



2nd Conference on

# Scenario Planning in Transportation

**SEPTEMBER 19–21, 2022**

Washington, D.C.

*Convened by*  
Transportation Research Board

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### WELCOME FROM STEPHEN WOELFEL AND JENNY ZENG

#### CHAIRS, CONFERENCE PLANNING COMMITTEE

Welcome to the Transportation Research Board's 2nd Conference on Scenario Planning in Transportation!

The last two years have pushed all of us to rethink how we meet the changing needs of the people that use the transportation services our organizations provide. From COVID-19 to extreme weather to reckoning with longstanding inequities in service and planning, the times we face are unpredictable now and will continue to be in the future. All levels of transportation organizations must respond to constant and continual disruptions, and transportation decision-makers across the industry need to know how to respond on short notice while ensuring that operating staff can maintain service under strain.

Outside of transportation, organizations in other sectors have used the principles and tools of scenario planning to prepare them to respond to an ever changing future. The concept of scenario planning is not new to the transportation industry, but now more than ever, we need to accelerate the incorporation of these principles and tools into the daily processes of transportation agencies.

The goal of this conference is to help all of us learn what our organizations need to do to embed scenario planning into our daily work so that we can be more agile in responding to disruptions and achieve better outcomes for everyone.

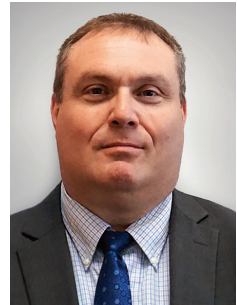
Thank you for joining us!

#### **Stephen Woelfel**

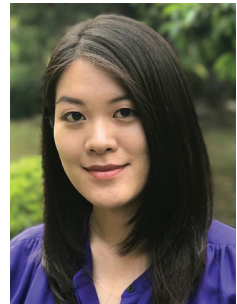
Chair, Conference Planning Committee

#### **Jenny Zeng**

Vice Chair, Conference Planning Committee



Stephen Woelfel



Jenny Zeng

## 2022 PLANNING COMMITTEE

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This conference would not have been possible without the combined efforts of many individuals and organizations.

**Stephen Woelfel**, Chair, Massachusetts Department of Transportation

**Jenny Zeng**, Vice Chair, Massachusetts Department of Transportation

**Curtis Bradley**, North Carolina Department of Transportation

**Maggie Doll**, Burns & McDonnell

**Matthew Hardy**, American Association of State Highway and Transportation Officials

**Patricia Hendren**, The Eastern Transportation Coalition

**Nate Higgins**, Slalom

**Mike Knodler**, University of Massachusetts, Amherst

**Mike McCardle**, VHB

**Michael Morris**, North Central Texas Council of Governments

**Peter Plumeau**, EBP

**Angela Berry Roberson**, WSP

**Geoffrey Rodriguez**, Louisiana Department of Transportation

**Alyssa Ryan**, University of Arizona

**Traceé Strum-Gilliam**, PRR

**Jim Thorne**, Federal Highway Administration

**Stephen Wong**, University of Alberta

### TRB STAFF

**Claire Randall**

**Freda Morgan**

**Mary Kissi**

### SPONSORING STANDING COMMITTEES

**Strategic Management (AJE10)**

**Contracting Equity (AJE60)**

**Data for Decision Making (AJE70)**

**The Transportation Research Board** is one of seven major programs of the National Academies of Sciences, Engineering, and Medicine. The mission of the Transportation Research Board is to increase the benefits that transportation contributes to society by providing leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal. The Board's varied committees, task forces, and panels annually engage about 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.

