

## 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 *	AFH20
Committee Name *	Standing Committee on Quality Assurance Management
- Date(s) reviewed	1-8-18 1-16-19 1-13-20
- Change, if proposed***	Not Applicable
- No. of official members approving change/total number of members **	Not Applicable
Committee Scope *	This committee is concerned with all aspects of quality management as related to the design, construction, materials, performance, maintenance and rehabilitation of transportation facilities. Specifically, it focuses on the development and application of both engineering and statistical knowledge toward sound, practical and effective quality assurance procedures, as well as methods to achieve quality transportation facilities to meet the needs of the traveling public.
- Date(s) reviewed	1-8-18 1-16-19 1-13-20
- Change, if proposed ***	Not Applicable
- No. of official members approving change/total number of members **	Not Applicable

\* 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**

**2.1**

Year	2017	2018	2019	2020
Number of Members in Attendance at Annual Meeting		18	21	17
Number of Visitors in Attendance at Annual Meeting		13	11	15
Number of Papers Reviewed		8	12	5
Total Number in Attendance at Mid-Year Meeting	21	27	19	

**2.2**

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

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

The mid-year meeting is primarily to take care of committee business and prepare for the annual meeting. There were no sessions or workshops at the mid-year meeting.

**2.3**

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

2018

- “Data Validation Tool: Description and Demonstration” by Dr. Zongwei Tao, Weris Inc.
- “Quality Assurance Assessment of State DOT Programs” by Dennis Dvorak, FHWA Resource Center

2019

- “South Mountain Freeway: An Example in Evaluating Owner’s Risk Approaches Using F and t- Tests to Validated Contractor’s Test Results” by Jesus A. Sandoval-Gil (Arizona DOT) and Weng On Tam (Tam Consulting Services LLC)
- “Key Differences in Practical Components of Materials Quality Management in Design-Build Highway Programs” by Jung Hyun Lee, Yashovardhan Jallan, and Baabak Ashuri (Georgia Institute of Technology)
- “FHWA Manual Incorporating NDT into the QA of Nonstructural Precast Concrete Products for Highway Construction” by Dimitrios Goulias (University of Maryland)

2020

- No informal presentations were made at the 2020 committee meeting. Instead, the committee used the time to “go around the table” and have each attendee discuss their thoughts about the future outlook and three-year plan in preparation for the Triennial Strategic Plan.

**2.4**

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

2017

- Statistical Inspection Procedures for Transportation Projects

2018 (All old RNSs were purged from the database, plus the following new ones were added.)

- Manual for Incorporating NDT in Quality Assurance
- Performance Specifications Implementation Guide
- Development of Integrated Software for a Quality Assurance Database

2019

- Digital Design Quality Process
- Qualification for Quality Roles
- Development of Integrated Software for a Quality Assurance Database

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

**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).

2017

- Statistical Inspection Procedures for Transportation Projects  
**FUNDED in 2018** as NCHRP 10-102: A Guidebook for Risk-Based Construction Inspection
  - Funds: \$450,000
  - Staff Responsibility: Dr. Waseem Dekelbab
  - Research Agency: HKA Global Inc.
  - Principal Investigator: Mr. Sid Scott III
  - Effective Date: 6/18/2019
  - Completion Date: 7/17/2022

2018

- Performance Specifications Implementation Guide  
**FUNDED in 2019** as NCHRP 10-107: Guide for Implementing Performance Specifications
  - Funds: \$600,000
  - Contract Time: 24 months
  - Staff Responsibility: Edward T. Harrigan
  - Pending
- Manual for Incorporating NDT in Quality Assurance  
**FUNDED in 2019** as NCHRP 10-108: Manual for Incorporating Nondestructive Testing (NDT) in Quality Assurance of Highway Pavement Construction
  - Funds: \$250,000
  - Contract Time: 24 months
  - Authorization to Begin Work: 6/1/2020 - estimated
  - Staff Responsibility: Inam Jawed

- RFP Close Date: 12/19/2019
- Fiscal Year: 2020

2019

- Qualification for Quality Roles (still under consideration)

**2.6**

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

2017

- Synthesis of various manuals, processes and procedures from various states for Quality Management of alternative project delivery methods
- Owner's Compliance Program (Oversight) of Design Build Contractor's Workmanship
- Identify the difference in standards that work is completed to if delivered through Design Bid Build vs. Design Build

2018

- Performance Based Pavement Warranty Specifications (**FUNDED** as NCHRP Synthesis Topic 50-09)
- Got Quality? A Survey of DOT Quality Practices Beyond Construction
- Variability in Highway Pavement Construction and Materials

2019

- Although a few were identified, none were submitted.

