

TRIENNIAL STRATEGIC PLAN (TSP)

Evaluation Period: February 1, 2017 to January 31, 2020

Please note that rows and boxes below expand as you enter the information

PART 1: Committee Name and Scope

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

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

Committee Code *	AFD10
Committee Name *	Standing Committee on Pavement Management Systems
- Date(s) reviewed	The review was not accomplished due to the abbreviated timeline provided to prepare the TSP.
- Change, if proposed***	None
- No. of official members approving change/total number of members **	N/A
Committee Scope *	This committee is concerned with the development, evaluation, integration and application of pavement management systems for all pavement types. Areas of interest include the understanding and characterization of pavement performance, as well as the interrelationships among factors that must be analyzed in making pavement management decisions at both the network and project levels, including budgetary constraints, traffic loads, environmental considerations, strategy alternatives, life-cycle economics, construction and maintenance.
- Date(s) reviewed	Will be reviewed with committee after the move to the new section has been completed.
- Change, if proposed ***	None
- No. of official members approving change/total number of members **	N/A

- * Show current, as it currently appears in the [TRB Online Directory](#)
- ** Includes Chair, Standing Committee Members, Emeritus Members, and Young Members
- *** Show proposed, or Not Applicable

PART 2: Committee Accomplishments

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

2.1

Year	2017	2018	2019	2020
Number of Members in Attendance at Annual Meeting		24	23	24
Number of Visitors in Attendance at Annual Meeting		49	59	68
Number of Papers Reviewed		15	35	36
Total Number in Attendance at Mid-Year Meeting	NA			

2.2

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

2018
No mid-year meeting was conducted.

2019
No mid-year meeting was conducted.

2020
A mid-year meeting is planned during the 11th International Conference on Managing Pavement Assets August 23-26, 2020 in Chicago (due to COVID-19, postponed to June 2021).

2.3

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

2018

- 1) UK HGV Platooning Trials 2017-2019, Brian Ferne, Transport Research Laboratory.
- 2) Pavement Remaining Service Interval: A Next Generation Performance Measure (18-00306) James Bryce and Gonzalo Rada, AMEC Foster Wheeler.
- 3) An Extended Goal Programming Framework for Maintenance Budget Allocation Considering Multiple Stakeholders, Md Al-Amin, University of Texas, Austin.

2019

- 1) Use of Traffic Speed Deflection Devices’ Data for Pavement Management, Nadarajah Sivaneswaran, Federal Highway Administration.
- 2) Caltrans Pavement Implementation: Success and Challenges, Zhongren Wang, Caltrans.
- 3) Using Pavement Management to Set and Analyze Targets for Federal Reporting, Eric Perrone, The Kercher Group, Inc.

2020

- 1) As-Built History Data Mining, Zhongren Wang, Caltrans.
- 2) ARA PaVision: A Low-Cost User-Friendly Pavement Management System for Local Governments, Bill Vavrik, ARA.
- 3) Factor Analysis of Maintenance Decisions for Warranty Pavement Projects in Mississippi, Xiaohua (Nemo) Luo.

Committee member participation as a judge in the 3-minute thesis competition on Sunday Morning.

2.4

Provide titles of new research need statements (RNS) posted in TRB's RNS database (by year):

2018

- 1) Impact on Pavement Network Condition when Converting an Agency's Data Collection Process from Manual or Semi-Automated, to Fully Automated Methods.
- 2) Closing the Gap between Network-Level and Project Level Pavement Evaluation.

2019

- 1) Comparison of Tools and Use of Results for Determining Airfield Pavement Conditions.

2.5

Provide title(s) of RNS submitted for funding consideration:

NOTE: If funded, include research project title/number and name of funding organization(s).

Currently None. The committee will work with the members and friends from State Department of Transportation to sponsor and champion the problem statements developed by the committee and submit to the American Association of State Highway and Transportation Officials (AASHTO) committees for potential funding by NCHRP.

2.6

Provide titles of synthesis topics submitted (by year):

2019

- 1) Decision Trees for Pavement Maintenance and Rehabilitation.

2020

- 1) Pavement Performance Target Setting Practices at State Departments of Transportation.

2.7

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

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

The committee represents a balance of Agency (4 members), Academia (14 members), Consulting (11 members), and industry/others (3 members).

The committee is representative of the demographics of our profession, with nine (9) non-US members, three (3) Emeritus members, four (4) young members, and seven (7) female members.

During the 2020 membership rotation the committee will have to balance interest in participation and ability to serve with the demographic balance that is a goal of the Transportation Research Board and our committee. There are increasingly challenges in securing DOT continued participation so this will be a focus over this 3-year period.

