach on topics of common interest.

Maintenance of the Common Interest Products

The Common Interests Products will require regular updates to retain their value. Table 3 summarizes the types of updates that will be needed for each product.

Table 3. Maintenance of the Common Interests Products

Product	What	Who	When
AASHTO Committee Summaries	Update Committee Purpose, Subgroups, Topics of Interest, Collaborations, and Stakeholders	AASHTO Staff Liaison working with Committee leadership	Annual - After any updates to Charter, Strategic Plan, Action Plan
AASHTO Common Interests Spreadsheet – Framework X SP Tab and Common Interest Tabs	Create new framework categories to reflect emerging interests Add new keywords/related terms as needed	AASHTO Staff – Information Resource Manager or Common Interests Steward Role	Annual review following Committee Summary and Common Interests by Committee updates New keywords may be added at any time based on the request of a Committee representative

Product	What	Who	When
Common Interests Spreadsheet - Common Interests Tab (master list of common interests)	Add new common interests Modify the titles of existing common interests Delete existing common interests	AASHTO Staff – Common Interests Steward Role	Annual update following Common Interests by Committee and Common Interests Framework updates Other updates may be made at any time based on the request of a Committee representative
Common Interests Spreadsheet - Common Interests Tab (assignment of common interests to committees)	Update descriptions of specific Committee interests Add or delete Common Interests	AASHTO Staff Liaison working with Committee leadership	Annual - After any updates to Charter, Strategic Plan, Action Plan

The following activities are recommended to keep the Common Interests Products current so that they can continue to add value:

- Communicate to AASHTO staff and committee members about the purpose and value of the Common Interests Products and how they can be used;
- Designate an AASHTO staff person to be the steward of the Common Interests Products and manage the update process;
- Consider involving the AASHTO Information Resources Manager in maintaining the Common Interests Framework and associated keywords/related terms;
- Post the Common Interests Products on the AASHTO website where they can be viewed and downloaded;
- Establish a mechanism by which Committee members or AASHTO staff members can submit suggested modifications to framework categories, individual Committee interests, or common interests during the year – separate from the annual review

and update process. Actual updates would be managed by the AASHTO Common Interests Product Steward.

- Conduct an annual review of the framework and common interests list, coordinated with the annual action plan update process – this review would consist of two stages:
 - First, the AASHTO Common Interests Product Steward updates the Framework and the List of Common Interests based on input received throughout the year and awareness of new, emerging topic areas.
 - Second, a representative of each Committee (can be the AASHTO staff liaison, the Committee chair, or another designated Committee member) updates their individual committee summary and list of common interests.
 - Third, the AASHTO Common Interests Product Steward updates the source file for the Common Interests Visualization Tool.

Future Enhancements

The following further enhancements can be considered to expand the value of the Common Interests Products:

- Expand to include the interests of selected active subcommittees, joint committees/task forces, Communities of Practice and potentially, AASHTO Technical Services Programs and Centers of Excellence.
- Add points of contact for each committee and topic area and make these points of contacts available in the Common Interests Spreadsheet and visualization tool
- Following an initial period of use, consider conversion of the Common Interests Products to a web-based format to improve ease of access and use and enable individual Committees to update their own interests.
- Refine the visualization tool produced as part of this project based on feedback from initial review and use.
- Add capabilities to calculate metrics that describe the degree of overlap in interests across committees and the degree of affinity between pairs of committees.
- Extend the framework and list of common interests to build a more comprehensive taxonomy/ontology representing each committee's topics of interest, and integrate this product into search engines used to navigate and discover resources on AASHTO's website.

Appendix A: AASHTO Committee Descriptions

Overview

This appendix synthesizes information about AASHTO Councils and Committees for the purposes of identifying topics of shared interest across different groups. This information was compiled from charters, strategic plans, action plans, and committee web sites. The following committees/councils were included in this synthesis:

- Council on Active Transportation
- Council on Aviation
- Council on Highways and Streets
- Council on Public Transportation
- Council on Rail
- Council on Water
- Special Committee on Freight
- Committee on Planning
- Committee on Environment and Sustainability
- Committee on Design
- Committee on Bridges and Structures
- Committee on Traffic Engineering
- Committee on Right of Way, Utilities, and Outdoor Advertising Control
- Committee on Materials and Pavements
- Committee on Construction
- Committee on Maintenance
- Committee on Transportation System Operations
- Committee on Safety
- Committee on Transportation Communications
- Committee on Transportation System Security and Resilience
- Committee on Performance-Based Management
- Committee on Data Management and Analytics
- Committee on Funding and Finance

- Committee on Human Resources
- Committee on Internal and External Audit
- Committee on Knowledge Management
- Committee on Civil Rights
- Special Committee on Research and Innovation

Council on Active Transportation

Purpose

The Council on Active Transportation shall address issues related to bicyclist, pedestrian, and other active transportation modes, including non-motorized access to the multimodal network. The Council shall provide input on related policy issues and cross-cutting/multimodal issues to the Transportation Policy Forum. The Council shall provide direction and assignments to the committees related to active transportation, and review and approve applicable technical documents on behalf of the association.

The Council shall promote and encourage technology and knowledge transfer by member states, and shall make recommendations regarding needed research. The Council shall review and provide input on proposed federal policies of national concern, and identify key policy areas for review and discussion by the Transportation Policy Forum

Topical Subgroups

- Connected and Automated Vehicles Working Group (participant)

Substantive Topics

- Pedestrian and bicyclist safety
- Communicating the value of active transportation to the transportation system, the environment and communities
- Collecting, managing, analyzing and monitoring pedestrian and bicyclist data related to safety, mobility, cost, facilities and system utilization
 - NCHRP synthesis proposal: active transportation data sources, collection methods and gaps
- Inclusion of active transportation in transportation program and project development and delivery
- New technologies that may impact active transportation: automated vehicles, connected vehicles, electric bicycles, bike share, personal mobility devices, mobility as a service (MaaS), smart phone apps, drones
- Capacity building, training and knowledge sharing related to active transportation for planners, engineers, and other transportation practitioners

Collaborations (Current or Planned)

- **Planning** – support Multimodal Task Force, identify gaps that prevent people from accessing a complete, connected network for walking and bicycling.
- **Communications** - messaging, branding, and communicating the value of active transportation
- **Safety, Committee on Data Management and Analytics** - tools and resources to assist State, regional, and Federal agencies to monitor and report active transportation safety information
- **Highways and Streets, Design** – updates to Green Book, Low Volume Roads Book, Bicycle and Pedestrian Guide
- **Safety** – updates to Highway Safety Manual
- **Environment and Sustainability** – health and transportation
- **Design** – work with Joint Technical Committee on Non-Motorized Transportation
- **Center for Environmental Excellence** – peer exchange on active transportation safety

Related AASHTO TSPs/Centers of Excellence

- Center for Environmental Excellence (CEE)

External Partners/Stakeholders

- State Pedestrian and Bicycle Coordinators (and local/MPO partners)

Links

- [Active Transportation Council Webpage](#)
- [Active Transportation Council Charter 2018](#)
- [Active Transportation Council Strategic Plan 2018 Approved](#)

Council on Aviation

Purpose

The Council on Aviation shall discuss and recommend policies related to aviation legislation and regulation, and coordinate the efforts of the National Association of State Aviation Officials (NASAO) and AASHTO on joint aviation policy matters. The Council shall review aviation policy obtained from NASAO; suggest aviation policy for NASAO's consideration; and recommend aviation policy to AASHTO's Transportation Policy Forum. The Council shall operate as a forum to exchange information, identify aviation issues of national concern, including regulatory mandates, and provide information to members on these important issues. The Council shall review and ballot technical documents as assigned by the Transportation Policy Forum and provide direction and assignments to committees on aviation issues.

Topical Subgroups

- Unmanned Aerial Systems and Urban Air Mobility (UAS/UAM) Working Group

Substantive Topics

- Advancing aviation as part of an integrated multimodal transportation system
- Unmanned Aerial Systems (UAS)/Drones policy

Collaborations (Current or Planned)

- **Communications** – Impacts of general aviation on state & local economies report
- **Environment and Sustainability, Bridges and Structures, Operations, Maintenance and Construction** - UAS (drones) user work group
- **Funding and Finance** – state block grants program guidance, airport and airway trust fund
- **Environment and Sustainability** - AIP eligibility for new firefighting equipment (Foam)
- **Materials and Pavements** – pavement design
- **Administration, Human Resources, Knowledge Management** – workforce development
- **Research & Innovation** - research

Related AASHTO TSPs/Centers of Excellence

- None

External Partners/Stakeholders

- Federal Aviation Administration (FAA)
- National Association of State Aviation Officials (NASAO)
- Association of General Contractors (AGC)
- American Road and Transportation Builders Association (ARTBA)
- Association (ARBTA)

Links

- [Aviation Council Charter](#)
- [Aviation Council Strategic Plan](#)
- [Aviation Council Webpage](#)

Council on Highways and Streets

Purpose

The Council on Highways and Streets shall address issues related to highway and street planning, design, construction, operation, and maintenance, and shall provide input on

related policy issues and cross-cutting/multimodal issues to the Transportation Policy Forum. The Council shall provide direction and assignments to the Committees on issues related to highways and streets. The Council will also review and ballot applicable technical documents on behalf of the association, including engineering standards and guides related to all phases of project delivery, maintenance, operations, safety, and materials. The Council shall promote and encourage technology and knowledge transfer by member states, and shall make recommendations regarding needed research. The Council shall review and provide input on proposed federal regulatory mandates of national concern, and identify key policy areas for review and discussion by the Transportation Policy Forum.

Topical Subgroups

- Electric Vehicles (EV) Working Group (lead) Connected and Automated Vehicles Working Group (participant)

Substantive Topics

- Highway and street planning, design, construction, operation, and maintenance
- Multimodal and cross-discipline collaboration
- Transportation safety
- Mobility – increasing physical and operational capacity
- Improving the national freight network
- Accelerated project delivery/streamlining
- Communicating value of transportation

Collaborations (Current or Planned)

- **Safety** – reducing injuries and fatalities
- **Safety, Active Transportation, Transportation Communications** – national safety messages
- **Active Transportation, Public Transportation Rail, Freight** – multimodal surface transportation system safety
- **Research and Innovation, AASHTO Innovation Initiative (All)** - research and use of technologies in addressing collision and fatality reduction
- **Performance-Based Management** – project delivery process streamlining
- **National Operations Center of Excellence** – facilitate dissemination of best practices for enhancing system operations
- **Freight** – improving freight mobility
- **Human Resources, Knowledge Management** – workforce development
- **Transportation Communications** – value of transportation
- **Active Transportation, Design, Bridges and Structures, Safety** – policies, procedures, technical standards, technical assistance programs

Related AASHTO TSPs/Centers of Excellence

- AASHTO Innovations Initiative (All)
- Transportation Curriculum Coordination Council (TC3)

External Partners/Stakeholders

- Associated General Contractors of America (AGC)
- American Road and Transportation Builders Association (ARTBA)
- American Council of Engineering Companies (ACEC)
- American Public Works Association (APWA)
- National Association of County Engineers (NACE).
- National LTAP Association

Links

- [Highways and Streets Council Charter 2018](#)
- [Highways and Streets Council Strategic Plan 2018 Approved](#)
- [Highways and Streets Council Webpage](#)

Council on Public Transportation

Purpose

The Council on Public Transportation shall provide expertise and leadership for advancing public transportation as a part of a multimodal transportation system. The Council shall develop policy recommendations related to all forms of passenger public transportation services, including rural, urban, regional and intercity bus, and travel demand management for consideration by the Transportation Policy Forum. The Council shall review and ballot technical documents as assigned by the Transportation Policy Forum and provide direction and assignments to committees on public transportation issues

Topical Subgroups

- Subcommittee on Safety
- Subcommittee on Policy
- Shared Mobility/Mobility as a Service/Mobility on Demand Inter-Committee Working Group (lead)
- Connected and Automated Vehicles Working Group (participant)

Substantive Topics

- Advancing public transportation as part of an integrated transportation system
- Multimodal transportation solutions
- Funding for public transportation
- Public transportation policy and regulation

- Multi-state/agency joint procurements
- Public transportation safety
- Transit asset management
- Rolling stock specifications

Collaborations (Current or Planned)

- **Planning, Rail, BATIC, Center for Environmental Excellence, National Operations Center of Excellence** – multimodal transportation

Related AASHTO TSPs/Centers of Excellence

- Multi-State Technical Assistance Program (MTAP)
- Center for Environmental Excellence (CEE)

External Partners/Stakeholders

- Federal Transit Administration (FTA)
- American Public Transit Association (APTA)
- Community Transportation Association of America (CTAA)
- Public transportation partners
- National RTAP
- Interagency Transportation Coordinating Council on Access and Mobility (CCAM)

Links

- [Public Transportation Council Charter 2018](#)
- [Public Transportation Council Strategic Plan 2018 Approved](#)
- [Public Transportation Council Webpage](#)

Council on Rail

Purpose

The Council on Rail Transportation shall provide a forum to discuss, recommend, and coordinate with rail stakeholders on freight, passenger, and commuter rail legislation and regulation. The Council shall comment and recommend freight and passenger (commuter, intercity, and high speed) rail policy considerations to the Transportation Policy Forum and disseminate information, tools, and technical assistance to members regarding freight and passenger mobility. The Council shall review and ballot technical documents as assigned by the Transportation Policy Forum and provide direction and assignments to committees on rail issues. The Council shall provide support for and coordinate with a variety of rail stakeholders. The Council on Rail Transportation shall coordinate with the Council on Public

Transportation on commuter rail issues related to funding and other public transportation-related topics.

Topical Subgroups

- Subcommittee on Safety
- Subcommittee on Policy

Substantive Topics

- Advancing rail as part of an integrated transportation system
- Multimodal transportation solutions
- Freight rail
- Passenger rail

Collaborations (Current or Planned)

- **Freight** – AASHTO Rail Resource Center, policy input
- **Various** – implementation of SHRP 2 R16: Railroad-DOT Institutional Mitigation Strategies

Related AASHTO TSPs/Centers of Excellence

- AASHTO Rail Resource Center (ARRC)

External Partners/Stakeholders

- Federal Railroad Administration (FRA)
- Association of American Railroads (AAR)
- American Short Line and Regional Railroad Association (ASLRRA)
- Amtrak
- American Public Transit Association (APTA)
- State-Amtrak Intercity Passenger Rail Committee (SAIPRC)
- States for Passenger Rail Coalition (S4PRC)
- Next Generation Corridor Equipment Committee (NGEC)

Links

- [Rail Transportation Council Charter 2018](#)
- [Rail Council Strategic Plan 2018 Approved](#)
- [Rail Council Webpage](#)

Council on Water

Purpose

The Council on Water Transportation shall develop policies for water transportation programs (ports, waterways, and associated facilities and services) for consideration by the Transportation Policy Forum (TPF), and shall provide technical expertise and management training for State water-related agencies. The Council shall address all policy, regulatory, safety and enforcement issues impacting the nation’s Coastal, Inland and Great Lakes waterways’ ability to move goods efficiently on the national freight transportation network. The Council shall encourage the development of the research necessary to reach identified priority goals. The Council shall operate as a forum to exchange information and identify water freight transportation issues of national concern.

Topical Subgroups

- Subcommittee on Policy
- Subcommittee on Rulemaking and Technical Services
- Subcommittee on Capacity Building and Education

Substantive Topics

- Advancing water transportation as part of an integrated multimodal transportation system
- Best practices for addressing Coastal, Inland, and Great Lakes waterways operations, funding, safety, and capacity needs
- National freight transportation network
- Water freight issues of national concern
- Workforce capacity building related to water transportation

Collaborations (Current or Planned)

- **Freight, Rail** – develop and implement effective multimodal research

Related AASHTO TSPs/Centers of Excellence

- None

External Partners/Stakeholders

- N/A

Links

- [Water Transportation Council Charter 2019](#)
- [Water Strategic Plan 2018 Approved](#)
- [Council on Water Webpage](#)

Special Committee on Freight

Purpose

The Special Committee on Freight shall develop policies related to legislation, regulation, and other policy matters related to the safe and reliable movement of goods for consideration by the Transportation Policy Forum and shall provide technical expertise and training for members and other freight-related agencies. The Special Committee will take a forward-looking view of freight issues and shall disseminate information and encourage research necessary to achieve identified policy goals. The Special Committee shall operate as a forum to exchange information regarding freight transportation issues of national concern. Of special concern will be the relationship between the movement of goods and the natural and built environments, social equity, public health, and the economy; the role of the private and public sector; the interconnectivity and resiliency of freight and passenger transportation modes and systems; and interface requirements between airports, highways, ports, railroads, transit systems, and waterways important for freight movement. The Committee shall address issues that cross boundaries between Councils and other issues identified by or referred to the Special Committee and in general promote the full consideration of multimodal concerns in the whole of AASHTO policy deliberations. As appropriate, it shall advise the various modal policy councils of the important multimodal freight concerns that should be considered in the formulation of modal policies.