**NOTE: List** any synthesis topic(s) funded in a research program.

- Performance Based Pavement Warranty Specifications  
**FUNDED** as NCHRP Synthesis Topic 50-09: Performance Based Pavement Warranty Practices
  - Funds: \$45,000
  - Authorization to Begin Work: 5/1/2018 -- estimated
  - Staff Responsibility: Jo Allen Gause
  - Research Agency: NCE
  - Principal Investigator: Linda Pierce
  - Effective Date: 10/11/2018
  - Fiscal Year: 2018

**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.**

As compared to the previous TSP in 2017, the committee membership increased by 3 to a total of 30. Diversity from gender, ethnicity and employment (academia, agency, industry, etc.) has changed by:

- Young members increased from 1 to 4 to represent 13.3 percent of the total membership.
- Women members increased from 6 to 9 to represent 30.0 percent of the total membership.
- Non-white members remained constant at 6 to represent 20.0 percent of the total membership.
- International members decreased from 1 to 0.
- Academic members increased from 2 to 6.

The list of friends remains strong with 99.

Areas to be addressed include:

- There will be continued focus on increasing women and non-white members.
- There are no non-US members, i.e., international members. Emphasis was placed during the last rotation, but no one could be identified. Emphasis will be placed on identifying and inviting non-US members during the next committee rotation.
- Geographically, there are no members from the Northwest. The current committee membership will be strongly encouraged to identify and nominate members from this region.
- There will be focus to expand the membership such that the committee can involve those from other committees that relate to the committee's cross-cutting issues as described in Part 3.

**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)

**NOTE: See Attachment A for sponsored lectern sessions, poster sessions and workshops at the TRB Annual Meeting**

2017

- “International Intelligent Construction Technologies Group (IICTG) – Past and Future,” Co-sponsors: AASHTO, FHWA, AFD90, AFH60, and AFH20. Minneapolis, MN. September 26 to 28, 2017

2018

- “Glossary of Transportation Construction Quality Assurance Terms,” E-circular E-C235 published by TRB August 2018

2019

- “Key Elements of Construction Quality Assurance for Implementation,” E-circular E-C249 published by TRB August 2019
- Centennial Paper for AFH20 Quality Assurance Management, “Construction Quality Assurance Accomplishments and Outlook for the Next Century,” published by TRB in November 2019
- AFH20 website was created, populated and launched May 17, 2019

### **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).*

No informal presentations were made at the 2020 committee meeting. Instead, the committee used the time to “go around the table” and have each attendee discuss their thoughts about the future outlook and three-year plan in preparation for the Triennial Strategic Plan.

#### **AFH20 identified the following issues as emerging, critical, and cross-cutting issues within the scope of the committee:**

- Construction inspection. Although much of the QA focus is on materials testing, there is a lot of risk associated with construction inspection. More focus on inspection is needed. With less experienced staff, this points the need to risk-based inspection and the increased use of technology.
- Training. There are several areas in which training is needed. With retirements and increases in newer staff, there is a need to back-to-the-basics training. Front-line staff who are more experienced will need refreshers on the basics as well as training on new technology and approaches (e.g., risk-based approaches). This includes agency and contractor personnel.
- Staffing and Recruiting. With limited resources and a lot of turnover, there is a need for recruiting. It raises additional questions such as how can the committee maintain quality with limited resources?
- Intelligent construction. As new technologies (e.g., thermal imaging, intelligent construction equipment, etc.) are used for data collecting / gathering, data visualization, and the actual construction itself, it is important to have solid QA practices related to acceptance, verification and validation.
- Data quantity. Intelligent construction often creates a lot of data. Obtaining this real-time information and then using it without becoming overwhelmed is important. Sorting through what's important with all photos and data, and then mining the information to obtain what's important for QA management. This could be considered integrating technology with knowledge.
- Alternative contracting. The QA role within traditional design-bid-build contracting is well established. Defining the QA role within alternative contracting needs continued focus for the agency and contractor.
- Process control. It is important to start the drive to quality from process control and not just rely on acceptance specifications. More focus on the process control by the

contractor to understand their product and the impacts on production to quality. This understanding will ultimately lead to more quality on the project.

- Valid statistics. It is important to use appropriate statistics to ensure the committee is getting the quality which was intended.

**AFH20 identified the following issues as emerging, critical, and cross-cutting issues outside the scope of the committee:**

- Maintenance. There is an important QA role on maintenance projects and activities (e.g., pavement bridges, pipes, etc.).
- Pavement performance. The QA role ultimately needs to be tied to activities and processes that relate to and improve pavement performance. There are many mechanistic-empirical design models which require ‘as-built’ construction data and subsequent performance data for proper calibration and validation.
- Pavement management. There is an important QA role on pavement management activities, such as automated pavement distress collection.
- Asset management. There is growing emphasis on the interconnectedness of the various elements associated with a facility’s life cycle. For example, in pavements, data necessary for design, construction, performance, preservation, and rehabilitation are related. Researchers continue to pursue platforms for incorporating pavement design, construction, and performance.