**[www.TRB.org](http://www.TRB.org)**

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## SCHEDULE AT-A-GLANCE

Monday, September 19		
8:30 AM–9:15 AM	Continental Breakfast / Networking	West Court / Great Hall
8:30 AM–4:00 PM	Registration	Fred Kavli Auditorium Hallway
9:15 AM–10:00 AM	Opening Plenary: Be Bold in Facing the Future	Fred Kavli Auditorium
10:15 AM–11:30 AM	<b>Session 1:</b> COVID Pandemic Lessons Learned	Lecture Room
	<b>Session 2:</b> Future Changes / The Future Requires Scenario Planning	NAS 125
11:30 AM–11:45 AM	Morning Break	West Court / Great Hall
11:45 AM–1:00 PM	<b>Session 3:</b> Scenario Planning Across Sectors	Fred Kavli Auditorium
1:15 PM–2:15 PM	Networking Lunch	West Court / Great Hall
2:30 PM–3:45 PM	<b>Session 4:</b> Importance of Scenario Planning in Decision Making	Fred Kavli Auditorium
3:45 PM–4:00 PM	Afternoon Break	West Court/Great Hall
4:00 PM–5:15 PM	<b>Session 5:</b> Scenario Planning at State DOTs	NAS 125
	<b>Session 6:</b> Scenario Planning at MPOs	Lecture Room
5:30 PM–7:00 PM	Exhibitor / Reception / Tools (Posters)	Great Hall
Tuesday, September 20		
8:30 AM–9:15 AM	Continental Breakfast / Networking	West Court / Great Hall
8:30 AM–3:00 PM	Registration	Fred Kavli Auditorium Hallway
9:15 AM–12:30 PM	<b>Session 8:</b> Tabletop Exercise	Fred Kavli Auditorium
	Tabletop Exercise Breakouts	Lecture Room; NAS 125; NAS 120
10:45 AM–11:00 AM	Morning Break	West Court / Great Hall
12:30 PM–1:30 PM	Networking Lunch	West Court / Great Hall
1:30 PM–2:30 PM	<b>Session 9:</b> Tabletop Plenary	Fred Kavli Auditorium
2:30 PM–3:45 PM	<b>Session 10:</b> Organizational Implementation	Fred Kavli Auditorium
3:45 PM–4:00 PM	Afternoon Break	West Court / Great Hall
4:00 PM–5:00 PM	<b>Session 11:</b> Integrating Scenario Planning to Support Agency Vision	Fred Kavli Auditorium
Wednesday, September 21		
8:30 AM–9:30 AM	Continental Breakfast / Networking	West Court / Great Hall
8:30 AM–12:30 PM	Registration	Fred Kavli Auditorium Hallway
9:45 AM–11:00 AM	<b>Session 12:</b> Integration Opportunities in Your Organization and Tools to Make it Stick	Lecture Room
	<b>Session 13:</b> Global Risk Assessment & Mitigation Strategies	NAS 125
11:00 AM–11:15 AM	Morning Break	West Court / Great Hall
11:15 AM–12:30 PM	<b>Session 14:</b> How Do you Plan to Integrate Scenario Planning into Your Agency	Fred Kavli Auditorium
1:30 PM–4:00 PM	Committee Meeting: TRB Strategic Management Committee (AJE10)	Lecture Room

## EXHIBITORS

**Decision Lens**  
**Deloitte**  
**PTV America, Inc.**

### **American Planning Association Certification Maintenance (CM) for AICP Certified Planners**

Certification Maintenance credits are offered for most of the sessions at this conference. A list of sessions eligible for CM credits will be available at the registration desk. Please note that the CM credits have been requested and are subject to approval.



**TRB**  
**ANNUAL MEETING**

102nd Annual Meeting ▲ Washington, DC January 8–12, 2023

### **Join us for the 2023 TRB Annual Meeting**

The Transportation Research Board (TRB) 102nd Annual Meeting is being held January 8–12, 2023 in Washington, D.C.

Expected to attract thousands of transportation professionals from around the world, the meeting program covers all transportation modes, with sessions and workshops addressing topics of interest to policy makers, administrators, practitioners, researchers, and representatives of government, industry, and academic institutions.

**Plan now to attend!** For more information, visit [www.trb.org/AnnualMeeting](http://www.trb.org/AnnualMeeting).

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SCAN ME

# PROFESSIONAL DEVELOPMENT HOURS



## Professional Development Hours Credit Statement for Attendee's Records 2<sup>nd</sup> Conference on Scenario Planning in Transportation; September 19–21, 2022; Washington, D.C.

Many licensure and certification agencies recognize Professional Development Hour (PDH) units toward demonstration of continuing professional competency. It is recommended that you check with your own state licensure/certification agency about their specific requirements for PDHs.

This form is for your use in maintaining a record of any PDH units you earn at the above-mentioned conference. Complete this form and retain it for your records. **Do not return it to TRB.** It is recommended that you save the full program of each lectern session or workshop you attend, in case the licensure or certification agency requests detailed information. Reporting is done on an honor basis, and individuals are responsible for maintaining their own records.