Topical Subgroups

- None

Substantive Topics

- Multimodal movement of goods
- Environmental sustainability and community impacts of freight transportation
- Freight transportation safety
 - at-grade crossing action plans
- Freight transportation system efficiency
- Freight transportation system funding
- Communicating the value of safe and efficient freight transportation
- State-to-state harmonization of freight-related regulations that inhibit efficient freight movement between states (e.g., permitting, weight limits, registration, etc.)
- Preservation of critical freight corridors, facilities, and adjacent land through local and regional land-use policies and decision-making
- State freight planning, data and analytical methods

- Impacts of new technologies and business models in freight, including connected and autonomous vehicles, automated freight delivery systems, and advanced traveler information systems
- Workforce capacity building
- Freight collaboration and coordination – urban, rural, regional, multi-state, corridor, international
- Freight transportation connections to international gateways, including seaports and airports
- Accommodating rapid changes in supply chains
- Innovative freight transportation facilities and platforms
- Truck parking

Collaborations (Current or Planned)

- **Transportation System Operations** – harmonizing freight regulations across states (CTSO Working Group on Freight Operations)
- **Environment and Sustainability** – minimizing freight environmental and community impacts

Related AASHTO TSPs/Centers of Excellence

- None

External Partners/Stakeholders

- FHWA’s National Coalition for Truck Parking
- National Association of City Transportation Officials (NACTO)
- American Planning Association (APA)
- Association of Metropolitan Planning Organizations (AMPO)
- Transportation border working groups (Canada and Mexico)

Links

- [Freight Special Committee Charter 2018](#)
- [Freight Strategic Plan 2018 Approved](#)
- [Special Committee on Freight Webpage](#)

Committee on Planning

Purpose

Planning is an essential part of decision-making and program development in State DOTs. The planning process provides a State DOT with the capability to define a consensus-based and collaborative vision for transportation reflecting the perspectives of both internal and

external stakeholders; and that leads to near- and long-term actions. The Committee on Planning addresses all aspects of the transportation planning process including federal regulations, current industry practices, and emerging approaches and concepts. The Committee is dedicated to providing State DOTs the expertise, resources and tools they need to implement a robust planning process within their agencies that is multimodal, multidisciplinary, innovative and consensus-oriented.

Topical Subgroups

- Congestion Mitigation and Air Quality Task Force
- Connected and Automated Vehicles Task Force
- Freight Planning Task Force
- Multimodal Surface Transportation Planning Task Force
- Subcommittee on Professional Development
- Connected and Automated Vehicles Working Group (participant)

Substantive Topics

- Statewide transportation planning
- Transportation system resilience – fostering the role of planning
- Communicating the value of transportation systems
- Connected and automated vehicles – implications for planning
- Use of performance measures
- Planning capacity building for the future transportation agency workforce
- Societal, technological, demographic, etc. factors that could have a significant impact on travel and the use of the transportation system.
- Travel demand modelling
- Economic benefits of transportation

Collaborations (Current or Planned)

- **Performance-Based Management** – research coordination
- **Data Management and Analytics** – research coordination
- **Environment and Sustainability** – research coordination
- **Highways and Streets** – research coordination
- **Public Transportation** – research coordination
- **Active Transportation** – research coordination
- **Transportation Communications** – communicating the value of the transportation system (possible synthesis request, communication tool updates)

Related AASHTO TSPs/Centers of Excellence

- Census Transportation Planning Products (CTPP)
- Center for Environmental Excellence (CEE)

External Partners/Stakeholders

- Federal Highway Administration (FHWA) - Planning, Environment and Realty
- Federal Transit Administration (FTA)

Links

- [Planning Committee Charter 2018](#)
- [Planning Strategic Plan 2018 Approved](#)
- [Committee on Planning Webpage](#)

Committee on Environment and Sustainability

Purpose

AASHTO's Committee on Environment and Sustainability shall address environmental and sustainability issues related to the efficient delivery and operation of the nation's multimodal transportation systems. These issues affect both the human and the natural environment. The Committee shall encourage, recommend and support programs and initiatives to streamline the environmental review and permitting processes, ensure inclusive community engagement, and promote resource stewardship through sustainable practices. The Committee shall monitor and analyze federal environmental laws, regulations, procedures and guidance, and provide policy recommendations to the Transportation Policy Forum. The Committee shall provide technical support to members to increase their capacity to efficiently and reliably deliver environmentally sound transportation infrastructure programs and services. The Committee shall create a knowledge foundation by monitoring national trends and circumstances and promoting practical and timely research on significant transportation-related environmental issues. The Committee shall serve as a forum to disseminate and exchange information, experiences and best practices among Member Departments and committees, and promote practices that encourage interagency cooperation and coordination.

Topical Subgroups

- Environmental Process Subcommittee
- Natural Resources Subcommittee
- Cultural Resources Subcommittee
- Air Quality, Climate Change and Energy Subcommittee
- Sustainability Work Group (?)

Substantive Topics

- Federal environmental legislation, regulation, guidance, policies and processes
 - Environmental review and permitting processes

- Environmental analysis
- Community engagement, tribal engagement
- Context sensitive design
- Resource stewardship
- Roadside Management – stormwater, vegetation
- Sustainability
- Climate Change
- Air Quality – emissions, greenhouse gases (GHG)
- Highway noise
- Transportation and health
- Environmental Justice/Social Equity
- Project Delivery/Streamlining
- Alternative Project Delivery Models – environmental commitments

Collaborations (Current or Planned)

- **Construction; Design; Right of Way, Utilities and Outdoor Advertising; Materials and Pavements; Bridges and Structures), Highways and Streets**– coordination with FHWA and other federal agencies on project delivery streamlining

Related AASHTO TSPs/Centers of Excellence

- Environmental Technical Assistance Program (ETAP)
- Center for Environmental Excellence (CEE)
- Resilient and Sustainable Transportation Systems Technical Assistance Program (RSTS)
- Snow and Ice Cooperative Program (SICOP)
- Transportation Curriculum Coordination Council (TC3) - Environmental Training

External Partners/Stakeholders

- USDOT Modal Administrations

Links

- [Environment and Sustainability Committee Charter 2018](#)
- [Environment and Sustainability Strategic Plan 2018 Approved](#)
- [Committee on Environment and Sustainability Webpage](#)

Committee on Design

Purpose

The Committee on Design shall investigate, develop, and maintain guidance pertaining to the design and performance of a multi-modal transportation system. The committee shall investigate, develop, and maintain recommended practices for the design of such facilities to provide mobility and integrate safety features for all users; recommend and promote design practices that will protect and enhance the quality of the environment; facilitate research and guidance on various design related topics in transportation; serve as a forum for the exchange of practices and experience in the field of transportation facility design; and give due consideration to the effect of all design features on economic and energy resources.

Topical Subgroups

- Cost Estimating Technical Committee
- Environmental Design Technical Committee
- Geometric Design Technical Committee
- Hydrology and Hydraulics Technical Committee
- Project Management Technical Committee
- Public Transportation Facilities Design (planned) Technical Committee
- Roadside Safety Technical Committee
- Alternative Project Delivery Methods Joint Technical Committee
- Electronic Engineering Standards Joint Technical Committee
- Non-Motorized Transportation Joint Technical Committee
- Roadway Lighting Joint Technical Committee

Substantive Topics

- Project Delivery/Streamlining
 - Cost Estimating
 - Construction Manager/General Contractor (CM/GC) Procurement
 - Risk Management
 - Project Management
 - Performance Measures for design, project delivery
- Context sensitive design, performance-based practical design
- Communicating environmental commitments through design to construction
- BIM for Infrastructure, data transfer from as-builts to 3D models to asset management
- Climate change and energy efficiency in project design
 - LED roadway lighting

- Alternative fuel vehicles
- Mobility and accessibility of non-motorized users
- Constructability best practices for designers
- Incorporating sustainability and resiliency in design
- Life cycle costs of project assets
- Stormwater management, drainage design, hydraulic engineering
- Roadside design
- Work zone safety
- in-service performance evaluations for safety hardware
- Manual for Assessing Safety Hardware (MASH) implementation
- New/emerging technologies and processes
 - Automated Machine Guidance (AMG)
 - Autonomous and connected vehicles – implications for street design
 - Electronic bid documents
 - 3D models
 - Data interoperability

Collaborations (Current or Planned)

- **Environment and Sustainability** - streamline and improve working relationships with regulatory agencies, produce guidance for tracking NEPA commitments across the life of a project, hydrology and hydraulics technical committee work, Natural Resources Subcommittee activities
- **Environment and Sustainability, Transportation System Security and Resilience** – understand concurrent efforts and identify redundant or inconsistent activities.
- **Bridges and Structures** - LRFD Bridge Design Specifications, T-13 (culvert design), T-15 (substructures and retaining walls design)
- **Active Transportation** - Joint Technical Committees on Geometric Design and Non-Motorized Transportation activities.
- **Active Transportation, Highways and Streets, Traffic Engineering** – pedestrian and bicycle facility design guidance
- **Highways and Streets** – development of guidance, processes and procedures
- **Project Management Community of Practice (proposed new)**

Related AASHTO TSPs/Centers of Excellence

- AASHTOWare
- Design Publications Maintenance
- Transportation System Preservation Technical Service Program (TSP2)

External Partners/Stakeholders

- FHWA

Links

- [Design Committee Charter 2018](#)
- [Design Strategic Plan 2018 Approved](#)
- [Committee on Design Webpage](#)

Committee on Bridges and Structures

Purpose

The Committee on Bridges and Structures shall develop and keep current all major engineering standards, specifications and principles pertaining to the methods and procedures of bridge and structural design, fabrication, erection, construction, inspection, and maintenance, including geometric standards and aesthetics as appropriate for bridges, tunnels and ancillary structures; make recommendations for testing and investigating existing and new materials of construction, and determine areas of needed study and research in the area of bridge engineering; and develop and maintain such standards and procedures as are appropriate for rating and evaluating existing in service structures. It shall identify and report to the Transportation Policy Forum on any federal regulatory mandates of national concern

Topical Subgroups

- T-1 Security Technical Committee
- T-2 Bearings and Expansion Devices Technical Committee
- T-3 Seismic Design Technical Committee
- T-4 Construction Technical Committee
- T-5 Loads and Load Distribution Technical Committee
- T-6 Fiber Reinforced Polymer Composites Technical Committee
- T-7 Guardrail and Bridge Rail Technical Committee
- T-8 Moveable Bridges Technical Committee
- T-9 Bridge Preservation Technical Committee
- T-10 Concrete Design Technical Committee
- T-11 Research Technical Committee
- T-12 Structural Supports for Signs Technical Committee
- T-13 Culverts Technical Committee
- T-14 Structural Steel Design Technical Committee

- T-15 Substructures and Retaining Walls Technical Committee
- T-16 Timber Structures Technical Committee
- T-17 Metals Fabrication Technical Committee
- T-18 Bridge Management, Evaluation, and Rehabilitation Technical Committee
- T-19 Software and Technology Technical Committee
- T-20 Tunnels Technical Committee
- Alternative Project Delivery Methods Joint Technical Committee
- Electronic Engineering Standards Joint Technical Committee

Substantive Topics

- Bridge design, bridge maintenance, bridge repair, bridge preservation, bridge rehabilitation
 - LRFD design specifications
 - of historic bridges
 - Scour protection
 - Fire suppression systems
 - Bridge service life
- New/emerging materials
 - fiber reinforced polymers, basalt fiber reinforced polymers
 - stainless steel
 - titanium
 - ultra-high performance concrete (UHPC)
- Optimizing structural systems
 - design, construction, and material provisions for disc bearings
 - use of aluminum and high strength bolts in structural support systems
 - design of foundations and walls
 - fabrication of steel bridge members
 - LED lighting in tunnels
- Bridge security – intentional and unintentional resiliency hazards, hazard awareness and recovery
 - Seismic design
 - Tsunamis
- Bridge condition assessment, bridge inspection, tunnel inspection, non-destructive testing
 - Use of Unmanned Aerial Systems (UAS) for bridge inspection
- Long Term Bridge Performance Program (FHWA)
- Bridge Information Management

- interoperability
- 3D modeling standards
- BIM technologies
- Autonomous vehicles – implications for bridge specifications
- Bridge performance measures
- Accelerated Bridge Delivery, Accelerated Bridge Construction
 - streamlining materials testing procedures
 - materials supporting accelerated construction
- Oversize/overweight vehicles
- Workforce development, training, mentoring, succession planning

Collaborations (Current or Planned)

- **Design** – scour protection (Design Technical Committee on Hydrology & Hydraulics)
- **Materials and Pavements, Construction** – LRFD Construction Specifications
- **Materials and Pavements** - guidance on how to consider the uncertainties in soil and rock properties for design of foundations and walls
- **Transportation System Security and Resilience** – bridge security guidelines, seismic design of non-conventional bridges, guidelines for tsunami loading of bridges, scope of T-1 Bridge Security
- **Freight** – oversize/overweight vehicle regulations, emergency response
- **Aviation** - deployment of small unmanned aerial systems in bridge inspection
- **Maintenance** – *Guidelines for Maintaining Small Movement Bridge Expansion Joints*

Related AASHTO TSPs/Centers of Excellence

- AASHTOWare
- Load and Resistance Factor Design Bridges and Structures Specification in Maintenance
- Transportation System Preservation Technical Service Program (TSP2)
- Transportation Curriculum Coordination Council (TC3)

External Partners/Stakeholders

- FHWA
- American Welding Society (AWS)

Links

- [Bridges and Structures Committee Charter 2018](#)
- [Bridges and Structures Strategic Plan 2018 Approved](#)
- [Committee on Bridges and Structures Webpage](#)

Committee on Traffic Engineering

Purpose

The Committee on Traffic Engineering (CTE) shall investigate, assess, report on, and develop recommendations on all aspects of traffic engineering, including:

- the effectiveness of new and existing traffic control practices and devices in terms of context, cost, and public safety;
- advancements and innovations in methods and equipment that reduce costs, lower energy consumption, improve motorist guidance, and reduce crashes; and
- the standards and guidelines contained in the Manual on Uniform Traffic Control Devices (MUTCD) and other technical documents.

The committee shall be responsive to both internal and external stakeholders to advance the practice of traffic engineering through research, experimentation, and implementation to balance the safety and mobility needs of all users efficiently, equitably, and in a context sensitive manner.

As part of the committee's charge, eight delegates and eight alternates selected from the Member Departments for their experience and knowledge of traffic control devices shall participate as AASHTO's representatives on the National Committee on Uniform Traffic Control Devices.

Topical Subgroups

- MUTCD Subcommittee
- CV/AC Subcommittee
- Public Right of Way Advisory Group Subcommittee
- Non-Motorized Transportation Joint Technical Committee
- Roadway Lighting Joint Technical Committee
- CAV Expert Task Force (participant)
- Safety Performance Measures Task Force ??
- Work Zone Task Force ??

Substantive Topics

- Connected/Autonomous Vehicles – implications for traffic engineering
- Pedestrian and bicycle access
- Accessibility for user groups with disabilities
 - Public Rights of Way Accessibility Guidelines
- Design of public transit facilities on highways and streets
- Roadway lighting design

- Traffic control devices
 - rectangular rapid-flashing beacons (RRFB)
 - variable speed limits
 - traffic asset management
 - traffic signals – timing, adaptive signal control
 - MUTCD
 - Guide signs
 - traffic sign fonts
- Data
 - big data applications for traffic engineering
- Future changes impacting traffic engineering
 - Road user demographics and behavior
 - Vehicle characteristics
 - ITS technology
 - Complete Streets, Livable Communities, Road Diets
 - Advertising messages on highways
 - Planning and design decisions – horizontal alignment, access management, pavement design
- Traffic regulations
 - Flashing yellow and red arrow traffic signal indications
 - Pedestrian countdown signal indications
 - Rectangular rapid-flashing beacons
 - Implementation of automated/autonomous vehicles

Collaborations (Current or Planned)

- **Transportation System Operations** – understanding the state of the practice and implications for CAVs (via the CAV Expert Task Force)
- **Active Transportation, Design** – pedestrian and bicycle facility design, accessibility guidelines for user groups with disabilities (via the Non-Motorized Transportation Joint Technical Committee)
- **Safety** – guidelines for use of variable speed limits
- **Planning** – asset management practices
- **Design** – highway lighting design (with Roadway Lighting Joint Technical Committee)
- **Data Management and Analytics** – guidance for using big data (with Safety Performance Measures Task Force, Work Zone Task Force)

Related AASHTO TSPs/Centers of Excellence

- National Operations Center of Excellence (NOCoe)

External Partners/Stakeholders

- National Committee on Uniform Traffic Control Devices (NCUTCD)
- Eastern Transportation Coalition
- Institute of Transportation Engineers (ITE)

Links

- [Traffic Engineering Committee Charter 2018](#)
- [Traffic Engineering Strategic Plan 2018 Approved](#)
- [Committee on Traffic Engineering Webpage](#)

Committee on Right of Way, Utilities and Outdoor Advertising Control

Purpose

The Committee on Right of Way, Utilities, and Outdoor Advertising Control (RUOAC) shall provide a forum for collaboration among the member departments for the exchange of information, experience, innovation, best practices, training, and research to improve the quality and efficiency of right-of-way, utility, and outdoor advertising control operating practices. The committee shall review and recommend changes to laws, rules, regulations, and procedures pertaining to public acquisition and management of real property for transportation related purposes; the placement of utilities on highway rights-of-way; and the effective regulatory control of outdoor advertising in accordance with the provisions of the Federal Highway Beautification Act.