Count of Committee Members						
U.S. Members			27			
Non-US Members			6			
Minority			13			
Female			8			
Membership Make-up						
Region						
Northwest	Southwest	Central	Northeast	Southeast	International	
3	10	5	5	4	6	
Slots						
International	Emeritus	Young	Main	DOT		
5	2	2	21	3		
Employer						
Federal	State	Academia	Industry	Consultant	Local	Other
1	3	14	2	11	1	1

2.8

Provide any of the following:

- Any special publications, such as TR circular, and conference proceedings.
- Sponsored or co-sponsored specialty conferences, symposia, workshops, webinars or other joint efforts with other TRB committees, other TRB entities, or other organizations (i.e. AASHTO, FHWA, State DOTs, ASTM, ASCE, and/or other modes of transportation).

Committee Co-Sponsored FHWA Webinars 2018-2020

Presented at and collaborated on “Pavement Management Quarterly Webinar,” (produced by the Federal Highway Administration, and co-sponsored by FHWA.

2018

- 1) TRB July 10, 2018 Webinar: Using Pavement Management to Set and Analyze Targets for Federal Reporting (AFD20).
- 2) TRB 2018 Workshop #118: Experiences with Developing Pavement Data Quality Management Programs (DQMP).

2019

- 1) TRB October 21, 2019 Webinar: Automated Pavement Condition Surveys (AFD10)
- 2) TRB 2019 Workshop #1794: Pavement Performance Analysis Workshop.

2020

- 1) TRB 2020 Workshop #1059: Developing Performance Prediction Models.
- 2) TRB 2020 Workshop #1777: Pavement Performance Analysis Workshop.
- 3) 11th International Conference on Managing Pavement Assets, August 23 To 26, 2020 (due to COVID-19, postponed to June 2021).

PART 3: Committee Future Outlook Statement and Committee Three-Year Plan (Limit 1,500 words total)

Committee Future Outlook Statement

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

- *Identification of emerging, critical, and cross-cutting issues **within the committee scope** (these issues could have been identified by the committee, Section, Group, Technical Activities Council, TRB Executive Committee, or other transportation committees and organizations);*
- *Identification of emerging, critical, and cross-cutting issues **outside the committee scope** that provide opportunities for liaison and collaborative efforts (these issues could also come from a wide range of sources).*

Pavement management has been in-place for decades; however, several significant advancements have occurred over the last several years that provide opportunities for this committee to continue its support of the role of pavement management at the international, national, state, and local levels. A number of these advancements include, but not limited to, developments and enhancements in automated data collection and evaluation (equipment and analysis procedures), implementation of the AASHTO Pavement ME Design, and most recently, the publication of national performance management rules. Agencies are also faced with significant funding impacts that, more now than ever, necessitates the need for an efficient and effective pavement management system that integrates both pavement preservation and rehabilitation treatments into the decision-making process.

Performance-Based Decisions (within committee scope)

- Assist in the use and improvement of pavement management data integration in support of asset management (short-term).
- Assist in the evaluation and implementation of pavement performance measures in support of the national performance management rules and in support of state and local agency goals (short-term).
- Improve performance prediction capabilities by developing leading (as opposed to lagging) performance indicators and applying advanced computational techniques to develop performance prediction models (in collaboration with ABC30 and ABC40) (short-term).
- Develop optimization models for multi-year pavement maintenance and rehabilitation project selection planning (short-term).

Data Collection and Analysis (within committee scope)

- Assist with the establishment and implementation of national standards for condition assessment (short-term).
- Assist with the development and evaluation of new pavement condition data collection technologies (short-term).
- Work toward standardization of pavement management practices and removal of subjectivity in pavement condition assessment (long-term).
- Assist with the implementation of network-level structural integrity data collection devices and incorporation of corresponding structural performance measures in pavement management decisions (short-term).
- Promote improvements in accuracy, precision, and reliability of traffic load data collection systems and incorporation of quality data in pavement management decisions (in collaboration with ABJ35) (long-term).

- Promote improvements in quality control and quality assurance of automated pavement condition data collection in pavement management systems (in collaboration with AFD20 and AFH20) (short-term)
- Support improved modeling of nontraditional pavement structures (e.g., pervious concrete, porous asphalt, perpetual pavement) (long-term).
- Support data collection and analysis practices and guidelines for the local calibration of AASHTO Pavement ME Design procedures (short-term).
- Expand the statistical and mathematical techniques toolbox to improve pavement management analytical capabilities (in collaboration with ABJ70 and ABJ80) (long-term).
- Promote effective and reliable data management and governance strategies for transportation agencies (in collaboration with ABJ50) (long-term).
- Collaborate with ABC40, AFD20, and AFD90 in support of common objectives and goals (short- and long-term).