I have earned continuing-education PDHs by attending the following lectern sessions and workshops, during the above-mentioned conference. (Note: Poster sessions do not qualify for PDH credits.)			
Date	Start Time – End Time	Title	Hours
9/19/22	9:15 AM–10:00 AM		.75
	10:15 AM–11:30 AM		1.25
	11:45 AM–1:00 PM		1.25
	2:30 PM–3:45 PM		1.25
	4:00 PM–5:15 PM		1.25
9/20/22	9:15 AM–12:30 PM		3.25
	1:30 PM–2:30 PM		1.00
	2:30 PM–3:45 PM		1.25
	4:00 PM–5:00 PM		1.00
9/21/22	9:45 AM–11:00 AM		1.50
	11:15 AM–12:30 PM		1.25
Total:			

Name \_\_\_\_\_ Date \_\_\_\_\_



# CONFERENCE PROGRAM

## MONDAY, SEPTEMBER 19, 2022

8:30 AM–9:15 AM

### **Continental Breakfast / Networking**

Location: West Court / Great Hall

8:30 AM–4:00 PM

### **Registration**

Location: Fred Kavli Auditorium Hallway

9:15 AM–10:00 AM

### **Opening Plenary: Be Bold in Facing the Future**

Location: Fred Kavli Auditorium

**Introduction / Moderator:** Stephen Woelfel, Massachusetts Department of Transportation

*This session will open the conference by introducing the concept of an "Uncertainty Advantage," which is the capacity to be better prepared for whatever lies ahead. This talk will demonstrate the power of scenarios to build resilience and strengthen strategy while reintroducing a set of scenarios developed within a previous TRB event just prior to the pandemic.*

- Alan Iny, Boston Consulting Group

## **Concurrent Sessions**

10:15 AM–11:30 AM

### **SESSION 1: COVID Pandemic Lessons Learned**

Location: Lecture Room

**Moderator:** Stephen Wong, University of Alberta

*How did agencies embrace scenario planning during the pandemic? How could scenario planning have helped transit agencies be better prepared to manage the COVID-19 pandemic?*

- Hannah McIntosh, King County Metro Transit
- Peter Kersten, Regional Transit Authority of Northern Illinois
- Timothy Papandrea, Emerging Transport Advisors



**SESSION 2: Future Changes / The Future Requires Scenario Planning****Location:** NAS 125**Moderator:** Nate Higgins, Slalom

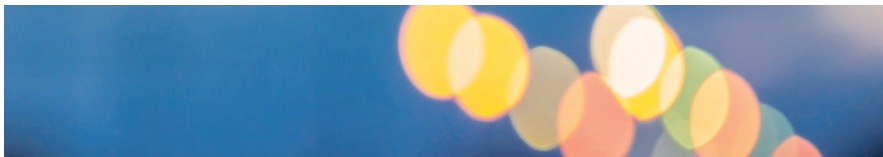
*What are the disruptive technological, economic, and demographic trends that are most going to impact the future of transportation and transportation organizations? How might scenario planning help us to change how we organize to deliver transportation value?*

- Tamarah Usher, Slalom
- Sam Van Hecke, Cambridge Systematics
- Stephanie Hoopes, United Way
- Jessica Kenny, Massachusetts Department of Transportation

**11:30 AM–11:45 AM****Morning Break****Location:** West Court / Great Hall**11:45 AM–1:00 PM****SESSION 3: Scenario Planning Across Sectors****Location:** Fred Kavli Auditorium**Moderator:** Michael Morris, North Central Texas Council of Governments

*By demonstrating standard scenario testing / practices in other fields, transportation officials will see the need to change; to reduce project outcome risks and to enhance inclusion and diversity.*

- Chris Cassidy, National Medal of Honor Museum, Former Navy Seal, Former Commander of the International Space Station
- Emmitt Smith, E Smith Advisors, Pro Football Hall of Fame

**1:15 PM–2:15 PM****Networking Lunch****Location:** West Court / Great Hall

2:30 PM–3:45 PM

**SESSION 4: Importance of Scenario Planning in Decision Making****Location:** Fred Kavli Auditorium**Moderator:** Matt Hardy, American Association of State Highway and Transportation Officials

*In this session, attendees will hear from state DOT leaders on how they use scenario planning to foster a resilient approach in a transportation agency, face the disruptions caused by extreme weather events, and support the changing workforce environment.*