Topical Subgroups

- Right of Way Technical Subcommittee
 - Right-of-Way Appraisal, Appraisal Review, and Relocation Technical Council
 - Right-of-Way Acquisition and Program Management Technical Council
 - Right-of-Way Property Management Technical Council
- Utilities Technical Subcommittee
 - Utility Mapping, GIS, & SUE Technical Council
 - Utility Project Scoping & Coordination Technical Council
 - Utility Accommodation & Safety Technical Council
- Outdoor Advertising Control Technical Subcommittee
 - Outdoor Advertising Control Operations Technical Council
 - Outdoor Advertising Control Policy Technical Council

Substantive Topics

- Sharing Freeway and Highway Rights-of-Way for Telecommunications – fiber valuation, wireless/5G requests
- Valuation of surplus property
- Electronic signature processes for acquisitions
- Relocation and the homeless (environmental justice issue)
- Property inventory/data management
- Workforce development, recruitment

Collaborations (Current or Planned)

- NA

Related AASHTO TSPs/Centers of Excellence

- None

External Partners/Stakeholders

- National Association of State Aviation Officials (NASAO)

Links

- [Right of Way Utilities Outdoor Advertising Control Committee Charter 2018](#)
- [Right of Way Utilities Outdoor Advertising Control Strategic Plan 2018 Approved](#)
- [Committee on Right of Way, Utilities and Outdoor Advertising Control Webpage](#)

Committees on Materials and Pavements

Purpose

The Committee on Materials and Pavements shall provide a forum for the development and exchange of information related to materials testing, specification, and performance; and pavement design, testing, and management. The committee shall develop and maintain: technical specifications for materials used in the construction and maintenance of all transportation facilities including highways, bridges, and structures; guides, policies, and standards for the quality, design, rehabilitation, testing, and management of pavements; specifications for standard methods of sampling and testing such materials and other items incident to construction, maintenance, operation, and quality of such facilities; and information on the performance of special products evaluated by member departments. The committee shall also oversee the operation of AASHTO re:source and, where appropriate, promote the use of new materials and develop and recommend methods of testing for such materials.

Topical Subgroups

- 1a – Soil and Unbound Recycled Materials Technical Subcommittee
- 1b – Geotechnical Exploration, Instrumentation, Stabilization and Field Testing Technical Subcommittee
- 1c – Aggregates Technical Subcommittee
- 2a – Emulsified Asphalts Technical Subcommittee
- 2b – Liquid Asphalt Technical Subcommittee
- 2c – Asphalt-Aggregate Mixtures Technical Subcommittee
- 2d – Proportioning of Asphalt-Aggregate Mixtures Technical Subcommittee
- 3a – Hydraulic Cement and Lime Technical Subcommittee
- 3b – Fresh Concrete Technical Subcommittee
- 3c – Hardened Concrete Technical Subcommittee
- 4a – Concrete Drainage Structures Technical Subcommittee
- 4b – Flexible and Metallic Pipe Technical Subcommittee
- 4c – Markings and Coatings Technical Subcommittee
- 4d – Safety Devices Technical Subcommittee
- 4e – Joint, Bearings, and Geosynthetics Technical Subcommittee
- 4f – Metals Technical Subcommittee
- 4g – Geosynthetics and Erosion Control Devices Technical Subcommittee
- 5a – Pavement Measurement and Performance Measures Technical Subcommittee
- 5b – Bridge and Pavement Preservation Technical Subcommittee
- 5c – Quality Assurance and Environmental Technical Subcommittee
- 5d – Pavement Design Technical Subcommittee

Substantive Topics

- Materials standards
- Materials testing best practices
- Pavement design

Collaborations (Current or Planned)

- **Highways and Streets** – standards, design guides, research and policy
- **Construction, Maintenance** – materials standards

Related AASHTO TSPs/Centers of Excellence

- AASHTO re:source
- AASHTO Product Evaluation List (APEL)
- Development of AASHTO Materials Standards (DAMS)
- National Transportation Product Evaluation Program (NTPEP)
- AASHTOWare
- Transportation Curriculum Coordination Council (TC3)

- Transportation System Preservation Technical Service Program (TSP2)

External Partners/Stakeholders

- ASTM International
- FHWA

Links

- [Materials and Pavements Committee Charter 2018](#)
- [Materials and Pavements Strategic Plan 2018 Approved](#)
- [Committee on Materials and Pavements Webpage](#)

Committee on Construction

Purpose

The Committee on Construction (COC) shall provide a forum for collaboration among the member departments for the exchange of information, experience, innovation, best practices, training, and research to improve safety in work zones, improve customer service and collaboration, promote quality, advocate for environmentally responsible construction projects, encourage technology driven improvements to business practices, develop and empower our work force to be successful, promote best practices for the administration of all construction contracts and utilize construction efficiency and cost effectiveness. To accomplish these goals, the committee shall:

- Convene an annual conference
- Conduct technical sharing
- Produce deliverables including, but not limited to, guidance documents, Manuals of Best Practice, specifications, identification of developing trends, research proposals, and policy recommendations.

Topical Subgroups

- Contract Administration Technical Subcommittee
- Integrated Construction Technologies Technical Subcommittee
- Safety, Environment, and Workforce Development Technical Subcommittee
- Roadways and Structures Technical Subcommittee
- Alternative Project Delivery Methods Joint Technical Committee
- Electronic Engineering Standards Joint Technical Committee

Substantive Topics

- Alternative/innovative contracting methods and technology
- Project delivery metrics

- Performance-based contracting specifications
- Local and regional standardization of materials and design details
- Construction management technology, e-construction
- Transparency – sharing construction status information
- Sustainable construction, environmental stewardship
- Bid-ability and constructability of contract documents
- Collaborative design and plan development
- Work zone safety
- Work zone mobility, transportation management plans
- Workforce development, preparing for the workforce of tomorrow

Collaborations (Current or Planned)

- **Bridges and Structures** – accelerated construction
- **Design** – 3D engineered models
- **Safety, Maintenance, Highways and Streets, Active Transportation** – work zone safety
- **Maintenance, Design, Materials and Pavements** – pavement preservation standards based on new technologies

Related AASHTO TSPs/Centers of Excellence

- AASHTOWare
- Center for Environmental Excellence
- Transportation Curriculum Coordination Council (TC3)
- Transportation System Preservation Technical Service Program (TSP2)

External Partners/Stakeholders

- Design-Build Institute of America (DBIA)
- Associated General Contractors of America (AGC)
- American Road and Transportation Builders Association (ARTBA)

Links

- [Construction Committee Charter 2018](#)
- [Construction Strategic Plan 2018 Approved](#)
- [Committee on Construction Webpage](#)

Committee on Maintenance

Purpose

The Maintenance Committee develops, maintains, and disseminates appropriate information through guidelines, manuals, specifications, and other resources, to address

the maintenance, preservation, and operation of all classes of highways and categories of assets that are under the jurisdiction of the member departments. This information covers areas such as bridges, equipment, pavements, roadways, roadsides, maintenance operations, and winter maintenance. The committee shall also promote improved management practices related to maintenance, preservation and operation; protect and enhance the quality of the environment; and foster collaboration and cooperative efforts with other AASHTO communities to accomplish these goals.

Topical Subgroups

- Pavement Technical Working Group
- Bridge Technical Working Group
- Roadway/Roadside Technical Working Group
- Equipment Technical Working Group
- Maintenance Operations Technical Working Group
 - Snow and Ice Community of Practice

Substantive Topics

- Safety – work zone, workforce, equipment, public
- Asset Management – maintenance performance management, system preservation, accountability and transparency
 - Capturing geo-referenced damage assessments
 - Procurement of non-destructive testing and evaluation for concrete bridge components
- Environmental stewardship and compliance – climate change mitigation and adaptation, life cycle assessment, ecosystems (invasive and endangered species), sustainability in maintenance operations and materials
- Workforce development – training, succession management, knowledge management
- Communication – value and role of maintenance
- Technology – technology adaptation to maintenance; maintenance adaptation to technology
- Winter maintenance, road weather management

Collaborations (Current or Planned)

- **Safety** – quantifying safety impacts of pavement preservation, safety and reliability of bridge preservation practices, support CAV-related activities
- **Transportation System Operations** – Traffic Incident Management

- **Performance Based Management** – Risk Management Technical Subcommittee – quantifying contribution of pavement maintenance/preservation to risk-based asset management programs
- **Bridges and Structures** – participate in TSP2 National Bridge Management System working group, support FHWA bridge ETG, promote bridge management training
- **Performance-Based Management, Bridges and Structures** – support implementation of FHWA rules for pavement and bridge performance management and asset management systems
- **Environment** – sustainable practices for bridge maintenance and preservation activities
- **Bridges and Structures, Transportation System Security and Resilience** – protecting bridge approaches during flooding events (research statement), implementation of prior NCHRP research
- **Strategic Management – CAV Expert Task Force** – CAVs for work zone safety and for effective use and safe operation of maintenance equipment
- **Aviation** – peer exchange on use of drones, use of UAS for bridge element-level inspections (research statement)
- **Communications** – communicating bridge condition information to the media

Related AASHTO TSPs/Centers of Excellence

- Transportation System Preservation TSP (TSP2)
- Equipment Management TSP (EMTSP)
- Winter Maintenance TSP/Snow and Ice Pooled Fund Cooperative Program (SICOP)
- Transportation Curriculum Coordination Council (TC3)
- Transportation System Preservation Technical Service Program (TSP2)

External Partners/Stakeholders

- NA

Links

- [Maintenance Committee Charter 2018](#)
- [Maintenance Strategic Plan 2018 Approved](#)
- [Committee on Maintenance Webpage](#)

Committee on Transportation System Operations

Purpose

The Committee on Transportation System Operations focuses on transportation system operations and associated ITS and emerging technology with a goal of improving safety, system reliability, and highway system performance. This committee strives to transform

the national transportation community to a transportation systems management and operations (TSMO) culture and guides the National Operations Center of Excellence and the AASHTO Operations Technical Service Program, in collaboration with the Institute of Transportation Engineers (ITE) and the Intelligent Transportation Society of America (ITS America). The CTSO provides leadership for AASHTO with regard to highway transport and commercial vehicle safety, size and weight issues, and coordinates with the commercial vehicle industry and its representative associations regarding vehicle design, standards, and practices associated with commercial motor vehicle operations. The committee serves as a depository of technical information, solutions, and advice on transportation-related communication systems and equipment, including connected and automated vehicle (CAV) integration, operations-related cyber security, protecting sufficient communication spectrum to meet the needs of the member departments, and representing the interests of AASHTO and its member departments in proceedings before Federal agencies on telecommunications matters.

Topical Subgroups

- Operations Subcommittee
 - Operations Strategies Working Group
 - Traffic Incident Management Working Group
 - Freight Operations Working Group
- Technology Subcommittee
 - Systems Integration Working Group
 - Communications Technology Working Group
 - Connected and Automated Vehicles Working Group (lead)
 - ITS Working Group
- Performance Management and Data Subcommittee/ Joint Subcommittee on Emerging Technology and System Performance (with Performance-Based Management)
- Road Weather Management Community of Practice

Substantive Topics

- Mainstreaming of operations
- Operations workforce development
- Traffic Incident Management – best practices, performance measures
- Truck freight movement efficiency and safety – federal policy, commercial vehicle design/standards, emerging technology deployment,
- Connected and automated vehicle (CAV) technology and deployment
 - Differential GPS (DGPS) accuracy, Radio Technical Commission for Maritime Services (RTCM)

- Work zones, Work Zone Data Initiative (WZDI)
- USDOT Security Credential Management System (SCMS)
- Intelligent Transportation Systems (ITS) design standards and guidelines, V2I
- Signal Phasing and Timing (SpaT)
- Operations data integration, interoperability, cybersecurity
- Operations performance management – and supporting data and analytics, MAP-21 operations performance management compliance
- Communication technologies
 - Land Mobile Radio (LMR), Dedicated Short-Range Communications (DSRC), First Responder Network Authority (FirstNET)
 - Public safety frequency coordination
 - Deployment of communication infrastructure in public rights of way
 - Rural broadband development through transportation projects

Collaborations (Current or Planned)

- **Right of Way, Utilities and Outdoor Advertising** – use of DOT right-of way and property for communication infrastructure development (nano-cell – 5G, or FirstNet) by private industry.
- **Human Resources, Administration** – operations workforce recruiting, retention, training
- **Safety, Traffic Engineering, Design, Construction** – work zones (Task Force on Work Zones)
- **Safety, Transportation System Security and Resilience** – freight movement safety
- **Performance-**

Related AASHTO TSPs/Centers of Excellence

- National Operations Center of Excellence (NOCOe)
- Frequency Coordination Program (FCP)
- Snow and Ice Cooperative Program (SICOP)

External Partners/Stakeholders

- International Association of Chiefs of Policy (IACP) Highway Safety Committee
- TRB Regional Transportation System Management and Operations (RTSMO) Committee, and its TIM Subcommittee
- USDOT, FHWA
- Infrastructure Owner-Operator/Original Equipment Manufacturer (IOO/OEM) Forum
- American Association of Motor Vehicle Administrators (AAMVA)
- American Traffic Safety Services Association (ATSSA)
- ITS American (ITSA)

- Public Safety Communications Council (PSCC)
- Land Mobile Communications Council (LMCC)
- FirstNet Public Safety Advisory Committee (PSAC)
- Telecommunications Industry Association (TIA) P25 Steering Committee
- US Department of Homeland Security SAFECOM
- National Public Safety Telecommunications Council (NPSTC) Governing Board

Links

- [Transportation System Operations Committee Charter 2018](#)
- [Transportation System Operations Strategic Plan 2018 Approved](#)

Committee on Safety

Purpose

The Committee on Safety shall focus on the advancement of multidisciplinary approaches to eliminating crashes, particularly those resulting in traffic fatalities and serious injuries. Working toward a goal of zero fatalities, the Committee’s scope will include all public roads in the United States, and locations where roads intersect with other modes of travel. The Committee shall serve as the technical and policy resource on transportation systems safety for AASHTO and, in this role, will coordinate with other AASHTO committees and support member departments’ safety performance initiatives. The AASHTO Strategic Highway Safety Plan shall guide the activities of the Committee on Safety. Members should come from both policy and technical levels within the member departments, and will represent the multidisciplinary approach to safety performance, including experience in engineering, enforcement, education, emergency medical service or incident response, and the use data-driven safety evaluation, analysis and diagnosis to identify and address the need to reduce crashes. The Committee will address safety for all road and facility users and primary focus areas will be strategic safety planning, programs and policies, effective countermeasures, safety performance and data analysis and evaluation, workforce development, research, and local road safety. The Committee will coordinate with other AASHTO committees and external organizations on issues of joint interest, such as workforce development, data, and operations. The main functions of the committee will include recommendations on policies and procedures affecting safety performance, dissemination of safety knowledge, identifying research needs to enhance the science of safety, exchange of information on current national, state and local practices, and the implementation of new strategies, practices, and research results. Key themes of committee discussions and initiatives will include innovation and technology, performance measures, safety culture, and

multidisciplinary partnerships that accelerate progress toward goals. The Committee intends to address safety issues on non-highway modes as needed, and may establish subcommittees to focus on these modes.

Other areas of joint interest and coordination opportunities with other AASHTO committees include research and asset management as well as emerging technologies, and how all can tie into the Committee’s focus on reducing fatalities.

Topical Subgroups

- Towards Zero Deaths Subcommittee
- Data and Performance Management Subcommittee
- Workforce Development Subcommittee
- Local Road Safety Subcommittee
- Connected and Automated Vehicles Working Group (participant)

Substantive Topics

- Towards Zero Deaths implementation, safety culture
- Safety performance measures, targets and management systems; supporting data governance, integration and management efforts
- Safety analytical tools
- Performance-based practical design
- Impacts of new technologies and business models on all transportation modes including consideration of bicyclists and pedestrians as art of planning and funding transportation infrastructure
 - CAV, electric bicycles, bike share, Mobility as a Service, smart phone apps, drones
- Local Road Safety Plans
- Safety workforce development – training, retention, knowledge management, succession

Collaborations (Current or Planned)

- **Planning, Transportation System Operations** – impacts of new technologies and business models
- **Communications** – safety communications, sharing local road safety practices
- **Highways and Streets, Active Transportation** – data-driven safety analysis, implementation of Highway Safety Manual
- **Planning, Performance-Based Management, Data Management and Analytics** – use of safety data and modeling in planning and performance management
- **TC3, Knowledge Management** – identify and develop training course

Related AASHTO TSPs/Centers of Excellence

- AASHTOWare
- Highway Safety Policy and Management Technical Service Program
- Transportation Curriculum Coordination Council (TC3)

External Partners/Stakeholders

- American Association of Motor Vehicle Administrators (AAMVA)
- American Public Works Association (APWA)
- American Traffic Safety Services Association (ATSSA)
- Commercial Vehicle Safety Alliance (CVSA)
- Department of Defense (DOD)
- Federal Highway Administration (FHWA)
- Federal Motor Carrier Safety Administration (FMCSA)
- Governor’s Highway Safety Association (GHSA)
- International Association of Chiefs of Police (IACP)
- National Association of Counties – NACo
- National Association of County Engineers – NACE
- National Association of State Emergency Medical Service Officials (NASEMSO) (L)
- National Center for Rural Road Safety
- National Highway Traffic Safety Administration (NHTSA)
- National Local and Tribal Technical Assistance Program (NLTAPA)
- National Transportation Safety Board (NTSB)
- National Transportation Training Directors
- Roadway Safety Foundation

Links

- [Safety Committee Charter 2018](#)
- [Safety Strategic Plan 2018 Approved](#)
- [Committee on Safety Webpage](#)

Committee on Transportation Communications (TransComm)

Purpose

The committee shall promote excellence in communications among communications practitioners, within the AASHTO committee structure, and within the broader transportation community through the exchange of ideas, best practices and educational programming.