**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.*



Specific activities have been identified within the committee to address the emerging, critical and cross-cutting issues. The following short-term activities can be accomplished in the next three years include:

Subcommittee AFH20(1): Quality Management for Alternative Project Delivery. This subcommittee has supported AFH20 by organizing workshops in 2017 (Quality Management Systems for Design-Build Projects: Case Studies) and in 2018 (Successful Quality Management on Public-Private Partnership Projects: Case Studies). The subcommittee spent a significant amount of effort supporting AFH15 (Standing Committee on Project Delivery Methods). The committee will continue to partner with its subcommittee on these specific topics of mutual interest.

Short-term Hot Topic. The committee's scope needs to be re-evaluated. Historically, the scope has been narrow which matched the focus of the committee. Three years ago, the scope was broadened to include QA in other transportation facilities. Currently, the scope is broad, but the committee's products are narrow. A task force will be formed in 2020 to re-evaluate the scope and bring a proposal to the 2021 committee meeting.

Workshops and Sessions at the TRB Annual Meeting. The committee will continue efforts to host sessions from submitted papers as well as the important topics of the committee by hosting invited speaker sessions. Through the committee's "go around the table" discussion at the 2020 Committee Meeting, key topics for these workshops and sessions were identified to guide us in the next three years. They included:

- 2021 Workshop: Construction Inspection: Using Technology and Education to Improve Project Acceptance (Coordinate with AKM00 and AKR00)
- 2021 Invited Speaker Session: Using Percent Within Limits for Acceptance (Coordinate with AKM00)
- 2022 Invited Speaker Session: QA Back-to-the-Basics Training (Coordinate with AKM00)
- 2022 Invited Speaker Session: Construction Inspection (Risk-Based Approaches / Using Electronic Tools / etc.) (Coordinate with AKM00)
- 2022 Workshop: Alternative Contracting: Case Studies with QA (Coordinate with AKM00)
- 2022 Workshop: QA Management for Highway Project: Procurement, Design, Construction and Maintenance
- 2023 Invited Speaker Session: QA Practices with Intelligent Construction (Coordinate with AKM00)
- 2023 Invited Speaker Session: The Importance of Statistics in QA (more advanced than basic) (Coordinate with AKM00)
- 2023 Workshop: Construction Quality Assurance Management: Airports, Highways, Rail, and Transit

Webinars and E-circulars. After the TRB Annual Meeting, these workshops and sessions can be documented in webinars and e-circulars. The committee will continue efforts to bring sessions with invited speakers to a broader audience by creating e-circulars and webinars. The committee will increase focus on webinars in the next three years. Topics include:

- 2021 E-circular: Construction Inspection: Using Technology and Education to Improve Project Acceptance

- 2021 E-circular: using Percent Within Limits for Acceptance
- 2022 Webinar: QA Back-to-the-Basics Training
- 2022 E-circular: Construction Inspection (Risk Based / Using Electronic Tools / etc.)
- 2022 E-circular: Alternative Contracting: Case Studies with QA
- 2023 E-circular: QA Practices with Intelligent Construction
- 2023 Webinar: The Importance of Statistics in QA (more advanced than basic)

Synthesis and Research Needs Statements. The committee will continue the activity of identifying one or two key topics each year. The committee will place a lot of focus and effort on one or two topics to create a thorough document, rather than identification of a large number of topics. This has been successful in obtaining research funding in the past. The committee will continue coordination and partnership with the AASHTO Committee on Materials and Pavements for identification and support of these topics. Topics identified for the next three years included:

- 2021: Process Control: Starting the drive to quality from process control and not just rely on acceptance specifications
- 2021: Overall variability and how states control variability
- 2022: Optimizing QA Activities with Limited Resources
- 2022: Real-Time Information: Getting and Using It in Real Time for QA Purposes
- 2023: Implementation of Risk-Based QA Approaches

Special Documents. As the need arises for the special documents such as a “Centennial Paper” for each committee. The committee will continue to form appropriate task forces to create these documents. Efforts will be made, as in the past, to include a diverse team of young members, past chairs, emeritus members, interested others, etc.

Membership. Current membership on AFH20 and the other committees they are actively involved is shown below. It will be important to encourage members on other committees to identify QA activities from their other committees as well as promote the QA activities from AFH20. Continued efforts to expand the diversity of the membership of AFH20 to reach out to other committees will be encouraged at the next membership rotation.

