

## 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 *	AKP50 (AFD90)
Committee Name *	Standing Committee on Pavement Surface Properties and Vehicle Interaction
- Date(s) reviewed	April 1 <sup>st</sup> , 2020
- Change, if proposed***	No Changes
- No. of official members approving change/total number of members **	
Committee Scope *	This committee is concerned with the interactions between traveled surfaces and vehicles to assess safety, comfort, convenience, sustainability and economics. Areas of interest include evaluation, modeling, and measurement of the factors that influence these interactions including friction, texture, roughness, ride comfort, noise, and rolling resistance.
- Date(s) reviewed	April 1 <sup>st</sup> , 2020
- Change, if proposed ***	N/A
- No. of official members approving change/total number of members **	N/A
	No changes were voted by all 5 task group leaders, past chair, current chair, CRC and CCC.

\* 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		20	22	22
Number of Visitors in Attendance at Annual Meeting		38	38	30
Number of Papers Reviewed		17	26	26
Total Number in Attendance at Mid-Year Meeting	N/A	N/A	N/A	

**2.2**

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

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

See Attachment A

**2018**

No mid-year meeting was conducted

**2019**

No mid-year meeting was conducted

Task group leaders, research committee coordinator, communication committee coordinator and committee chair had a WebEx meeting last June to discuss potential research problem statements.

**2020**

Task group leaders, research committee coordinator, communication committee coordinator and committee chair will have a WebEx meeting this coming June to brainstorm and discuss potential research problem statements.

The committee will start scheduling virtual mid-year meeting. A mid-year meeting for 2020 is scheduled on 6/9/2020 via zoom at 10:00 AM central time.

**2.3**

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

**Annual Meeting 2018**

- Identification of Suitable Friction Testing Equipment for Friction Management (de Leon Izeppi)

**Annual Meeting 2019**

- Texture Measurements and Use (Perera)

**Annual Meeting 2020**

- Understanding and Quantifying the Impact of Pavement Friction Demand on Traffic Safety (Alhassan)

**2.4**

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

NOTE: Attachment B shows all statements currently posted in TRB’s RNS database.

**Understanding and Quantifying the Impact of Pavement Friction Demand on Traffic Safety.**

Committee: AFD90, Pavement Surface Properties and Vehicle Interaction

Date Posted 12/30/2019

Date Modified 1/8/2020

**2.5**

**Provide** title(s) of RNS submitted for funding consideration: Submitted for funding by NCHRP

- “Understanding and Quantifying the Impact of Pavement Friction Demand on Traffic Safety.”
- “Update of AASHTO Standard Practice for Certification of Inertial Profiling Systems (R 56)”

NCHRP 10-106-  
Year: 2020- 18 Months  
Funding: \$250,000

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

**2.6**

**Provide** titles of synthesis topics submitted (by year):

**2018**

Friction Management

**2019**

Bridge Smoothness Specifications

NOTE: **List** any synthesis topic(s) funded in a research program. The topics were not selected for funding. The committee will continue its efforts to submit topics for NCHRP synthesis program.

**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.

Main Members: 24  
 International Member: 5  
 Minority: 12  
 Female: 8

The membership in the committee is balanced. The committee chair will seek to recruit members that will serve the committee and provide more diversity.

**Membership Make-up**

Region

Northwest	Southwest	Central	Northeast	Southeast	International
2	7	5	3	8	12

Slots

International	Emeritus	Young	Main	DOT
5	3	3	24	2

Employer

Federal	State	Academia	Industry	Consultant	Local	Other
2	10	7	4	13	0	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)

**2018**

- Workshop “Implementation of Pavement Friction Management Programs”
- Co-sponsor ASTM E17 Annual Meeting for 2018
- Co-sponsor RPUG (Road Profiles Users Group) Annual Meeting for 2018

**2019**

- Workshop “Pavement Smoothness Specifications Lessons Learned”
- Workshop “Pavement Performance Analysis workshop”
- Webinar “Inertial Profiler Certification for the International Roughness Index”
- Co-sponsor ASTM E17 Annual Meetings for 2019
- Co-sponsor Pavement Evaluation Conference 2019

**2020**

- Workshop “Pavement Smoothness Analysis with Profile Viewing and Analysis (ProVAL)”
- Workshop “Pavement Performance Analysis Workshop”
- Webinar “How Rough is your pavement?”
- Co-sponsor ASTM E17 Annual Meeting for 2020
- Co-sponsor RPUG (Road Profiles Users Group) Annual Meeting for 2020
- TRB e-Circular “Implementation of Pavement Friction Management Programs” In progress