The committee will provide collaborative expertise when a coordinated communications response at the national or regional level is required.

Topical Subgroups

- None

Substantive Topics

- DOT communication and public engagement
- Communication ethics in DOT business practices
- Communicating value of transportation, role of transportation departments
- Support for reauthorization, storytelling
- Professional development

Collaborations (Current or Planned)

- NA

Related AASHTO TSPs/Centers of Excellence

- None

External Partners/Stakeholders

- NA

Links

- [Communications Committee Charter 2018](#)
- [Communications Strategic Plan 2018 Approved](#)
- [Committee on Communications Webpage](#)

Committee on Transportation System Security and Resilience

Purpose

The Committee on Transportation System Security and Resilience shall cover preparation for and response to both natural and human-made threats, shocks and stressors to the transportation system. The Committee will coordinate national efforts, identify best practices, and fill research gaps to promote resilient and secure transportation systems across the country. The Committee will provide a forum for members to advance state-of-the-practice and awareness of transportation infrastructure security and resilience through training, technical assistance, and the exchange of information and best practices. The Committee will work to shape and implement national policy affecting transportation infrastructure protection and resilience and track emerging federal policies on these topics. The Committee will also rely on the cross-disciplinary membership of the Committee—

which highlights the interdependencies of emergency management, planning, design, environment, maintenance, and operations in the resilience cycle—to oversee the development of technical expertise and tools for state DOTs to perform risk-based identification of potential impacts, plan for system adaptation needs, and prepare for response and recovery of impacted transportation systems.

Topical Subgroups

- None

Substantive Topics

- Transportation system resilience - interdependencies of emergency management, planning, design, environment, maintenance, and operations
- Emergency management
- Resiliency and security planning
- Climate change mitigation/adaptation, extreme weather
- Risk assessment

Collaborations (Current or Planned)

- **Transportation Communications** – communicating the resilience lifecycle concept within transportation development and delivery

Related AASHTO TSPs/Centers of Excellence

- Resilient and Sustainable Transportation Systems Technical Service Program
- Snow and Ice Cooperative Program (SICOP)
- National Operations Center of Excellence (NOCOe)

External Partners/Stakeholders

- USDOT – all modal administrations

Links

- [Transportation System Security and Resilience Committee Charter 2018](#)
- [Transportation System Security and Resilience Strategic Plan 2018 Approved](#)
- [Committee on Transportation System Security and Resilience Webpage](#)

Committee on Performance-Based Management

Purpose

Performance management is the process of accountability and effectiveness that is measured against established goals or targets. Performance management helps guide State Transportation Agency's (STA) in critical decision making from planning through systems

operations, including the agency’s own organizational performance. The Committee on Performance-Based Management addresses all aspects of performance management including asset, organizational, risk, and system performance management as it relates to federal regulations, current industry practices, and emerging approaches and concepts. The Committee on Performance-Based Management is dedicated to providing STAs the expertise and resources to support and help enhance performance and data-driven management practices and decision making and to create a results-driven environment that will promote organizational and system excellence. The Committee on Performance Based-Management will provide and communicate technical services and information; develop policy guidance and recommendations; facilitate communication practices; and support the professional development and capacity building of its members and others.

Topical Subgroups

- Asset Management Technical Subcommittee
- Organizational Management Technical Subcommittee
- Risk Management Technical Subcommittee
- System Performance Management Technical Subcommittee

Substantive Topics

- Transportation performance management, system performance management
- Organizational performance management
- Enterprise risk management
- Asset management
- Data-driven decision making
- Accountability, communications practices
- Data collection and analysis
- Workforce development

Collaborations (Current or Planned)

- NA

Related AASHTO TSPs/Centers of Excellence

- AASHTOWare
- Snow and Ice Cooperative Program (SICOP)
- Transportation System Preservation Technical Service Program (TSP2)
(Transportation Performance Management Pooled Fund)

External Partners/Stakeholders

- USDOT

- FHWA

Links

- [Performance Based Management Committee Charter 2018](#)
- [Performance Based Management Strategic Plan 2018 Approved](#)
- [Committee on Performance-Based Management Webpage](#)

Committee on Data Management and Analytics

Purpose

The Committee on Data Management and Analytics shall address the collection, procurement, processing, analysis, reporting, and sharing of transportation data. The Committee on Data Management and Analytics is dedicated to addressing issues related to knowledge, expertise, resources and tools needed by State DOTs to implement a robust data management and analytics program within their agencies.

Topical Subgroups

- Communicating Data Subcommittee
- Professional Development Subcommittee
- Policy Subcommittee
- Outreach and Coordination Subcommittee
- Technical Services Subcommittee
- Connected and Automated Vehicles Working Group (participant)

Substantive Topics

- Data management, data business planning
- Data analytics
- Data standardization
- Workforce development

Collaborations (Current or Planned)

- **Administration, Human Resources, Knowledge Management, Civil Rights** – participate in the Joint Task Force on the Impacts of Digitalization

Related AASHTO TSPs/Centers of Excellence

- AASHTOWare

External Partners/Stakeholders

- TRB Data Committees

Links

- [Data Management and Analytics Committee Charter 2018](#)
- [Data Management & Analytics Strategic Plan 2019 Approved](#)
- [Committee on Data Management and Analytics Webpage](#)

Committee on Funding and Finance

Purpose

The Committee on Funding and Finance provides expertise and leadership on federal and state transportation funding and finance issues.

Topical Subgroups

- Capacity Building
- Policy and Rulemaking
- Connected and Automated Vehicles Working Group (participant)

Substantive Topics

- National transportation funding and finance policy, transportation reauthorization legislation
- Messaging and communications related to funding and finance
- Making the case for transportation investment
- Financial management
- Innovative finance
- Workforce capacity building

Collaborations (Current or Planned)

- **Policy Forum, Research & Innovation, Administration, Communications, Planning** – coordination on funding and finance topics

Related AASHTO TSPs/Centers of Excellence

- Build America Transportation Investment Center Institute: An AASHTO Center for Excellence (BATIC)

External Partners/Stakeholders

- USDOT

Links

- [Funding and Finance Committee Charter 2018](#)
- [Funding and Finance Strategic Plan 2018 Approved](#)

- [Committee on Funding and Finance Webpage](#)

Committee on Human Resources

Purpose

The Committee on Human Resources shares, researches, and recommends processes, best practices, and policies that enable the human resource functions of State transportation agencies to continuously become stronger, innovative, and more efficient. This includes evaluating trending issues and considering all human resource issues of concern to Member Departments. Our responsibility is to assemble and disseminate current information and recommendations on these topics which include recruitment and selection, workforce planning and development, employee relations, compensation and benefits, health and safety of all employees, industry innovations and all other emerging topics.

The committee shall collaborate with appropriate AASHTO Committees, Federal agencies, institutions of higher learning, and organizations in the development of human resource activities involving the Member Departments and/or in which the Association may serve as a sponsor, encompassing administrative practices, management techniques, and technical training programs.

It shall identify strategic partnerships with other committees to further the mission of the organization and report to its parent committee on any federal regulatory mandates of national concern. Each Member Department shall be entitled to membership thereon.

Topical Subgroups

- None

Substantive Topics

- Talent management – talent acquisition, onboarding, mentoring, retention, diversity and inclusion
- Workforce development
- Succession planning
- HR metrics

Collaborations (Current or Planned)

- **Administration, Knowledge Management, Civil Rights, Data Management and Analytics** – participate in Joint Task Force on Impacts of Digitalization
- **Planning** – NCHRP study on transportation planning workforce development
- **Administration, Civil Rights** – NCHRP study on design, construction and maintenance workforce development

- **Administration, Knowledge Management** – domestic scan on strategic workforce management
- **Knowledge Management** – oral history collection research proposal, research proposal on understanding knowledge management in context with human resource management, information technology, data management, workforce development, learning cultures, and organizational development

Related AASHTO TSPs/Centers of Excellence

- Transportation Curriculum Coordination Council (TC3)

External Partners/Stakeholders

- NA

Links

- [Human Resources Committee Charter 2018](#)
- [Human Resources Strategic Plan 2018 Approved](#)
- [Committee on Human Resources Webpage](#)

Committee on Internal and External Audit

Purpose

The committee shall establish audit procedures that are sufficiently flexible for use in each Department, yet standardized enough to achieve uniformity and provide member departments alternative solutions for compliance with audit requirements that also meet their individual needs.

It shall also provide a forum for transportation related internal and external audit organizations to keep abreast of requirements, regulations, procedures and innovative techniques employed by individual states, thus enhancing their efforts to provide a better service to management. It shall identify and report to its parent standing committee on any federal regulatory mandates of national concern. Each Member Department shall be entitled to membership thereon.

To ensure consistency and the best thinking of the Association, the committee shall work cooperatively, as appropriate, with other committees.

The committee may maintain a liaison and share information with the Federal Highway Administration and other agencies and organizations whose practices are of interest to the Member Departments.

Topical Subgroups

- Peer Review Subcommittee

- Internal Audit Guide Subcommittee
- Uniform Audit and Accounting Guide Subcommittee
- Innovative Audit Task Force
- AASHTO-ACEC Audit Community of Practice

Substantive Topics

- Auditing standards, methods and requirements
- Auditing quality

Collaborations (Current or Planned)

- NA

Related AASHTO TSPs/Centers of Excellence

- None

External Partners/Stakeholders

- American Council of Engineering Companies (ACEC)
- FHWA

Links

- [Internal and External Audit Committee Charter 2018](#)
- [Internal and External Audit Strategic Plan 2018 Approved](#)
- [Committee on Internal and External Audit Webpage](#)

Committee on Knowledge Management

Purpose

The Committee on Knowledge Management shall provide a forum for collaboration among Member Departments for the exchange of information, industry standard practices, experiences, and emerging approaches and concepts related to knowledge management. This includes development of policy, principles, strategies, and guidance used by agencies to plan, create, identify, collect, organize, preserve, disseminate, share, generate, and apply critical Member Departments' tacit and explicit knowledge. The committee will focus on facilitating and promoting strategies and practices necessary for a Member Department to retain, manage, share, and develop relevant knowledge between employees, consultants, contractors and other partners to support the Member Departments' mission, strategic planning and goals, work, innovations, and evolution. The Committee shall also promote the development and implementation of knowledge management within Member Departments. The Committee shall identify and report matters of national interest to the Agency Administration Managing Committee.

Topical Subgroups

- None

Substantive Topics

- Knowledge management best practices – for knowledge capture, transfer, development and use
- Knowledge management metrics
- Information management
- Interrelationships between information technology, human resources, organizational development and knowledge management

Collaborations (Current or Planned)

- **Administration, Human Resources, Civil Rights, Data Management and Analytics** – participate in Joint Task Force on Impacts of Digitalization
- **Data Management and Analytics** – enterprise information governance
- **Data Management and Analytics, Safety, Human Resources, Performance-Based Management** – research collaboration

Related AASHTO TSPs/Centers of Excellence

- TRAC and RIDES Educational Outreach Program

External Partners/Stakeholders

- USDOT – National Transportation Library
- TRB Committee on Information and Knowledge Management

Links

- [Knowledge Management Committee Charter 2018](#)
- [Knowledge Management Strategic Plan 2019 Approved](#)
- [Committee on Knowledge Management Webpage](#)

Committee on Civil Rights

Purpose

The committee shall work cooperatively with the Association’s Member Departments and as appropriate, with other committees, agencies, and external organizations to provide equal access and ensure nondiscrimination in all programs and activities involving Federal dollars. This includes researching and evaluating the effectiveness of civil rights programs and reporting findings of issues, as well as sharing any best practices, to Member Departments on programs such as Disadvantaged Business Enterprise, Equal Employment

Opportunity, On-The-Job Training, Non-Discrimination (Title VI), Americans with Disabilities Act and Supportive Services.

The Committee on Civil Rights shall make recommendations and render advice to the President and staff of the Association, and to other committees as to courses of action which they may follow to assure compliance with civil rights laws and regulations in their respective areas. The committee shall also establish and maintain outreach efforts to other transportation organizations with similar interests.

The committee shall identify and report to its parent committee on any federal regulatory mandates of national concern.

Topical Subgroups

- None

Substantive Topics

- ADA transition plans
- Workforce diversity and inclusion
- DBE program policy
- EEO, OJT, Title VI programs

Collaborations (Current or Planned)

- **Administration, Human Resources, Knowledge Management, Data Management and Analytics** – participate in Joint Task Force on Impacts of Digitalization – explore workforce diversity and inclusion issues

Related AASHTO TSPs/Centers of Excellence

- None

External Partners/Stakeholders

- USDOT and modal administrations
- FHWA Civil Rights Office

Links

- [Civil Rights Committee Charter 2018](#)
- [Civil Rights Committee Strategic Plan 2019 Approved](#)
- [Committee on Civil Rights Webpage](#)

Special Committee on Research and Innovation

Purpose

The Special Committee on Research and Innovation promotes high-value transportation research, technology, and innovation to enhance the safe and efficient movement of people and goods. The committee supports AASHTO member agencies, councils, committees and the transportation community in identifying, conducting, delivering, and facilitating deployment of high-value research results, as well as sharing and encouraging deployment of innovations that address both critical short-term and long-term national needs. The committee also oversees the National Cooperative Highway Research Program to ensure that it produces practical, applied research to address the needs of AASHTO members and the nation, and provides a high return on investment. The committee will champion accelerated implementation of technology, innovations, and improved operating practices among AASHTO member agencies, local agencies, and their industry partners to improve the nation's transportation system.

Topical Subgroups

- Research Advisory Subcommittee
- AASHTO Innovation Initiative Steering Committee

Substantive Topics

- Research deployment and innovation
- Research coordination and partnerships
- Communicating value of research

Collaborations (Current or Planned)

- NA

Related AASHTO TSPs/Centers of Excellence

- AASHTO Innovations Initiative

External Partners/Stakeholders

- State DOT Research Directors

Links

- [Research and Innovation Special Committee Charter 2018](#)
- [Research and Innovation Strategic Plan 2018 Approved](#)
- [Special Committee on Research and Innovation Webpage](#)

Appendix B: Text Analysis Results

Overview

This appendix presents detailed results of text analysis of AASHTO committee documents. This analysis was conducted to validate and further refine the initial list of common interests that was created through manual document review and synthesis.

Text analysis was conducted to (1) extract relevant terms and (2) identify clusters of common topic areas. Both of these analyses used compiled text files with content related to each of the following committees:

Transportation Policy Forum

- Council on Active Transportation (CAT)
- Council on Aviation (COA)
- Council on Highways and Streets (CHS)
- Council on Public Transportation (CPT)
- Council on Rail (COR)
- Council on Water (COW)
- Special Committee on Freight (SCOF)

Program Delivery and Operations Committees

- Committee on Planning (COP)
- Committee on Environment and Sustainability (CES)
- Committee on Design (COD)
- Committee on Bridges and Structures (CBS)
- Committee on Traffic Engineering (CTE)
- Committee on Right of Way, Utilities, and Outdoor Advertising Control (CRW)
- Committee on Materials and Pavements (CMP)
- Committee on Construction (COC)
- Committee on Maintenance (COM)
- Committee on Transportation System Operations (CTSO)

Enterprise/Cross-Discipline Committees

- Committee on Safety (COS)

- Committee on Transportation Communications (CTC)
- Committee on Transportation System Security and Resilience (CTSR)
- Committee on Performance-Based Management (CPM)
- Committee on Data Management and Analytics (CDA)
- Committee on Funding and Finance (CFF)

Administration Committees

- Committee on Human Resources (CHR)
- Committee on Internal and External Audit (CIEA)
- Committee on Knowledge Management (CKM)
- Committee on Civil Rights (CCR)
- Special Committee on Research and Innovation (SCRI)

Keyword Extraction

Methodology

Keyword extraction uses Natural Language Processing (NLP) and other text analysis methods to identify the most frequently used and important words and phrases within a corpus of documents. Results can be used to characterize what the documents are about, understand use of terminology in different contexts, and identify keywords that can be integrated into search tools to improve relevance of results. Keywords were extracted using the following process:

- Used the python sklearn, nltk and gensim's simple process library to clean the body of assembled text files to convert words to lower case, remove punctuation, and eliminate stop words (such as “and” or “the”). Removed state names (including abbreviations), days of the week, months of the year, and selected other common words such as “phone”, “email”, “com”, etc.
- Used the python spaCy nltk.WordNet Lemmatizer package to produce a lemmatized version of committee files for keyword extraction. Lemmatization eliminates variants of the same term such as “vehicle” and “vehicles”.
- Used the python nltk (natural language processing) library to extract single terms and multi-word noun phrases.
- Used the python sklearn nltk and collections library to produce frequency distributions for single words and multi-word noun phrases, identifying how often they appeared in the entire corpus, as well as how often they appeared in each committee’s compiled file.
- Manually identified meaningful keywords, to eliminate those which were not useful for identifying topics of common interest – for example, terms such as “AASHTO”, “task”, and “date”.

- Prepared and analyzed a summary of meaningful keywords appearing in multiple committee documents was prepared and analyzed. This summary will be used to validate and augment the initial list of common interests included in Interim Report 1.

Types of Analysis

Two different types of keyword extraction analysis were performed.

Top terms per committee. The first analysis looked at terms describing the work of each committee. The 50 most frequently occurring terms (single words and noun phrases) for each committee were identified. Then, these terms were manually filtered to include only those terms that are meaningful for describing the substantive topics of interest for the committee. For example, terms like “task”, “committee”, “AASHTO” and “state” were excluded since they can’t be used to shed light on committee interests.

