

AASHTO COMMITTEE ON PERFORMANCE-BASED MANAGEMENT

Research Roadmap

2026

Emerging Performance Area

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EPA Scope

Emerging Performance Areas (EPA)

Definition. Emerging transportation performance measures are performance measures that have not yet been widely applied within STAs. They generally have one or more of the following characteristics: (1) measurement of broad objectives such as accessibility, reliability, sustainability, fairness, economic vitality, and quality of life; (2) a user-centric as opposed to facility-centric perspective, (2) a multimodal perspective, and/or (4) use of new data sources and/or technologies for measurement.

Focus. The EPA subcommittee focuses on Improving how STAs conduct performance management by identifying emerging performing areas, making recommendations for future research, and creating a platform for knowledge exchange.

EPA Research Themes and Needs

Emerging Performance Areas (EPA)

- A. **Safety and Public Health.** Research to develop improved transportation safety and public health performance measures.
- B. **Access to Opportunities.** Research to develop improved measures of transportation accessibility, and affordability.
- C. **Transportation System Performance.** Research to develop improved measures of transportation system efficiency and resilience for movement of people and goods.
- D. **Internal Transportation Agency Performance Management.** Research to develop improved measures of internal transportation performance management processes.

Emerging Performance Areas (EPA) Future Research Needs

Research Need	RRM Track	Collaborators
A. Safety and Public Health Research to develop improved transportation safety and public health performance measures		
A1. Advance risk-based transportation safety performance measures that leverage telematics data <ul style="list-style-type: none"> • Identify measures that indicate risks of injuries and fatalities based on hard braking, speeding, and distracted driving • Consider separate measures for commercial vehicles (truck safety) • Provide guidance on measure computation, use, and limitations – for application at project and network levels 	PM	AASHTO COS-Subcommittee on Safety Data and Performance Management (lead) TRB ACD12
A2. Advance techniques for measurement and prediction of pedestrian, bicyclist, and micromobility safety performance measures <ul style="list-style-type: none"> • Investigate new data sources • Look at risk-based measures • Identify approaches to track incidents that aren't captured in traffic records systems (i.e., no motor vehicle involved) 	PM	AASHTO CAT TRB ACD12
A3. Advance use of performance measures that consider public health impacts of transportation investments <ul style="list-style-type: none"> • Project and program-level impacts • Consider support for active transportation • Consider environmental impacts • <i>Build on results of NCHRP 20-135 Incorporating Public Health Outcomes into the Transportation Planning and Decision-Making Process (2029)</i> • <i>Build on results of NCHRP 20-112 A Research Roadmap for Transportation and Public Health (2017)</i> 	DM	AASHTO COES, CAT TRB AQC14

Research Need	RRM Track	Collaborators
<p>A4. Develop new transportation safety performance measures beyond crashes, injuries and fatalities</p> <ul style="list-style-type: none"> • Consider engineering, countermeasure implementation, community involvement • Consider how to measure improvements in safety by implementing novel approaches to design in coordination with other departments. • Explore use of post-crash care data to inform improvements to quality of care 	PM	AASHTO COS-Subcommittee on Safety Data and Performance Management (lead) TRB ACD12
<p>B. Access to Opportunities</p> <p>Research to develop improved measures of transportation accessibility, and affordability</p>		
<p>B1. Advance development and application of performance measures for access to opportunities</p> <ul style="list-style-type: none"> • Include wide variety of travel purposes – jobs, healthcare, education, shopping, etc. • Tailor approaches for suitability in urban and rural settings • Integrate consideration of transportation cost and affordability – through use of the transportation security index or similar measures • <i>Build on results of NCHRP 23-34 Performance Measures for Community-Centered Transportation Outcomes: A Guide (2027)</i> • <i>Build on results of NCHRP 20-24(138) - Collective and Individual Actions for State Departments of Transportation Envisioning and Realizing the Next Era of America’s Transportation Infrastructure (2022)</i> • <i>Build on results of NCHRP 08-121 Accessibility Measures in Practice: Guidance for Transportation Agencies (2021)</i> 	PM	AASHTO COP TRB AEP11
<p>B2. Advance methods for estimating economic development, quality of life, and social impacts of projects and integrating these impact measures within project development and prioritization processes</p> <ul style="list-style-type: none"> • Advance methods to assess how different types of transportation investments affect economic growth and development • <i>Build on results of NCHRP 23-48 - A Guide to Assess, Measure, and Communicate the Public Value of Transportation (2028)</i> • <i>Build on results of NCHRP 23-01 - Assessing and Communicating the Economic and Quality of Life Benefits of Transportation Infrastructure Investment (2020)</i> 	DM	TRB AEP16