### **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).*

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|---|
| <ul style="list-style-type: none"> <li>• New and emerging technologies will impact how surface characteristics are measured and presented. The use of crowd-sourced information for roughness and friction evaluation in a rational manner will evolve with time.</li> <li>• The use of 3-D technology that allows comprehensive surveys for surface distress and surface characteristics in one pass is expected to allow for more data collection and analysis for surface profile and texture. The data will provide new ways for predicting tire-pavement friction, noise, splash and spray.</li> <li>• The committee will promote the implementation of NCHRP research projects to develop new standards and test procedures.</li> <li>• The committee will work closely with other sections and safety committees to enhance collaboration and to provide examples and tools for pavement engineers to communicate with safety engineers. Joint presentations or webinars of these two groups will help open the communication necessary to ensure that safety problems identified by safety engineers can be effectively addressed by the maintenance operations inside state highway agencies.</li> </ul> |
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#### **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.*

**The committee deals with various topics related to pavement surface characteristics. The committee has five task groups to better focus on each topic. The committee three-year plan covers five task groups areas as follows:**

### **Group I – Tire-Pavement Friction**

The current state of practice in the United States is based on the locked wheel skid device. The practice of friction management is limited to few agencies.

#### Challenges

- The need for development of certification programs for equipment used for friction data collection.
- The need for research to develop predictive models for friction as a function of micro-texture and macrotexture.
- The need for research to identify ways to better leverage existing friction evaluation equipment within friction management programs. Additionally
- More coordination between pavement management, safety, and maintenance about the use and analysis of the friction data to establish the economic need to perform friction treatments that are justified by a reduction in crashes and to determine Benefit Cost ration to prioritize projects.

### **Group II - Profile Measurement and Use**

The current state of practice includes profiler certification methods, use of IRI for pavement management and construction quality control/assurance. The IRI is a performance measure for the National Highway System.

#### Challenges:

- Lack of ground truth or benchmark devices to ensure reference profile devices continue to meet requisite repeatability and accuracy reference criteria through their useful life.
- The AASHTO and ASTM standards need to be updated to account for 3-D profile data collection.
- The challenges with profile measurements in urban environments with varying speed, stop and go.
- The need to develop and implement standards for reference profilers.

### **Group III- Texture Measurement and Use**

The current state of practice is based on using the MPD to characterize the pavement texture.

**Challenges:**

- Macrotexture depth is important but insufficient to characterize macrotexture as it influences friction, grip, noise, and rolling resistance. Research is needed to identify additional ways to characterize macrotexture.
- SHA should consider starting to collect network level macrotexture as it is now easily obtained with the same IRI profiles collected for the PMS and HPMS data collection effort.
- Evaluating the capability of 3D equipment for obtaining texture parameters and developing new standards to address texture data collection using 3-D equipment and analysis of the collected data.
- Evaluate parameters other than MPD to characterize texture

**Group IV- Tire-Pavement Noise**

The area of traffic noise is of importance especially in urban areas. This task group will work more collaboratively with other sections and committees.

**Challenges:**

- Research is needed to evaluate the impact of neglecting truck noise with the OBSI measurements.
- Document the findings on performance of quiet pavements
- Evaluate correlations between texture and noise measurements

**Group V - Other Safety and Environmental Issues**

For other safety and Environmental issues this task group will work collaboratively with other sections and committee to sponsor workshops and webinars.

**Challenges:**

- How can safety performance function be improved to account for pavement condition factors like friction, texture, cross-slope, curvature, grade, IRI, etc.?
- Impact of surface characteristics on rolling resistance.

**Committee Goals:**

- The committee will work to address the challenges facing the different task groups by developing Research Needs Statements.
- Support the implementation of the results of NCHRP 10-98 by updating the existing standards and developing new standards.
- Support the implementation of the results from NCHRP 10-93 (Report 9-14) by updating standards and developing new standards.
- Address what is the economic impact that improving pavement surface friction can have in reducing crashes for developing Benefit Cost ration to prioritize project selection.
- Validate the simulations of sand patch measurements from 3D equipment measurements.
- Support research to identify what is the most cost-effective friction fix for a given location to restore supply above demand for the remaining life of the surface