#### **Cross-cutting Membership:**

Tim Aschenbrener

- AFK40 Surface Requirements of Asphalt Mixtures
- AFH60 Asphalt Pavement Construction Rehabilitation

James Anderson

- AFK50 Structural Requirements of Asphalt Mixtures

Mark Brum

- AFK30 Non-binder Components of Asphalt Mixtures

Erv Dukatz

- AFK10 Critical Issues and Emerging Technologies

Eric Frempong

- AFB30 Low-volume Road
- AFN40 Concrete Materials and Placement Technologies
- AFP70 Aggregates

Alex Fisher-Willis

- AFB60 Hydrology and Hydraulics

Georgene Geary

- AFD50 Design and Rehabilitation of Concrete Pavements

Dimitrios Goulias

- AFN20 Properties of Concrete

Adam Hand

- AFH60 Asphalt Pavement Construction and Rehabilitation

Katherine Holtz

- AFH15 Project Delivery Methods

Carol Luschen

- AFH30 Emerging Design and Construction Technologies

Yuko Nakanishi

- AHD15 Maintenance and Operations Personnel

JT Rabun

- AHD18 Pavement Preservation

Shree Rao

- AFN40 Concrete Materials and Placement Techniques

Joe Seiders

- AFH15 Project Delivery Methods

Specific activities have been identified within the committee to address the emerging, critical and cross-cutting issues. The following long-term activities include:

- Use the AFH20 website for discussion and storage of the committee's documents and accomplishments. This may facilitate more involvement from other members that were not able to attend the meeting.
- Continue to work with other organizations such as the AASHTO Committee on Materials and Pavements and NCHRP to identify emerging topics relevant to the committee.
- Find ways to integrate the committee's QA efforts into other committees that have cross-cutting interests such as, maintenance, pavement performance, pavement management, and asset management.

**Attachment A**

2020 Annual Meeting

**AFH20 – Quality Assurance Management**

<b>Committee Code</b>	<b>Session type</b>	<b>Title of Session</b>
AFH20	Lectern Session	Using Contractor Test Results in Agency Acceptance Decisions While Meeting 23 CFR 637B Requirements
AFH20	Published Meeting - Committee	Quality Management for Alternative Project Delivery, AFH20(1), Joint Subcommittee of AFH20, AFH15
AFH20	Workshop	Quality Assurance: Past, Present, and Future
AFH20	Published Meeting - Committee	Quality Assurance Management Committee
AFH20	Poster Session	Quality Assurance Management
AFH20	Lectern Session	Innovative Practices in Construction Quality Management

2019 Annual Meeting

**AFH20 – Quality Assurance Management**

<b>Committee Code</b>	<b>Session type</b>	<b>Title of Session</b>
AFH20	Published Meeting - Committee	Quality Assurance Management Committee
AFH20	Published Meeting - Committee	Quality Management for Alternative Project Delivery Subcommittee, AFH20(1)
AFH20	Workshop	Successful Quality Management on Public–Private Partnership Projects: Project Case Studies
AFH20	Lectern Session	Quality Assurance in Construction and Smart Technology
AFH20	Lectern Session	Contractor Quality Control Systems
AFH20	Poster Session	Quality Assurance Management

2018 Annual Meeting

**AFH20 – Quality Assurance Management**

<b>Committee Code</b>	<b>Session type</b>	<b>Title of Session</b>
AFH20	Published Meeting - Committee	Quality Assurance Management Committee
AFH20	Published Meeting - Committee	Quality Management for Alternative Project Delivery Subcommittee, AFH20(1)
AFH20	Workshop	Quality Management Systems for Design-Build Projects: Case Studies
AFH20	Lectern Session	Quality Assurance: There's Value in the Basics
AFH20	Poster Session	Management of Quality Assurance

**Attachment B**

Research Needs Statements

**Digital design quality processes. This includes 3-D models and obtaining consistency.**

Committee: AFH20, Quality Assurance Management

Date Posted: 1/8/2020

Date Modified: 1/23/2020

**Recommended Minimum Qualifications for Transportation Project Quality Roles**

Committee: AFH20, Quality Assurance Management

Date Posted: 1/8/2020

Date Modified: 1/23/2020

**Manual for Incorporating NDT in Quality Assurance**

Committee: AFH20, Quality Assurance Management

Date Posted: 10/10/2018

Date Modified: 12/31/2018

**Performance Specifications Implementation Guide**

Committee: AFH20, Quality Assurance Management

Date Posted: 10/10/2018

Date Modified: 12/31/2018

**Effect of Construction Variability on the Performance of Pavements**

Committee: AFH20, Quality Assurance Management

Date Posted: 3/21/2007

Date Modified: 4/14/2007

**Attachment C**

**Count of Committee Members**

U.S. Members	30
Non-US Members	0
Minority	6
Female	9

**Membership Make-up**

Region

Northwest	Southwest	Central	Northeast	Southeast	International
0	9	6	7	8	0

Slots

International	Emeritus	Young	Main	DOT
0	2	4	22	2

Employer

Federal	State	Academia	Industry	Consultant	Local	Other
2	8	5	3	11	0	0