Effective Treatment Applications (within committee scope)

- Assist with incorporating pavement management data for performance-based acceptance (short-term).
- Assist with the development of improved decision support mechanisms for pavement preservation strategy selection using pavement management systems (short-term).
- Encourage long-term monitoring of pavement maintenance and preservation treatments and strategies for incorporation into pavement management systems, in collaboration with AHD18 and AHD20 (long-term).
- Support improved pavement performance modeling techniques and the use of analytical tools (short-term).
- Collaborate with AFD30, AFD50, and AFD60 in support of common objectives and goals (short- and long-term).

Education and Outreach (within committee scope)

- Identify innovative and/or effective pavement management practices implemented by international agencies (short-term).
- Assist with the development of improved pavement management education at universities (short-term).
- Develop PhD student forum to encourage dissertation topics in pavement management systems (short-term).
- Support TRB Minority Research Fellow Program by helping minority students conduct research in pavement management topics (short-term).

Implications of Emerging Trends in Transportation (outside committee scope)

- Crowd Sourcing: the application of crowd-sourcing in collecting pavement inventory and condition data (short-term).
- Environmental Sustainability: incorporating environmental sustainability objectives in pavement management decisions, collaborate with AFD00(1) and AFD30 (long-term).
- Social Sustainability: incorporating social sustainability objectives in pavement management decisions (long-term).
- Advanced Computing tools: Explore the implications of developments in computing, particularly in machine learning, artificial intelligence, and decision science, for managing pavement assets (long-term).
- Adapt to Changes in Local Freight: understand implications due to the transitions from brick-and-mortar stores to e-commerce, the increase in heavy vehicle traffic on local streets, and the prediction of accelerated pavement deterioration (short-term).
- Dynamic-Expert Knowledge Database: the repository of corporate knowledge that gathers best practices, methods, and tools for pavement management applications, in collaboration with AB010T (long-term).

- Sustainability: advancing the incorporation of sustainability (economy/environment/society) concepts in practice (long-term).
- Big Data: incorporating and developing the analytical tools required to capitalize on its possibilities for pavement management (aggregation, interpretation, modeling, etc.), in collaboration with ABJ50, ABJ70, and ABJ80 (long-term).
- Connected and Autonomous Vehicles: implications of connected and autonomous vehicles, and dedicated freight lanes on pavement management data and decisions, in collaboration with AHB30 (long-term).

Membership Enhancement

The committee will continue its effort in engaging young member involvement in the committee function. This includes active involvement in informal committee presentations, paper reviews, paper submittal, facilitating podium and poster sessions, etc. The committee currently has a strong international membership and will continue to have these members participate in committee activities (e.g., webinars, paper submittal, and committee attendance). The committee, through its state agencies, will look for additional activities in support of FHWA (e.g., asset management and pavement performance measures) and AASHTO (e.g., Pavement ME Design, testing and evaluation standards) initiatives.

Committee Three-Year Plan

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

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

- Seek opportunities to liaison with agencies, other TRB committees, FHWA, and AASHTO in support of pavement management initiatives.
- Seek opportunities for international cooperation in support of addressing emerging pavement management challenges.
- Use the Annual Meeting Chairs Networking Session contacts to explore at least one cross-cutting topic and ways to advance collaboration with other TRB committee(s) on that topic.

- Support the FHWA Pavement Management Quarterly Webinar and look to leverage that effort to increase the dissemination of information to the pavement management community.
- Develop a plan for engaging young members and friends in committee activities by (1) conducting a survey to gather areas of interest and opportunities for enhancing their value through committee activities, (2) engage with TRB committees dedicated to this purpose, and (3) develop and execute an implementation plan.
- Develop and send DOT members and friends a survey to gauge their interest in frequent peer exchange and technology transfer activities to address personnel turnover.
- Engage new young members and friends by initiating a white paper on the available computational techniques and corresponding applications in extracting decision information out of pavement management data.
- Submit a TRB research needs statement to update the 2010 *Pavement Management Roadmap*.
- Issue a “Call for Papers” on airport pavement management.
- Issue a “Call for Papers” on knowledge management practices applied to pavement management systems.
- Issue a “Call for Papers” using machine learning in pavement management for data modeling.
- Publish TRB circular on performance models base on TRB 2020 workshop.