Terms common to multiple committees. The second analysis looked at terms used by multiple committees to shed light on common interests across committees. Like the first analysis, meaningful terms were pulled out, and sorted by the number of committees whose text file included at least one instance of the term.

Results: Top Terms per Committee

Table A-1 displays the results of the analysis of top terms per committee. Examining the terms for a given committee provides a quick picture of that committee’s interests. The information in this table could be used in the future to configure or tune an AASHTO website search function that boosts relevance of individual committee pages based on search terms. Note that where the text analysis identified an acronym as a relevant term, we have added the meaning of that acronym in brackets (<>).

Table A-1. Top Relevant Terms per Committee

Committee	Terms
Committee on Active Transportation	active transportation bicyclist bicycle pedestrian highways streets safety planning counts model coordinate automated
Committee on Aviation	aviation NASCAO drone/drones national communication user
Committee on Highways and Streets	highways streets FHWA <Federal Highway Administration>

Committee	Terms	
	design operations project delivery standard	implementation safety collaboration active transportation workforce
Committee on Public Transportation	transit public transportation public transit providers services rural insurance	mobility funding vehicle/vehicles MTAP coordinating communities
Committee on Rail	rail rail transportation freight station union	FRA <Federal Railroad Administration> SAIPRC safety services marketing
Committee on Water	water transportation water waterways inland	resources multimodal services
Special Committee on Freight	freight freight data truck system impacts planning	parking environmental efficient technologies regional regulations
Committee on Planning	planning transportation planning agencies implementation TAM asset management	travel frameworks development funding future
Committee on Environment and Sustainability	environmental noise air quality wildlife species stormwater highway study modeling	analyses agencies design impacts mitigation regulatory cost funding materials
Committee on Design	design	safety

Committee	Terms	
	MASH hardware barrier/barriers guardrail vehicle/vehicles speed highway roadside roadway impact	roadside safety crash/crashes injury testing criteria guidance guidelines occupant funding performance
Committee on Bridges and Structures	bridge/bridges structures tunnel highway structural design bridge design construction maintenance	specifications LRFD <Load and Resistance Factor Design> steel concrete load performance engineer bridge engineer seismic
Committee on Traffic Engineering CTE	traffic traffic control traffic engineering devices design sign/signs guidelines guidance MASH <Manual for Assessing Safety Hardware> vehicle barrier	performance speed testing MUTCD <Manual on Uniform Traffic Control Devices> highway lane bicycle detection MPH <Miles per Hour> safety roadside safety crash
Committee on Right of Way, Utilities, and Outdoor Advertising Control	utility/utilities ROW <Right of Way> right of way construction guidance outdoor advertising highway	acquisition accommodation approaches records policies cost
Committee on Materials and Pavements	pavement/pavements materials concrete asphalt test/tests/testing	ASTM <American Society for Testing and Materials> highway alkali design

Committee	Terms	
	standards specifications model	construction frost IRI <International Roughness Index> evaluation
Committee on Construction	construction workforce management safety industry	CI <Construction Inspection> risk technologies engineer
Committee on Maintenance	maintenance equipment fleet performance management marketing repair operations cost/costs	highway road pavement pavement preservation assets safety vehicle/vehicles winter snow
Committee on Transportation System Operations (CTSO)	operations system traffic management connected vehicle/vehicles safety standards	communication/communications technology/technologies information performance deployment infrastructure benefits ICM
Committee on Safety (COS)	safety crash/crashes design barrier MASH <Manual for Assessing Safety Hardware> highway roadside highway safety HSM <Highway Safety Manual> speed analysis traffic	factors models evaluation methods systems vehicle safety performance performance testing tools funding guidelines
Committee on Transportation Communications	TRANSCOMM communications communicate value	promote maintain standards engage

Committee	Terms	
	provide value ethics	excellence
Committee on Transportation System Security and Resilience	resilience security transportation security cybersecurity emergency management emergency response	training communications funding fire planning operations
Committee on Performance-Based Management	performance management transportation performance management TPM <Transportation Performance Management> asset management transportation asset management assets	planning targets target setting risk forecasting performance measures
Committee on Data Management and Analytics	data analytics data management standard/standards guidance	transportation planning ACS <American Community Survey> CTPP <Census Transportation Planning Package> core principles
Committee on Funding and Finance	funding finance transportation funding federal funding financial planning	value capture benefits uncertainty highway flexibility
Committee on Human Resources	human resources human resource HR <Human Resources> workforce employees	metrics knowledge management training administrative succession planning
Committee on Internal and External Audit	audit/auditing ACEC <American Council of Engineering Companies> peer review	quality procedures
Committee on Knowledge Management	knowledge management knowledge information security collaboration	resources community guidance sharing communications

Committee	Terms	
Committee on Civil Rights	civil rights DBE <Disadvantaged Business Enterprise> Title 9/Title IX compliance	training ADA <Americans with Disabilities Act> diversity knowledge management
Special Committee on Research and Innovation	research innovation rural local roads analysis travel service/services safety transit	unpaved GTFS <General Transit Feed Specification> planning bus intercity map demand recreational industry

Results: Terms Common to Multiple Committees

Table A-2 displays the results of the analysis of terms common to multiple committees. Each row of the table represents a range of the number of committees that include the terms displayed. Only terms used by at least five committees are shown in the table. Most commonly used terms across committees are shown in the top row of the table – these terms were used by at least 21 of the 28 committees.

The common terms were mapped to the initial draft common interests framework. The terms that were mapped to the framework are shown in **bold** in Table A-2.

Table A-2. Terms Common to Multiple Committees

Number of Committees	Terms (Single words and noun-phrases)			
21-28	transportation policy strategic plan management identify work strategy coordinating information resource activity national	knowledge technology industry maintain improve concern emerging communication document community conduct year solution	stakeholder sharing peer performance value common special monitor time role engineering data high	decision delivery requirement result increase safety access way purpose enhance office based building

Number of Committees	Terms (Single words and noun-phrases)			
	program technical review development practice need association system partner highway project organization innovation service operation process tool force future	coordinate approach method joint funding innovative planning professional set manager training center regional leadership interest create level staff benefit	analysis guide making part priority standard identifying case area focus structure collaboration advance build infrastructure material study partnership limited	regulation impact coordination person needed collection business gap maintenance expertise capacity cost application model facility environmental specific
17-20	private lead long local working managing participate design quality identified survey initiative source product required increasing search make factor type change order place environment inform	active street challenge event serve trend call collaborate road creating improvement estimate user individual efficient function network panel provides term response efficiency team point comprehensive	disseminate asset ability increased non technique conducted concept measure direction location significant international present open engage produce adoption range procedure integrated position timely government matter	multimodal analyze facilitate construction outreach mode sustainability context economic transit manage maker administrator practitioner created funded focused traffic content changing demand engineer consistent multiple modeling

Number of Committees	Terms (Single words and noun-phrases)			
	responsible external communicate providing effectiveness executive paper	nation workforce learned participation assessment fund investment	right prepare evaluate regulatory human require	integration explore large perform
14-16	reduce requires scope primary field idea capability rail single sector lesson leverage perspective identification evaluation cooperative communicating cross effect affect condition bridge detailed risk volume evaluating play improving control mobility representative rapid rate setting reference phase improved	form record region database extend major site contractor small life challenging contact collaborative platform leading foundation aspect expand mean primarily online barrier collected consultant option education sustainable champion dissemination collect principle operational extent vehicle criterion rural urban	detail show face view estimated quantify good comparison surface pilot early employee conducting unique practical multi clear budget internal map efficiently difference responsibility monitoring officer metric educational limitation mechanism designed statewide law target limit constraint line low	land aid body dedicated advancement guideline roadway alternative interstate expert intersection offer dynamic test course park movement maintaining day component section basis utilize framework adopted planner scale wide collecting methodology schedule degree awareness driven step trade health

Number of Committees	Terms (Single words and noun-phrases)			
	element operating	opening travel	outcome capture	medium begin
12-13	legislation contract space specification operate interim civil shared freight fast hold continuing entity minimum leader core rule pavement nature resulting total ready availability substantial estimating able cycle transfer category speed manner assessing format connected US asset management	utilizing characteristic behavior automated nationwide floor request social bus link tech unit size treatment main situation real cover owner feature predict market commonly consistency route direct conclusion informed replacement safe track modal regular essential reduction data collection	reviewing water organizational definition economy reliable occur template prioritize series assumption increasingly mitigate reduced programming documentation investigate growing maximize flexible sign device zone city corridor mile company deployment TIM item basic enhanced distribution station lane	advanced testing combination stage requested jurisdiction expansion planned reach interaction reason ph evaluated transport path built standardized know end security connection start underway known accordance governing protection oversight moving software night connect class larger
10-11	Congress contribute analytics accurate	performed drive produced inventory	cause adopt generate history	preliminary determination price box

Number of Committees	Terms (Single words and noun-phrases)			
	reducing authority conjunction Spring combine continuous decade complexity validate utility return emphasis rapidly optimize entitled lower deliver advancing accommodate pattern parameter port turn light hazard mitigation relative physical mix electronic compliance recognized meaningful typical measurement transition failure standardization indicated duration	mobile portion separate HOT skill analytical mandate feedback represent affecting county customer global move accomplish involving widely proven agreement integrate integrating initial ride functional intent closing look personnel outside domestic grow institution consequence identifies learn cutting rely costly optimal capital	involvement educate negative delivering property commercial distance allowed equipment energy crash balance temporary autonomous variable driver registration smart driving automation LED loss expectation payoff delay video caused managed knowing fit highly investigation society estimation traveler installation located poor resulted feasible	protocol weight channel sufficient protect close exposure party fact accomplished strong repair reliability enhancing requiring expanded contribution train receive generation prepared prediction supplement maintained affected quantitative involves labor money organize interactive minimize percent saving scenario CEO accounting mission
8-9	regularly finance reauthorization	emergency strength MPOs	uniform lighting accessibility	likelihood drainage

Number of Committees	Terms (Single words and noun-phrases)			
	round coordinated retention targeted serf administrative disseminating metropolitan uncertainty accurately adopting dependent growth combining linked forecasting documented district air creation restriction showing ADA airport legal tour truck virtual longer age allowing green near impacted modified demonstration vendor traveling consulting block nearly hour flow complex	learning delivered analyst rating preservation historic relatively resilience advantage nationally central base supply gain held coordinator statistical studied measured constructed ground generated profile baseline damage prioritization adjustment job natural worked cooperation discipline contain interview winter certification solicit engaged financial legislative alignment impacting strengthen sound	timing adjacent old placement sensitivity presence recognition crossing object stop usage enhancement investigating refine configuration bike roadside sensor directed designing concerning curve combined documenting coverage simulation count empirical computer controlled extremely participant rehabilitation grant lacking internationally climate adopter political telephone provision car self laboratory	processing sample resiliency structural inspection grade compile culture proceeding daily length digital guard status pressure brief remains initially intensive million stress employed depth disruption raise surrounding quantifying protecting population distribute consistently suited advisory production changed utilization dollar library actively measuring equity enterprise shift lifecycle

Number of Committees	Terms (Single words and noun-phrases)			
	independent passenger injury acceptable absence secondary performing science modification minimal project development performance measure	fundamental extension revenue attempt fiscal severity fee focusing align pedestrian data management highway agency local transportation agency	positive perception indicates derived fatality posting capable permanent soil apps autonomous vehicle inform decision	average preparing complementary allocation storage quantity capturing retain expanding classification appointed private sector
7	briefing affair complement spectrum conflict procurement retaining aviation accomplishment preparation quick uncertain leveraging underlying conservative sale oriented accelerate bicycle responsive sensitive signal accessible geometric clearance interval freeway message diverse	modern FAR vertical gained developer feasibility operator shoulder depend indicate experiment fixed programmed predicted foot safer fashion candidate store bldg distributed refinement tracking enforcement indicator extensive parallel terminal systematic	beginning concrete chain expensive culvert pipe validated fleet represented heavy mitigating pertinent replaced covered viable simple incident load wall deck aerial acquisition evolving establishment economical accelerated reflect revision cell	obtained historical variability calculate obtain vol dimension qualitative specified technological reduces extreme generating sustain aim oil streamline mutual prevent resident utilizes advice occurs CFR season choice partnering proactively prioritizing

Number of Committees	Terms (Single words and noun-phrases)			
	older uniformity zero ray manufacturer color demonstrated closed detection maximum permit smaller transportation system operation project delivery transportation infrastructure knowledge transfer	variation weather institutional affiliation portable received experimental grand verify disseminated eligibility yard transit agency local agency connect vehicle successful implementation standard specification	lost trip representation railroad interchange house join fuel index validation accuracy evidence transportation bureau decision maker other stakeholder	ahead predicting FTA theme prevention convene organized validating initiated worker appoint networking professional development share information
6	recruitment scan synthesize contracting improves engagement firm rulemaking prioritized repository adversely forecast boundary flexibility motorist marking parking big supplemental posted demographic language depending ITE MASH	investigator utilized bit installed optimized historically penetration prof wireless raised width wider prototype explored independently installing APTA adverse enter safely consequently reaction shorter placed proprietary	accident hydraulic gi showed referenced facing EDC limiting faced preserve succession recovery cultural streamlining drone visit interface guest collision storm forest offering widespread sufficiently matrix	linking protective solid quickly informational venue generic arterials lot traveled analyzing threat suburban evolution met occurred file screening covering contributing billion offered facilitating qualified curriculum

Number of Committees	Terms (Single words and noun-phrases)			
	congestion shape adjust investigated countermeasure unknown motor head run code longitudinal original occupancy work zone cost effectiveness risk management	guardrail raising reasonable wood roll mass transferred ideal responder advise accessed acceptance conventional human resource guidance document external stakeholder	correlation represents mixed remaining van half qualification percentage rated integral strongly analyzed construct active transportation data set data analysis	employment continuously staffing deployed participating jointly interact sub continually advocacy provider varied transportation facility transportation asset national level policy
5	formation visual oversee routinely reflected crucial GAO convey contained CAV disability sheet impaired horizontal coalition automotive guiding intensity angle eye warning European bicyclist vehicular protected mounted	young arterial click begun install LOS controlling creates travelling adjusted indicating predictive buried accommodating fatal pole steel responding served rigid tunnel trajectory extending producing simulated HR	internet industrial manufacturing exploring span river Europe routine segment catalog reality pricing phasing sampling corporate equivalent captured clay rigorous designer benchmark indirect moderate correlated deterioration statistic	minimizing facilitated tolerance engaging tribal architectural gas treat obtaining recognizing programmatic aimed differing concerned eligible ROW linkage negatively governmental career accountability recruit commuter extensively supplementary NHTSA

Number of Committees	Terms (Single words and noun-phrases)			
	separation	census	vulnerability	aggregate
	loop	assure	narrow	insurance
	hardware	outdated	chip	maturity
	started	scoping	aware	respond
	running	detect	calibrate	purchase
	sight	calibration	reflecting	collaboratively
	hand	refined	static	secure
	reliably	tactic	correlate	cabinet
	algorithm	rich	visualization	life cycle
	magazine	diversity	accessing	management
	speed limit	knowledge	performance	practice
	road user	management	management	design guidance
	transportation	crash data	maintenance cost	transportation
	planning	highway bridge	automate vehicle	policy
	planning design	investment decision	roadway safety	federal regulatory
	business model	civil engineer	public private	mandate
	key decision	innovative	partnership	urban area
	maker	technology	local road	
	other source			
	significant impact			

Topic Modeling

Methodology

A topic modeling technique called Latent Dirichlet Allocation (LDA) was used to discover topics included within the collection of committee documents. LDA looks at the patterns of words and phrases appearing in the documents, and creates clusters that best describe the content of the documents. Each cluster of words defines a topic. Each word is assigned a score indicating the degree to which it contributes to the topic. Model parameters are used to (1) specify the number of topics to be created and (2) automatically exclude both infrequently occurring and very frequently occurring terms. Once topics are identified, the LDA model is applied to a given document to describe which topics are included in that document – and the relative strength of each topic.

Topic models were created and applied using the following process:

- Used the python gensim package to create a series of LDA topic models on the entire collection of 291 text files. Several different models were created, using an iterative process to refine inputs and parameters to achieve the best results. Variations of inputs included lemmatized and non-lemmatized versions of the text, single terms and both single terms and noun phrases, selected common

terms excluded (e.g., “task” and “committee”), and heavily filtered terms to include only those that could be used to distinguish substantive committee interests and activities.

- Three models with 20 topics each were selected for application”
 - Model 1: Both single terms and noun phrases with limited common terms excluded
 - Model 2: Single terms only, filtered to include only relevant terms
 - Model 3: Single terms and noun phrases, filtered to include only relevant terms
- The model results were applied to the set of 28 committee documents to summarize the strength of association between each topic and each AASHTO committee.
- The LDAvis package was used to create visualizations for each model, allowing for exploration of the terms associated with each topic – and the topics associated with the most common terms in the corpus.
- After examination of the results, model 3 was discarded because its results were similar to the other models and did not add further insights.

Results

Table A-3 summarizes the results for topic models 1 and 2. Figures A-1 and A-2 provide a graphical presentation of results. The cluster names were assigned manually based on the words included.