Research Need	RRM Track	Collaborators
C. Transportation System Performance Research to develop improved measures of transportation system efficiency and resilience for movement of people and goods		
C1. Improve measures of recovery from transportation system disruption <ul style="list-style-type: none"> • Refine existing measures, including recovery time • Consider hurricane/disaster recovery at a system-level after storm events (or other disruptions) - travel activity, repairs, expenditures • Improve calculation methods – leveraging new data sources • <i>Build on results of NCHRP 25-78 Implementing Effective Community Resilience Performance Management (2028)</i> 	PM	AASHTO CTSSR, CTSO TRB ACF16
C2. Improve measures of how road and bridge closures impact system performance <ul style="list-style-type: none"> • Consider impact analysis and process/model/assumptions 	PM	AASHTO CTSSR, CTSO TRB ACF16, ACF18
C3. Develop new freight movement performance measures <ul style="list-style-type: none"> • Consider new measures for truck parking availability and utilization • Consider new measures for truck safety 	PM	AASHTO CTSO TRB ATO14
D. Internal Transportation Agency Performance Management Research to develop improved measures of internal transportation performance management processes		
D1. Develop approaches to measure effectiveness of agency strategic planning efforts <ul style="list-style-type: none"> • Degree of follow-through on implementation • Alignment of programs and projects with strategic goals and objectives 	PM	AASHTO CPBM-Cross-Cutting TRB AQB11

Research Need	RRM Track	Collaborators
<p>D2. Advance use of output, accomplishment, or cost measures as part of transportation performance monitoring and adjustment processes</p> <ul style="list-style-type: none"> • Improve measurement and communication of project delivery effectiveness • Develop new measures of solution effectiveness or adherence to plan/design • Guidance on what to monitor and how to act on results – e.g. unit costs higher than anticipated; project delivery delays • Promote adjustment to project development and programming assumptions and processes based on analysis of these measures 	DM	AASHTO CPBM-Cross-Cutting TRB AQB13
<p>D3 Develop approaches to assess and improve agencies' ability to support and sustain potential new performance measures</p> <ul style="list-style-type: none"> • Consider: data and analysis requirements, staff capacity, number of different measures to manage • Integrate stakeholder engagement to ensure that selected measures are meaningful 	OC	AASHTO CPBM-Cross-Cutting TRB AQB13

Appendix: Research Projects Related to EPA Scope

Projects are listed in reverse chronological order by end date. End years for pending projects were estimated based on fiscal year and duration.

Project	CPBM Area(s)	Timing Start	End	Funding	Program	Research Question	Tags
NCHRP 23-53 Aligning Relationships Between Transportation Asset Management (TAM), Planning, and Programming	TAM, RM, EPA	Pending	2029	\$400,000	NCHRP	How to integrate resilience and mobility into TAM, P&P	Mobility, Resilience
NCHRP 20-135 Incorporating Public Health Outcomes into the Transportation Planning and Decision-Making Process	EPA	Pending	2029	\$450,000	NCHRP	How can STAs integrate public health outcomes into transportation decision-making and resource allocation and assess positive public health outcomes related to physical activity, mobility options, and access to everyday destinations?	Public Health
NCHRP 23-48 A Guide to Assess, Measure, and Communicate the Public Value of Transportation	EPA	Pending	2028	\$300,000	NCHRP	How to quantify and communicate public value provided by transportation agencies	Communications
NCHRP 25-78 Implementing Effective Community Resilience in Performance Management	EPA	Pending	2028	\$300,000	NCHRP	How to best define resilience performance measures for mobility (as opposed to infrastructure)	Mobility, Resilience

Project	CPBM Area(s)	Timing Start	End	Funding	Program	Research Question	Tags
NCHRP 23-34 Performance Measures for Community-Centered Transportation Outcomes: A Guide	EPA	Jan-25	Jan-27	\$400,000	NCHRP	How to identify and implement non-traditional performance measures aligned with societal goals (mobility, accessibility, quality of life)	Mobility
NCHRP 08-164 Institutional Integration of Active Transportation	EPA	Jun-24	Jun-26	\$500,000	NCHRP	What guidance is needed to institutionalize active transportation infrastructure, practices, and processes at STAs?	
TCRP J-07, Topic SB-37 Transit Agency Goals and Non-Traditional Performance Indicators Focused on Equity	EPA	Apr-22	Aug-24	\$55,000	TCRP Synthesis	How do transit agencies measure equity: what goals and KPIs are used, what targets are set and how do they measure success?	Equity, Transit
NCHRP Synthesis 20-05, Topic 53-01. Practices to Promote Equity in Transportation Funding	EPA	Feb-22	Aug-23	\$55,000	NCHRP Synthesis	How are STAs defining, measuring and promoting equity in transportation funding?	Equity, Funding
NCHRP 20-24(138), Collective and Individual Actions for State Departments of Transportation Envisioning and Realizing the Next Era of America's Transportation Infrastructure	EPA	Oct-21	Dec-22	\$472,894	NCHRP	What can state DOTs do collectively and individually to support the nation's continued prosperity and well-being?	Accessibility, Mobility, Public Health, Resilience, Safety

Project	CPBM Area(s)	Timing Start	End	Funding	Program	Research Question	Tags
NCHRP 8-36(142) Advancing Sustainability through Multi-Agency Collaborations	EPA	Jun-17	Mar-20		NCHRP	What has been learned from multi-agency collaborations in the United States or abroad that promote sustainability objectives and measurable outcomes related to transportation investments?	Sustainability, Collaboration
NCHRP 20-112 A Research Roadmap for Transportation and Public Health	EPA	Sep-17	Mar-19	\$250,000	NCHRP	What research is needed to help agencies to integrate public health considerations into agency decision-making?	Public Health