In general, the two models identified a similar set of topics, though there are notable variations. Topics affiliated with the greatest number of AASHTO committees in both models were Transportation Workforce, Performance Management, and Impact Analysis. Other topics that were affiliated with more than 10 AASHTO committees (in one of the two models) were:

- Research/Guidance
- Strategy and Coordination
- Transit/Access Management
- Transportation Planning
- Data Management
- System Operations
- Asset Management
- Maintenance

It is important to keep in mind that the models were created using a fairly small number of documents (291 files) and have limitations:

- Some topics are less coherent than others – that is, they appear to combine multiple concepts (e.g., Transit/Access Management).
- Both models have significant cross-topic overlaps, as shown in Figures A-1 and A-2. An ideal topic model would minimize such overlaps.
- Some of the topic-to-committee associations don’t make intuitive sense – for example, the strong association of the Internal and External Audit Committee to topic 14-Transportation Planning in model 1. This may be which may be partially explained by the lack of topic coherence as well as the fact that certain committees had more substantive content to mine (in the form of research problem statements and conference agenda material) than others.

While caution is needed in interpreting the results, they are informative and useful for validating and augmenting the list of common interests.

Table A-3. Cluster Analysis Model Comparison

Model	Inputs	Clusters (# Related Committees)
1	single terms and noun phrases selected common words removed	Research/Guidance (25) Performance Management (23) Strategy and Coordination (20) Impact Analysis (19) Transportation Planning (18) Transportation Workforce (17) Data Management (15) Bridges and Structures (8) Highway Safety (8) Rail Transportation (7) Agency Administration (4) Design for Active Transportation (4) Public Transportation (3) Roadside Safety (3) Environmental Stewardship (3) Transit Operations (3) Maintenance and Operations (2) Connected and Automated Vehicles (2) ROW, Utilities + Resilience (2) Pavement Design (1)

Model	Inputs	Clusters (# Related Committees)
2	single terms only only meaningful terms included	Transportation Workforce (25) Transit/Access Management (24) Impact Analysis (21) System Operations (14) Asset Management (12) Maintenance (11) Freight Movement (9) Bridge Construction (7) Highway Safety (5) Design for Active Transportation (4) Traffic Engineering (4) Resilience/Workforce (3) Rail Transportation (3) Roadside Safety (3) Materials Testing (3) Multimodal Transportation (3) Materials and Pavements (3) Pavement Design (2) Bridge Design (1) Utilities, Right-of-Way and Outdoor Advertising (1)

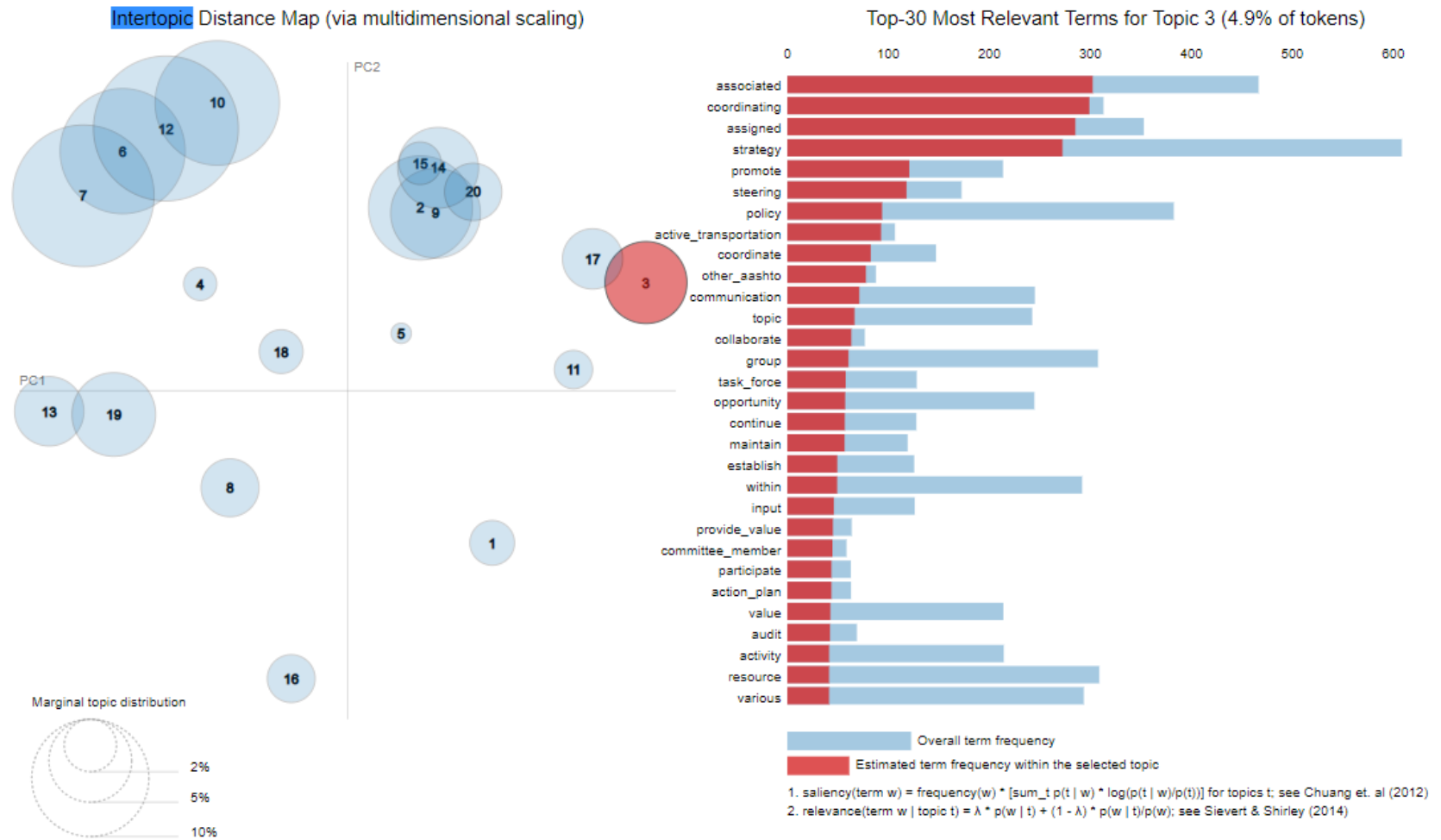


Figure A-1. Model 1 (single words and noun phrases, unfiltered)

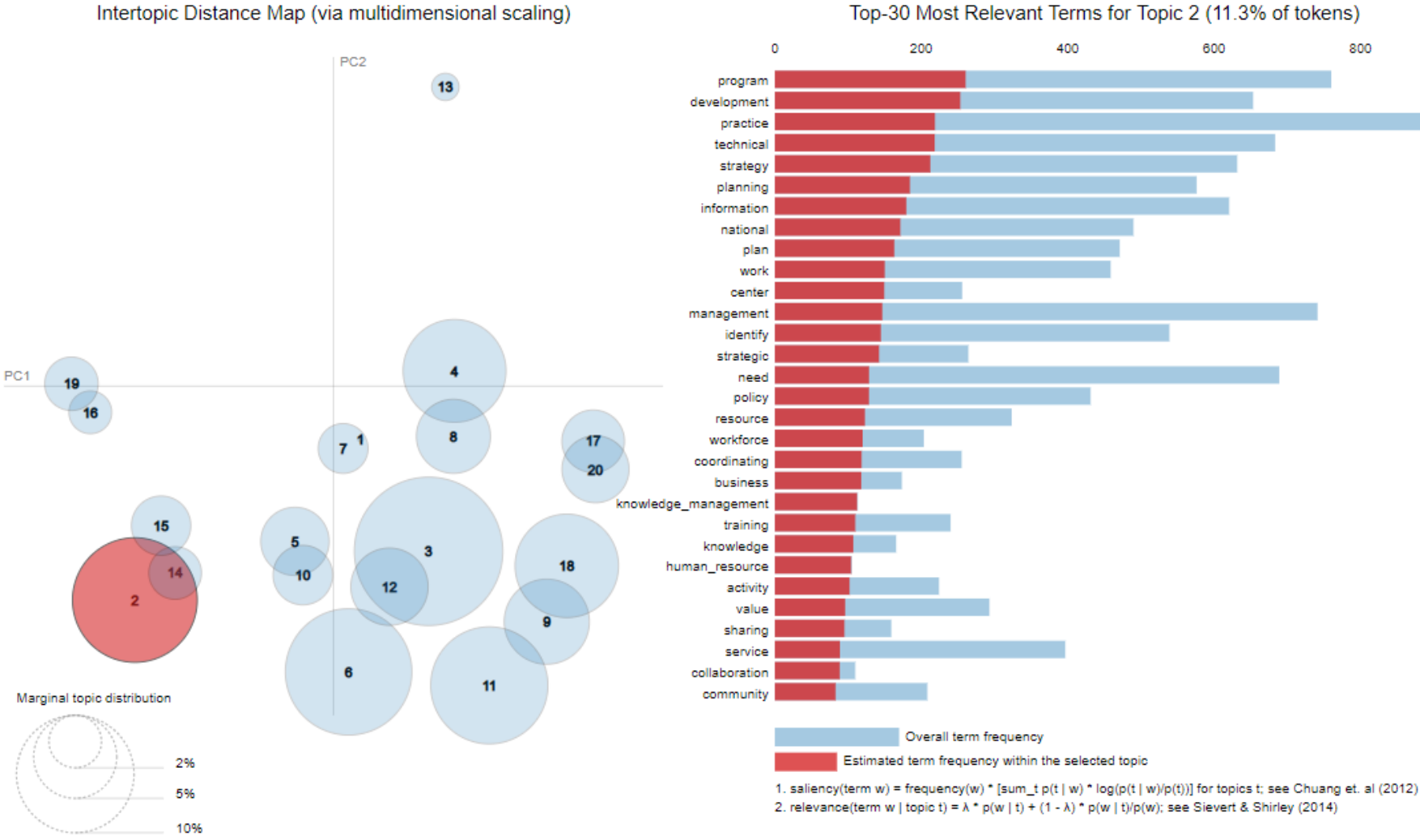


Figure A-2. Model 2 (single words, filtered)

Tables A-4 and A-5 show detailed results for the two models. Each row of the table shows the assigned name of the cluster, the top 10 words that make up the cluster, and the related committees. The relative strength of the committee association to the topic is shown in parentheses next to the committee name. Committees are shown in order of strongest to weakest association.

Table A-4. Cluster Analysis Results – Model 1 (single words and noun phrases, unfiltered)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (strength)
1	<u>Maintenance and Operations</u> fleet group CTSO working equipment article marketing vehicle link TSMO	Committee on Maintenance (.11) Committee on Transportation System Operations (.09)
2	<u>Data Management</u> data technology management standard operation framework sharing strategy effort process	Data Management & Analytics (.40) Highways and Streets (.28) Construction (.21) Transportation Security & Resilience (.16) Research & Innovation (.15) Knowledge Management (.13) Performance Management (.13) Active Transportation (.11) Planning (.09) Human Resources (.07) Materials and Pavements (.05) Transportation Communications (.07) Safety (.04) ROW, Utilities & OA Control (.04) Public Transportation (.04)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (strength)
3	<u>Strategy and Coordination</u> associated coordinating assigned strategy promote steering policy active transportation coordinate other AASHTO	Transportation Communications (.53) Internal and External Audit (.42) Planning (.23) Aviation (.22) Knowledge Management (.20) Water (.19) Highways and Streets (.17) Active Transportation (.17) Funding & Finance (.16) Data Management & Analytics (.16) Performance Management (.14) Human Resources (.11) Construction (.09) Freight (.06) Civil Rights (.08) Public Transportation (.05) Transportation Security & Resilience (.04) Transportation System Operations (.04) ROW, Utilities & OA Control (.03) Maintenance (.03)
4	<u>Pavement Design</u> pavement vertical soil index design letter BTS attachment moisture local agency	Materials and Pavements (.10)
5	<u>Public Transportation</u> bus intercity employee rural policy responsible commission reviewing zero public transportation	Public Transportation (.03) Rail (.03) Water (.03)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (strength)
6	<u>Bridges and Structures</u> bridge design construction structure material concrete performance structural load testing	Bridges & Structures (.56) Materials & Pavements (.34) Maintenance (.16) Environment & Sustainability (.17) Construction (.09) Design (.04) ROW, Utilities & OA Control (.03) Highways & Streets (.03)
7	<u>Impact Analysis</u> study analysis data impact developed method different et cost risk	Safety (.29) Design (.28) Materials & Pavements (.21) Traffic Engineering (.19) Transportation Security & Resilience (.18) ROW, Utilities & OA Control (.18) Environment & Sustainability (.17) Active Transportation (.12) Bridges & Structures (.10) Research & Innovation (.11) Construction (.10) Performance Management (.10) Maintenance (.09) Funding & Finance (.10) Data Management & Analytics (.08) Transportation System Operations (.09) Planning (.05) Public Transportation (.06) Rail (.05)
8	<u>Design for Active Transportation</u> design speed roadway pedestrian bicycle guideline geometric design street motorized context	Traffic Engineering (.14) Active Transportation (.12) Design (.09) Highways and Streets (.04)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (strength)
9	<u>Transportation Workforce</u> region update technical construction engineer section workforce training maintenance design	Human Resources (.36) Civil Rights (.32) Construction (.26) Bridges & Structures (.13) Materials & Pavements (.10) ROW, Utilities & OA Control (.09) Aviation (.06) Rail (.06) Highways & Streets (.05) Maintenance (.05) Environment & Sustainability (.05) Knowledge Management (.05) Data Management & Analytics (.05) Water (.04) Internal & External Audit (.04) Planning (.03) Research & Innovation (.03)
10	<u>Performance Management</u> management performance lane decision asset investment BTS asset management culvert approach	Funding & Finance (.52) Performance Management (.46) Planning (.29) Research & Innovation (.25) Maintenance (.20) Transportation Security & Resilience (.15) Transportation System Operations (.13) Public Transportation (.10) Traffic Engineering (.10) Safety (.10) Construction (.08) ROW, Utilities & OA Control (.08) Design (.07) Knowledge Management (.06) Active Transportation (.06) Highways & Streets (.05) Rail (.05) Data Management & Analytics (.05) Freight (.04) Bridges & Structures (.04) Civil Rights (.04) Materials & Pavements (.03) Environment & Sustainability (.03)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (strength)
11	<u>Agency Administration</u> break knowledge management human resource civil right agency administration KM knowledge block managing roundtable	Human Resources (.27) Knowledge Management (.21) Civil Rights (.18) Aviation (.10)
12	<u>Research/Guidance</u> study BTS attachment TRB letter level modeling WA guidance number	Construction (.37) Environment & Sustainability (.35) Knowledge Management (.29) Transportation Security & Resilience (.22) Planning (.18) Research & Innovation (.17) Rail (.17) Data Management & Analytics (.16) Active Transportation (.14) ROW, Utilities & OA Control (.14) Traffic Engineering (.14) Transportation System Operations (.13) Public Transportation (.13) Construction (.13) Maintenance (.12) Bridges and Structures (.11) Civil Rights (.11) Materials & Pavements (.11) Design (.11) Safety (.10) Performance Management (.09) Human Resources (.09) Aviation (.09) Funding & Finance (.08) Highways & Streets (.07)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (strength)
13	<u>Roadside Safety</u> barrier MASH roadside vehicle design testing crash roadside safety work zone hardware	Design (.31) Safety (.18) Traffic Engineering (.15)
14	<u>Transportation Planning</u> regional access land community local freight route species data public	Internal and External Audit (.40) Water (.40) Freight (.35) Civil Rights (.26) Highways & Streets (.18) Research & Innovation (.17) Active Transportation (.13) Planning (.09) Public Transportation (.08) Environment & Sustainability (.07) Aviation (.06) Rail (.05) Transportation System Operations (.04) Knowledge Management (.05) Data Management & Analytics (.04) ROW, Utilities & OA Control (.04) Human Resources (.04) Transportation Security & Resilience (.04)
15	<u>Environmental Stewardship</u> environmental mitigation resource air quality guidance environment process monitoring natural specialist	Environment & Sustainability (.10) Civil Rights (.03) Water (.03)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (strength)
16	<u>Connected & Automated Vehicles</u> vehicle connected application traffic infrastructure freeway congestion safety automated technology	Transportation System Operations (.12) Traffic Engineering (.07)
17	<u>Rail Transportation</u> freight rail policy strategy FRA passenger steering public transportation railroad legislative	Freight (.50) Rail (.50) Aviation (.41) Water (.28) Public Transportation (.16) Funding & Finance (.09) Highways & Streets (.04)
18	<u>Transit Operations</u> transit service equipment maintenance rural winter vehicle snow mobility provider	Public Transportation (.32) Maintenance (.07) Research & Innovation (.04)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (strength)
19	<u>Highway Safety</u> safety crash highway safety roadway traffic sign HSM road speed safety performance	Safety (.19) Internal and External Audit (.12) Traffic Engineering (.12) Active Transportation (.11) Maintenance (.05) Design (.04) Highways & Streets (.04) Research & Innovation (.03)
20	<u>ROW, Utilities + Resilience</u> utility resilience ROW emergency management right emergency response accommodation policy emergency process	ROW, Utilities & OA Control (.36) Transportation Security & Resilience (.15)

Table A-5. Cluster Analysis Results – Model 2 (single words, filtered terms)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (association strength)
1	<u>Materials Testing</u> region concrete testing network materials bus quality coatings audit asphalt	Internal & External Audit (.34) Materials & Pavement (.16) Research & Innovation (.03)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (association strength)
2	<u>System Operations</u> operations systems technology connected technologies registration infrastructure CTSO vehicle working	Transportation System Operations (.51) Transportation System Security & Resilience (.10) Data Management & Analysis (.07) Knowledge Management (.07) Highways and Streets (.07) Construction (.07) Freight (.05) Traffic Engineering (.04) Planning (.04) Maintenance (.04) Research & Innovation (.04) Performance Based Management (.03) Bridges & Structures (.03) ROW, Utilities & OA Control (.03)
3	<u>Design for Active Transportation</u> traffic speed pedestrian bicycle engineering signal control active guidelines facilities	Traffic Engineering (.28) Design (.12) Highways and Streets (.07) Safety (.07) Transportation System Operations (.04)
4	<u>Bridge Design</u> factors load statistical resistance reliability specifications calibration LRFD parameters factor	Bridges & Structures (.07)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (association strength)
5	<u>Multimodal Transportation</u> policy shoulder view environments legislative lanes aviation conflict eligibility commercial	Aviation (.42) Public Transportation (.09) Freight (.03)
6	<u>Materials and Pavements</u> test treatment field materials mix testing test hot method material	Materials & Pavements (.13) Maintenance (.07) Environment & Sustainability (.06)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (association strength)
7	<u>Transportation Workforce</u> knowledge policy coordinating resources value strategic civil rights workforce peer	Water (.87) Civil Rights (.72) Transportation Communications (.66) Knowledge Management (.60) Internal & External Audit (.50) Funding & Finance (.48) Data Management & Analytics (.48) Aviation (.46) Human Resources (.40) Highways & Streets (.39) Planning (.29) Rail (.25) Construction (.22) Active Transportation (.21) Public Transportation (.20) Performance-Based Management (.18) Research & Innovation (.09) Transportation System Operations (.08) ROW, Utilities & OA Control (.08) Transportation System Security & Resilience (.06) Materials & Pavement (.05) Freight (.05) Maintenance (.04) Environment & Sustainability (.04) Safety (.03)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (association strength)
8	<u>Impact Analysis</u> level cost analysis projects environmental costs requirements impacts required quality	Environment & Sustainability (.51) Funding & Finance (.32) ROW, Utilities & OA Control (.23) Active Transportation (.22) Research & Innovation (.20) Performance-Based Management (.20) Maintenance (.17) Construction (.16) Materials & Pavement (.14) Data Management & Analytics (.14) Bridges & Structures (.14) Planning (.13) Transportation Security and Resilience (.12) Transportation System Operations (.09) Design (.08) Safety (.07) Public Transportation (.07) Highways & Streets (.06) Rail (.05) Traffic Engineering (.05) Human Resources (.03)
9	<u>Pavement Design</u> pavement site model response soil water ground conditions accuracy software	Materials & Pavements (.14) Bridges & Structures (.04)
10	<u>Bridge Construction</u> bridge bridges structures specifications engineer region steel construction structural non	Bridges & Structures (.51) Construction (.10) Materials & Pavement (.08) Environment & Sustainability (.05) Highways & Streets (.04) Maintenance (.03) Design (.03)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (association strength)
11	<u>Maintenance</u> maintenance equipment construction fleet preservation function media species repair culverts	Maintenance (.36) Construction (.14) Materials & Pavements (.09) Knowledge Management (.09) Environment & Sustainability (.08) Aviation (.06) Rail (.05) Transportation System Security & Resilience (.04) Data Management & Analytics (.04) Civil Rights (.04) Bridges & Structures (.03)
12	<u>Freight Movement</u> freight economic supply urban land rural movement staff committees truck	Freight (.86) Public Transportation (.08) Research & Innovation (.07) Highways & Streets (.06) Rail (.05) Transportation System Security & Resilience (.05) Water (.04) Planning (.04) Active Transportation (.03)
13	<u>Highway Safety</u> crash road models analysis traffic methods HSM crashes tools roadway	Safety (.17) Research & Innovation (.10) Active Transportation (.05) Environment & Sustainability (.04) Design (.04)
14	<u>Traffic Engineering</u> devices air sign signs traffic driver control roadway lighting light	Design (.22) Traffic Engineering (.13) Maintenance (.04) Environment & Sustainability (.03)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (association strength)
15	<u>Utilities, Right of Way and Outdoor Advertising</u> utilities utility way right advertising control outdoor accommodation acquisition policies	ROW, Utilities & OA Control (.32)
16	<u>Resilience/Workforce</u> resilience emergency security human workforce response resources training infrastructure systems	Human Resources (.44) Transportation System Security & Resilience (.26) Knowledge Management (.07)
17	<u>Rail Transportation</u> rail passenger railroad freight intercity policy center solutions services map	Rail (.44) Transportation Communications (.06) Research & Innovation (.03)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (association strength)
18	<u>Roadside Safety</u> barrier roadside MASH crash vehicle barriers impact test testing systems	Design (.45) Safety (.30) Traffic Engineering (.22)
19	<u>Transit/ Access Management</u> transit vehicle area high innovation access method limited vehicles travel	Public Transportation (.48) Research & Innovation (.34) Data Management & Analytics (.24) Planning (.24) ROW, Utilities & OA Control (.22) Transportation Communications (.21) Highways & Streets (.20) Safety (.19) Design (.19) Active Transportation (.18) Construction (.17) Transportation System Operations (.16) Internal & External Audit (.15) Transportation System Security & Resilience (.14) Materials & Pavement (.14) Environment & Sustainability (.13) Knowledge Management (.12) Civil Rights (.12) Performance Based Management (.10) Rail (.10) Maintenance (.09) Human Resources (.08) Bridges & Structures (.08) Funding & Finance (.07)

Topic Cluster:	Cluster Name + top 10 terms	Associated Committees (association strength)
20	<u>Asset Management</u> asset risk evaluation decision framework assets effectiveness making decisions life	Performance Based Management (.42) Planning (.20) Transportation System Security & Resilience (.15) Construction (.10) Maintenance (.09) Civil Rights (.06) Transportation Communications (.06) Knowledge Management (.05) Safety (.04) Transportation System Operations (.04) Research & Innovation (.04) ROW, Utilities & OA Control (.03)

Modifications to the Common Interests Framework

Based on the text analysis results, modifications to the framework were made to reflect concepts that were not identified through manual document review. Key changes included:

- The *Transportation Development and Delivery* facet was split into finer gradations – with separate categories added for *Design, Traffic Engineering, Construction, Maintenance* and *Operations*.
- A consolidated category for *Security, Risk* and *Resilience* was created within the *Concerns* facet.
- A new category for *Policy* and *Regulation* was added to the *Concerns* facet.
- *Asset Management* was added to the *Enabling Disciplines* facet given its frequency of occurrence.
- The previous *Data/Information Management* category under the *Enabling Disciplines* facet was broadened to *Data Management, Modeling and Analysis*.
- The previous *Communications* category under the *Enabling Disciplines* facet was broadened to *Communications and Collaboration*.
- The previous *Workforce Management* category under the *Enabling Disciplines* facet was broadened to *Workforce Management and Development*.
- The previous *Financial Management* category under the *Enabling Disciplines* facet was replaced by a *Contracting/Procurement* category within the *Transportation Development and Delivery* facet.

- A new *Standardization* category under the *Enabling Disciplines* facet was added, recognizing the large number of common terms related to AASHTO’s role in creating standards and guidelines.

Key Words and Related Terms for Framework Categories

The following summarizes the key words and related terms identified through the text analysis that are related to each of the updated framework categories.

Facet 1: Transportation Modes and Users

- *Multimodal Transportation System*
 - transportation system
 - multimodal
 - mode
 - modal
- *Highway and Street Transportation*
 - road user
 - infrastructure
 - highway
 - freeway
 - arterial/arterials
 - interstate
 - route
 - street
 - local road
 - road
 - roadway
 - network
 - intersection
 - interchange
 - roadside
 - shoulder
 - lane
- *Rail Transportation*
 - rail
 - railroad
 - train
 - track

- intercity
 - FRA <Federal Railroad Administration>
- *Public Transportation*
 - transit agency
 - mass
 - transit
 - FTA <Federal Transit Administration>
 - APTA <American Public Transportation Association>
 - station
 - terminal
 - bus
 - equipment
 - service
 - provider
 - operator
 - ride
 - passenger
- *Water Transportation*
 - port
 - channel
 - water
- *Air Transportation*
 - aviation
 - air
 - airport
- *Active Transportation*
 - active
 - nonmotorized
 - active transportation
 - bicycle/bike/cycle
 - bicyclist
 - pedestrian
- *Freight Transportation*
 - truck
 - commercial
 - vehicle
 - combination

- heavy
- rail
- freight
- supply
- chain
- terminal
- good
- movement
- registration

Facet 2: Transportation Assets

- *Transportation Assets (General/Other)*
 - transportation asset
 - transportation infrastructure
- *Pavement*
 - pavement
 - material
 - hot mix
 - mix
 - materials testing
 - soil
 - clay
 - asphalt
 - concrete
- *Bridges and Structures*
 - bridge
 - highway bridge
 - structure/structural
 - steel
 - coatings
 - span
 - tunnel
 - wall
 - deck
 - foundation
 - load
 - posting

- *Traffic and Safety Assets*
 - barrier
 - hardware
 - MASH <Manual for Assessing Safety Hardware>
 - guardrail
 - sign
 - lighting/light
 - signal
 - device
- *Operations/Telecommunications Assets*
- *Drainage Assets*
 - channel
 - culvert
 - pipe
- *Geotechnical Assets*
 - soil
 - clay
 - tunnel
 - wall
- *Transit/Rail Assets*
 - transportation facility
 - facility
 - terminal
 - rail

Facet 3: Transportation Development and Delivery

- *Transportation Development and Delivery (General)*
 - project development
 - project delivery
 - public private partnership
 - ROW <Right of Way>
 - utility/utilities
 - accommodation
 - acquisition
 - rehabilitation
 - design
 - build

- schedule
- estimating
- streamlining
- delivery
- *Planning*
 - transportation planning
 - significant impact
 - corridor
 - study
 - site
 - region/regional
 - rural
 - urban
 - urban area
 - suburban
 - MPOs <Metropolitan Planning Organizations>
 - county
 - city
 - local
 - zone
 - boundary
 - lifecycle/life cycle
 - planning/planned
 - programming/programmed
 - demand
 - travel/traveler
 - mobility
 - accessibility
 - environment
 - scenario
- *Design*
 - design/designed/designer
 - design guidance
 - survey
 - bridge
 - load

- LRFD <Load Resistance Factor Design>
- factor
- resistance
- hydraulic
- drainage
- culvert
- pipe
- foundation
- geometric
- profile
- grade
- curve
- longitudinal
- horizontal
- alignment
- context
- material
- *Traffic Engineering*
 - traffic
 - speed
 - turn
 - LOS <Level of Service>
 - safety hardware
 - roadside
 - barrier
 - MASH <Manual for Assessing Safety Hardware>
 - signal
 - LED <light-emitting diode>
 - ITE <Institute of Transportation Engineers>
- *Construction*
 - construction/constructed/construct
 - inspection
 - test/testing
 - permit
 - accelerate

- work zone
- *Maintenance*
 - maintenance/maintaining/maintain/maintained
 - maintenance cost
 - preservation/preserve
 - inventory
 - inspection
 - damage
 - deterioration
 - treatment
 - winter
 - permit
 - work zone
 - fleet
 - equipment
 - culverts
- *Operations*
 - transportation system operation
 - operations/operating/operational/operate/operator
 - performance
 - traffic
 - car
 - travel/traveler
 - motorist
 - parking
 - TIM <traffic incident management>
 - HOT <high occupancy toll>
 - connected
 - automated
 - autonomous
 - vehicle
 - occupancy
 - volume/vol
 - speed limit
 - speed

- flow
 - delay
 - congestion
 - duration
 - control
 - sign
 - signal
 - device
 - lighting
 - timing
 - detection
 - loop
 - permit
 - mobility
 - optimize/optimal/optimized
 - demand
 - mobility
 - reliable
 - movement
 - pricing
 - rate
 - freight
 - registration
 - emergency
 - emergency management
 - emergency response
 - incident
 - response/responder
 - winter
 - weather
 - storm
 - enforcement
 - work zone
 - TSMO <Transportation System Management and Operations>
- *Contracting/Procurement*

- procurement
- contract
- contractor/contracting
- consultant/consulting
- vendor

Facet 4. Enabling Disciplines

- *Performance Management*
 - performance management
 - performance measure
 - perform/performing/performance
 - measure/measuring/measurement/measured
 - metric
 - accountability
 - efficient/efficiency/efficiently
 - reliable/reliability
 - cost effectiveness
 - effectiveness
 - investment
 - value
 - payoff
 - mobility
 - congestion
 - economic/economy/economical
 - customer
- *Asset Management*
 - asset
 - asset management
 - transportation asset
 - investment decision
 - lifecycle/life cycle
 - decisions/decision making
 - deterioration
 - preservation
 - treatment
 - risk management
 - risk

- pavement
- bridge
- tunnel
- *Right of Way/Utilities Management*
 - right of way/ROW/RW/right-of-way
 - utility/utilities
 - accommodation
 - acquisition
 - outdoor advertising
 - land
- *Data Management, Modeling and Analysis*
 - inform decision
 - data
 - data set
 - data analysis
 - crash data
 - database
 - data collection
 - data management
 - information
 - quantitative/quantify
 - census
 - inventory
 - study/studied
 - method
 - calibrate/calibration
 - model/modeling
 - synthesize
 - evaluate
 - evidence
 - accuracy
 - informed
 - benchmark
 - trend
 - correlate/correlated
 - algorithm
 - visualization

- analytics/analytical/analyze/analyzed/analysis
- predicted/predicting/predictive/prediction
- estimation/estimated
- validation
- forecasting/forecast
- simulation/simulated
- statistical/statistic
- knowledge
- decision
- impact
- cost
- risk
- *Communication and Collaboration*
 - collaborate/collaboration/collaborative/collaboratively
 - partner/partnership/partnering
 - coalition
 - coordination/coordinating
 - communication/communicating
 - cooperative/cooperation
 - external stakeholder
 - stakeholder
 - engagement
 - networking
 - outreach
 - convene
 - community
 - peer
 - sharing
 - share information
 - participate
 - disseminate/dissemination/disseminated
 - team
- *Knowledge Management*
 - knowledge
 - knowledge transfer
 - knowledge management

- *Research Management*
 - *knowledge*
 - *idea*
 - *technology*
 - *analysis*
 - *innovation/innovative*
 - *study*
 - *disseminate*
 - *survey*
 - *adoption*
 - *cooperative*
 - *consultant*
 - *data*
- *Workforce Management and Development*
 - professional development
 - human resource
 - expertise
 - capacity
 - capability
 - training
 - retention/retain
 - recruitment/recruit
 - succession
 - professional
 - ability
 - diverse/diversity
 - workforce
 - worker
 - labor
 - employee/employment
 - personnel
 - staffing
 - career
 - education/educational/educate
 - curriculum
 - human
 - HR <Human Resources>

- civil engineer
- engineer/engineering
- planner
- lesson
- learn/learning
- library
- *Risk Management*
 - risk management
 - risk
 - exposure
 - mitigate/mitigation
 - vulnerability
 - damage
 - failure
 - loss
- *Project Management*
- *Standardization*
 - guidance document
 - design guidance
 - standard specification
 - guide/guideline/guidance
 - standard/standardization
 - uniformity/uniform
 - specification/specifications
 - reference
 - protocol
 - consistent/consistency/consistently
 - adoption/adopt
 - MASH
 - framework

Facet 5. Concerns

- *Safety*
 - safety/safely/safe
 - roadway safety
 - roadside safety
 - highway safety

- work zone safety
- safety hardware
- safety performance
- crash
- crash data
- collision
- accident
- zero
- speed
- fatality/fatal
- injury
- countermeasure
- enforcement
- officer
- NHTSA <National Highway Traffic Safety Administration>
- warning
- hazard
- investigation
- HSM <Highway Safety Manual>
- *Environmental Sustainability and Stewardship*
 - environment/environmental
 - sustainability/sustainable/sustain
 - significant impact
 - mitigation
 - air quality
 - monitoring
 - natural resources
 - lifecycle/life cycle
 - cultural
 - health
 - energy
 - fuel
- *Diversity, Equity, and Inclusion*
 - equity
 - ADA <Americans with Disabilities Act>
 - diverse/diversity
 - disability

- *accessibility/access*
- *Security, Risk and Resilience*
 - resiliency
 - security
 - risk management
 - risk
 - exposure
 - mitigate/mitigation
 - vulnerability
 - damage
 - failure
 - loss
 - threat
- *Climate Adaptation*
 - climate
 - extreme
 - weather
- *Funding and Finance*
 - fund/funded/funding
 - finance/financial
 - fiscal
 - fee
 - reauthorization
 - rulemaking
 - budget
 - programming/programmed
 - allocation
 - revenue
 - dollar
 - grant
 - money
 - accounting
- *Policy and Regulation*
 - regulatory
 - authority
 - federal regulatory mandate
 - law

- legal
- legislation/legislative
- CFR <Code of Federal Regulations>
- mandate
- requiring
- permit
- eligibility
- compliance
- determination
- Congress
- requirement
- agreement
- government/governing/governmental
- oversight
- certification
- ADA <Americans with Disabilities Act>
- disability
- streamlining

Facet 6: Innovations/Emergent Practice

- *Technology Advancement/Innovation (General)*
 - innovative technology
 - technology
 - innovation/innovative
 - technology/tech/technological
 - software
 - computer
 - electronic
 - mobile
 - smart
 - sensor
 - wireless
 - device
 - analytics/analytical
 - future
 - advance/advanced/advancement/advancing

- emerging
- changing
- transition
- evolving/evolution
- idea
- EDC <Every Day Counts>
- experimental
- *Connected and Automated Vehicles*
 - CAV <connected and automated vehicles>
 - connected vehicle
 - automated vehicle
 - autonomous vehicle
 - automated vehicles
 - connected vehicles
 - autonomous/automation/automated
- *Data Analytics/Artificial Intelligence*
 - data
 - analytics/analytical/analyze/analyzed/analysis
 - algorithm
 - visualization
 - predicted/predicting/predictive/prediction
- *Unmanned Aerial Systems (UAS)*
 - drone
- *Smart Mobility*
- *Electric Vehicles/Alternative Fuels*
- *Building Information Management (BIM) for Infrastructure*
- *Construction Technology*
- *Advanced Materials*

Appendix C: List of Common Interests

Overview

This appendix presents a list of topics that are of common interest across multiple committees. The common interests are organized by the framework elements described in Chapter 3.

A given framework category may have several associated common interests. Not all framework categories currently have associated common interests in this initial list; however more may be added in the future.

Some common interests are related to more than one framework category – for example, “freight mobility” is associated both with “Freight” and “Mobility”. However, for simplicity, each common interest was assigned to a primary category based on judgement as to where it fit best.

The “Synonyms and Related Terms” column presents terms with similar or related meanings to the “Common Interest Name”. These are based on the manual document review, domain knowledge of the research team; and the results of the text analysis documented in Appendix B. These terms may be helpful in future efforts to build or enhance thesauri, taxonomies and ontologies and to configure search tools.

This TRT column identifies the corresponding or closest related TRT term to each common interest topic. The TRT was initially developed through an NCHRP Project and is documented in NCHRP Report 450 - Transportation Research Thesaurus and User Guide. It provides standardized terminology that is used to index transportation information resources. The TRT was consulted during the development of the common interests topic list, to maximize consistency in terminology. Where there was no equivalent TRT term for a common interest topic, the closest related parent topic was identified. In a few cases, the TRT term was not selected because it didn’t match with the research team’s understanding of common usage by AASHTO committee members. The results of this mapping can be used by individuals involved in maintaining the TRT to consider future extensions and modifications to TRT terms.

Table C-1. List of AASHTO Common Interests

Framework Category	Common Interest Name	TRT Term(s)	Synonyms and Related Terms
Transportation Modes and Users			
Multimodal Transportation (General)			Intermodal Transportation, Transportation System Management, Mode, Modal, Transportation System
	Multimodal transportation	Multimodal Transportation	
	Border crossings (international gateways)	Border Crossings	
Highways & Streets			Public Roads, Highways, Roadways, Freeways, Arterials, Road User, Infrastructure, Arterial, Interstate, Route, Local Road, Road, Intersection, Interchange, Network, Roadside, Lane, Shoulder
	Local Roads		
Public Transportation			Transit, Bus, Subway, Light Rail, Transit Agency, Mass Transit, Station, Terminal, Equipment, Service, Provider, Operator, Ride, Passenger, FTA <Federal Transportation Administration>, APTA (American Public Transit Association)
	Multi-agency joint procurements (transit)	Procurement (broader term)	
Rail Transportation			Passenger Rail, Freight Rail, Railroad, Train, Track, Intercity, FRA <Federal Railroad Administration>
	Railroad grade crossings	Railroad grade crossings	
	Railroad agreements		
Water Transportation			Ferries, Waterways. Port, Channel, Water
	Ferry systems	Ferry service (related term)	
Air Transportation			Airport, Airplanes, Aviation, Air
	Environmental impacts of firefighting foams (PFAS)	Environmental impacts (broader term)	
Active Transportation			Bicycling, Bicyclist, Bicycle, Bike, Cycle, Scooter, Walking, Pedestrian, Nonmotorized, Active
	Active transportation facility design	Highway facilities for nonmotorized users (broader term)	
	Active transportation data	Nonmotorized transportation (broader term)	

Framework Category	Common Interest Name	TRT Term(s)	Synonyms and Related Terms
	Active transportation safety	Pedestrian safety (narrower term)	
Freight Transportation			Goods Movement, Motor Carriers, Shippers, Commercial Vehicle, Truck, Combination, Heavy, Rail, Freight, Supply Chain, Terminal, Registration
	Freight mobility	Freight transportation (broader term), Freight traffic (related term)	
Transportation Assets			
Transportation Assets (General/Other)			Transportation Facilities, Transportation Infrastructure
Pavement			Pavement Design, Pavement Management, Material, Materials Testing, Hot Mix, Soil, Clay, Asphalt, Concrete
	Pavement management	Pavement management systems	
Bridges and Structures			Bridge Design, Bridge Management, Tunnels, Ancillary Structures, Large Culverts, Highway Bridge, Steel, Coatings, Span, Tunnel, Wall, Deck, Foundation, Load, Posting
	Bridge management	Bridge management systems	
	Scour protection	Scour (broader term)	
	Historic bridges	Historic bridges	
	Ancillary structures	Roadside structures	
	Accelerated Bridge Construction (ABC)	Bridge construction	
Traffic and Safety Assets			Barriers, Guardrail, Traffic Signals, Highway Lighting, Hardware, MASH, Sign, Traffic Control Device
	Guardrails (Guiderails)	Guardrails	
	Roadway lighting (Highway illumination)	Street lighting	
	Traffic signals	Traffic signals	
Operations/ Telecommunications Assets			ITS Assets, Cameras, Message Signs, Ramp Meters, Fiber

Framework Category	Common Interest Name	TRT Term(s)	Synonyms and Related Terms
	Operations/ Telecommunications Assets	Telecommunications (broader term) Intelligent Transportation Systems (broader term)	
Drainage Assets	Drainage structures	Drainage structures	Culverts, Pipes, Drains, Stormwater, Channel
Geotechnical Assets	Geotechnical assets	Specialized facilities (broader term)	Retaining Walls, Slopes, Embankments, Walls, Soil, Clay
Transit/Rail Assets			Buses, Trains, Track, Stations, Rolling Stock, Rail Cars, Locomotives, Facility, Terminal, Rail
	Public transportation facility design	Transportation, hydraulic and utility facilities (broader term)	
Transportation Development and Delivery			
Transportation Development & Delivery (General)			Project Development, Project Delivery, Public Private Partnership, ROW, Utilities, Accommodation, Acquisition, Rehabilitation, Design, Schedule, Estimating, Streamlining
	Project delivery streamlining	Project delivery (broader term)	
	Practical design (context sensitive design)	Context sensitive design	
Planning			Long Range Planning, Corridor Planning, Regional Planning, MPO, Significant Impact, Corridor, Study, Site, Region, Rural, Urban, Suburban, County, City, Local, Zone, Boundary, Lifecycle, Planned, Programmed, Programming, Demand, Travel, Traveler, Mobility, Accessibility, Environment, Scenario
	Travel demand management (TDM)	Travel demand management	
	Long range planning	Long range planning	
Design			Geometric Design, Hydraulic Design, Cost Estimation, Design Guidance, Survey, Bridge, Load, LRFD, Load Resistance Factor, Hydraulic, Drainage, Culvert, Pipe, Foundation, Geometric, Profile, Grade, Curve, Longitudinal, Horizontal, Alignment, Context, Material

Framework Category	Common Interest Name	TRT Term(s)	Synonyms and Related Terms
	Barrier-free design (Public ROW accessibility)	Barrier-free design	
Traffic Engineering			Traffic Control, Signal Timing, Speed, Turn, LOS, Safety Hardware, Roadside, Barrier, MASH, Signal, ITE, LED
	Speed management	Traffic safety (broader term)	
Construction			Construct, Constructed, Construction Contracting, Construction Inspection, Accelerated Construction, Materials Testing, Permit, Work Zone
	Construction materials	Building materials	
Maintenance			Maintaining, Maintained, Preservation, Inventory, Inspection, Damage, Deterioration, Treatment, Winter, Permit, Work Zone, Fleet, Equipment, Culverts
	Winter maintenance (see road weather management)	Winter maintenance	
Operations			Transportation System Operations, Operate, Operating, Operator, ITS, Transportation System Management and Operations, TSMO, Performance, Traffic, Car, Travel, Traveler, Motorist, Parking, TIM, HOT, Connected, Automated, Autonomous, Vehicle, Occupancy, Volume, Speed Limit, Flow, Congestion, Duration, Control, Sign, Signal, Device, Timing, Detection, Loop, Permit, Mobility, Reliability, Pricing, Rate, Freight Movement, Emergency Management, Incident, Responder, Winter, Storm, Enforcement, Work Zone
	Road weather management (Weather-responsive maintenance & traffic management)	Road weather information systems (related term)	
	Traffic incident management (TIM)	Traffic incident management	
	Harmonizing freight regulations across states	Size and weight regulations (broader term)	
Contracting/ Procurement			Innovative Project Delivery, Alternative Contracting Methods, PPPs, Vendor, Contractor, Consultant
	Alternative contracting methods	Project delivery (broader term), design build (narrower term)	

Framework Category	Common Interest Name	TRT Term(s)	Synonyms and Related Terms
Concerns			
Safety			Highway Safety, Roadway Safety, Roadside Safety, Work Zone Safety, Safety Performance, Safe, Safely, Fatalities, Injuries, Crashes, Collisions, Accidents, Safety Hardware, Zero Deaths, Speed, Countermeasure, Enforcement, Officer, NHTSA, Warning, Hazard, Investigation, Highway Safety Manual, HSM
	Roadside safety (Roadside hazards)	Highway safety (broader term)	
	Work zone safety	Work zone safety	
	Data-driven safety analysis	Safety analysis (broader term)	
Environmental Sustainability and Stewardship			Environment, Environmental Impacts, Impact Mitigation, Sustainable Transportation, Sustainability, Significant Impact, Mitigation, Air Quality, Natural Resources, Cultural Resources, Health, Energy, Fuel
	Transportation and health	Public health (broader term), nonmotorized transportation (related term)	
	Environmental stewardship	Environmental protection	
	Congestion mitigation and air quality (CMAQ)	Congestion management systems (related term), Air Quality (related term)	
Diversity/Equity/Inclusion	Diversity/equity/inclusion	Equity (justice)	Environmental Justice, Civil Rights, Social Equity, Diverse, Disability, Accessibility
Security/Risk/Resilience			Cybersecurity, Terrorism, Emergency Response, Uncertainty, Resiliency, Security, Risk, Risk Management, Exposure, Mitigate, Mitigation, Vulnerability, Damage, Failure, Loss, Threat
Climate Adaptation	Weather and Climate	Weather and climate	Climate, Weather, Climate Change, Extreme Weather
Funding & Finance			Transportation Revenues, Gas Tax, Tolling, Reauthorization, Fund, Funded, Funding, Finance, Financial, Fiscal, Fee, Reauthorization, Rulemaking, Budget, Programming, Programmed, Allocation, Revenue, Dollar, Grant, Money, Accounting

Framework Category	Common Interest Name	TRT Term(s)	Synonyms and Related Terms
	Sustainable Transportation Funding/ Reauthorization	Government funding (broader term)	
Policy & Regulation			Legislation, Legislative, Rulemaking, Permitting, Compliance, Regulatory, Authority, Mandate, Law, Legal, CFR, Code of Federal Regulations, Requirement, Requiring, Permit, Eligibility, Compliance, Determination, Congress, Agreement, Government, Governing, Governmental, Oversight, Certification, ADA, Americans with Disabilities Act, Streamlining
Enabling Disciplines			
Performance Management			Performance Measurement, Performance Measure, Measure, Measuring, Measurement, Measured, Metric, Performance Monitoring, Organizational Effectiveness, Accountability, Efficient, Efficiency, Efficiently, Reliable, Reliability, Cost Effectiveness, Effectiveness, Investment, Value, Payoff, Mobility, Congestion, Economic, Economy, Economical, Customer
	Transportation performance measurement and management	Performance measurement	
	Agency performance measurement and management	Organizational effectiveness (broader term)	
Asset Management			Transportation Asset Management, TAM, Transportation Asset, Investment Decision, Lifecycle, Life Cycle, Decisions, Decision Making, Deterioration, Preservation, Treatment, Risk Management, Risk, Pavement, Bridge, Tunnel
	Transit asset management	Asset management (broader term), rail transit facilities (related term), transit buses (related term)	
	Highway asset management	Asset management (broader term)	

Framework Category	Common Interest Name	TRT Term(s)	Synonyms and Related Terms
Right of Way/Utility Management			ROW, RW, Right-of-Way, Outdoor Advertising, Real Estate, Land Acquisition, Utility Accommodation, Utility, Utilities
	Communications infrastructure in Highway ROW	Right of way (land) (broader term)	
	Utility accommodation	Access control (broader term)	
Data Management, Modeling & Analysis			Scenario Analysis, Impact Analysis, Data Management, Data Governance, Information, Data, Data Set, Data Analysis, Database, Crash Data, Data Collection, Informed Decisions, Quantitative, Quantify, Census, Inventory, Study, Studied, Method, Calibrate, Calibration, Model, Modeling, Synthesize, Evaluate, Evidence, Accuracy, Informed, Benchmark, Trend, Correlate, Correlated, Algorithm, Visualization, Analytics, Analytical, Analyze, Analysis, Predicted, Predicting, Predictive, Prediction, Estimation, Estimated, Validation, Forecasting, Forecast, Simulation, Simulated, Statistical, Statistics, Knowledge, Decision, Impact, Cost, Risk
	Data governance	Data management (broader term)	
	Geographic information systems (GIS)	Geographic information systems	
	Data analysis		
Communication and Collaboration			Public Relations, Public Participation, Interagency Coordination, Collaborate, Collaboration, Collaborative, Collaboratively, Partner, Partnership, Partnering, Coalition, Coordination, Coordinating, Communicating, Cooperative, Cooperation, Stakeholder, Engagement, Networking, Outreach, Convene, Community, Peer, Sharing, Share Information, Participate, Disseminate, Dissemination, Disseminated, Team
	Communicating value of transportation investments	Public information programs (broader term)	
	Communicating asset condition and performance	Public information programs (broader term)	

Framework Category	Common Interest Name	TRT Term(s)	Synonyms and Related Terms
	Community engagement/public participation	Public participation	
Knowledge Management	Knowledge management	Knowledge management	Knowledge, Knowledge Transfer, Learning Culture
Research Management			Innovation, Technology Transfer, T2, Technology Dissemination, Knowledge, Idea, Technology, Analysis, Innovative, Innovation, Study, Disseminate, Survey, Adoption, Cooperative, Consultant, Data
	Technology transfer	Technology transfer	
Workforce Management & Development	Workforce development and succession planning	Human resource management (broader term)	Recruiting, Retention, Training, Onboarding, Professional Development, Human resources, HR, Expertise, Capacity, Capability, Training, Retention, Retain, Recruitment, Recruit, Succession, Professional, Ability, Diverse, Diversity, Workforce, Worker, Labor, Employee, Employment, Personnel, Staffing, Career, Education, Educational, Educate, Curriculum, Engineer, Engineering, Civil Engineer, Planner, Lesson, Learn, Learning, Library
	Employee safety	Occupational safety	
Risk Management	Risk management	Risk management	Enterprise Risk Management, Risk, Exposure, Mitigate, Mitigation, Vulnerability, Damage, Failure, Loss
Project Management			
Standardization	Standards and guidance development	Specifications (broader term)	Standards, Guidance, Guidance Document, Design Guidance, Standard Specification, Guide, Guideline, Standard, Uniformity, Uniform, Reference, Protocol, Consistent, Consistency, Consistently, Adoption, Adopt, MASH, Framework
Innovations/Emergent Practice			
Technology Advancement/ Innovation (General)			Innovative, Technology, Tech, Technological, Software, Computer, Electronic, Mobile, Smart, Sensor, Wireless, Device, Analytics, Analytical, Future, Advance, Advanced, Advancement, Advancing, Emerging, Changing, Transition, Evolving, Evolution, Idea, Every Day Counts, EDC, Experimental
	Impacts of digitalization	Digitization (related term)	

Framework Category	Common Interest Name	TRT Term(s)	Synonyms and Related Terms
Connected and Automated Vehicles (CAV)	Connected and Automated Vehicles	Intelligent vehicles (narrower term), Connected vehicles (narrower term)	Autonomous Vehicles, CV/AV, Connected Vehicles, Automated Vehicles, Autonomous Vehicles, Automation
Data Analytics/Artificial Intelligence			Machine Learning, AI, data, Analytics, Analytical, Analyze, Analysis, Algorithm, Visualization, Predicted, Predicting, Predictive, Prediction
	Big Data Analytics	Information infrastructure and data (broader term), data science (broader term)	
Unmanned Aerial Systems (UAS)	Drones	Drones	Drones, Urban Air Mobility, Advanced Air Mobility
	Urban Air Mobility (UAM)	Drones (narrower term)	
Smart Mobility			Mobility as a Service, MaaS
	Shared Mobility	Shared Mobility	
Electric Vehicles/Alternative Fuels	Electric Vehicles	Electric Vehicles	
Building Information Modeling (BIM) for Infrastructure	BIM for Infrastructure/Civil Integrated Management	Building Information Models	Civil Integrated Management, CIM
Construction Technology			eConstruction, Integrated Construction Technologies
	eConstruction	Technological innovations (broader term)	
	Automated machine guidance (AMG)	Automation (broader term), Construction (broader term)	
Advanced Materials			