- **Secretary Roger Millar**, Washington State Department of Transportation (recorded presentation)
- **Secretary Shawn Wilson**, Louisiana Department of Transportation and Development (recorded presentation)
- **Assistant Secretary Andrea d'Amato**, Massachusetts Department of Transportation

3:45 PM–4:00 PM

**Afternoon Break****Location:** West Court / Great Hall**Concurrent Sessions**

4:00 PM–5:15 PM

**SESSION 5: Scenario Planning at State DOTs****Location:** NAS 125**Moderator:** Alyssa Ryan, University of Arizona

*State and other planning agencies are facing unprecedented uncertainties as they update and implement long-range transportation plans. Many states are using scenario planning to explore the impact of changing trends and potential disruptions, assess alternative strategies for accomplishing their vision and goals, and test potential investment packages. This panel will share examples from states that are including scenario planning as part of long-range plan development, with an emphasis on lessons learned.*

- **John Kaliski**, Cambridge Systematics, Planning in Uncertainty: Lessons Learned for State DOTs
- **Nastasha Earle-Young**, North Carolina Department of Transportation
- **Scott Zainhofsky**, North Dakota Department of Transportation

**SESSION 6: Scenario Planning at MPOs****Location:** Lecture Room**Moderator:** Jim Thorne, Federal Highway Administration

*Participate in a panel discussion with four MPOs sharing how scenario planning enhanced their transportation planning process, influenced policy development, and supported collaboration with partners. Each panel member will share highlights of their scenario*

*planning approach and lessons learned. Applications include developing and refreshing a regional vision, emergency response and evacuation planning, updating a Metropolitan Transportation Plan, and using an exploratory approach.*

- Allison Yeh, Hillsborough Transportation Planning Organization
- Patricia Steed, Heartland Regional Transportation Planning Organization
- Peter Gies, Broward Metropolitan Planning Organization
- Alexander Trauger, MetroPlan Orlando

**5:30 PM–7:00 PM**

### **Exhibitor / Reception / Tools (Posters)**

**Location: Great Hall**

- Jiayun Shen, Clemson University, *Planning for Travel Demand during Prolonged Power Outages: Case studies of the Texas 2021 snowstorm and Hurricane Ida*
- Gabrielle Freeman, RSG, *Scenario Planning and Strategic Modeling for the Oregon Transportation Plan*
- Yoram Shiftan, Technion, Israel Institute of Technology, *Scenarios planning for major mass transit investments in an era of uncertainty*
- Majbah Uddin, Oak Ridge National Laboratory, *Sentiment Analytics as Part of Public Participation in the Transportation Scenario Planning*
- Reinaldo Germano dos Santos, Foursquare ITP, *Engagement and Evaluation Tools in Developing and Ranking Alternative Scenarios – the case of the East-West and North-South Corridors in Central Maryland*
- Gabrielle Freeman, RSG, *VisionEval Strategic Planning Model for Northwestern Vermont*
- Bradley Sharlow, Michigan Department of Transportation, *Scenarios to Identify and Account for Long-Term Influences on Transportation: Methods from Michigan Mobility 2045*
- Chandler Duncan, Metro Analytics, *NCHRP 20-126(02) State Transportation Agency Multifaceted Decision-Making for Future System Performance*



## TUESDAY, SEPTEMBER 20, 2022

8:30 AM–9:15 AM

### **Continental Breakfast / Networking**

Location: West Court / Great Hall

8:30 AM–3:00 PM

### **Registration**

Location: Fred Kavli Auditorium Hallway

9:15 AM–12:30 PM

### **SESSION 8: Tabletop Exercise**

Location: Fred Kavli Auditorium; Breakouts: Lecture Room, NAS 125, NAS 120

**Moderators:** Trish Hendren, The Eastern Transportation Coalition  
and Tracee Strum Gilliam, PRR

*This will be a facilitated session that will require participants to use scenario planning concepts and tools to address a real-world policy situation. For this workshop, the policy issue will focus on the challenges surrounding the electrification of transportation networks.*

10:45 AM–11:00 AM

### **Morning Break**

Location: West Court / Great Hall

12:30 PM–1:30 PM

### **Networking Lunch**

Location: West Court / Great Hall

1:30 PM–2:30 PM

### **SESSION 9: Tabletop Plenary**

Location: Fred Kavli Auditorium

**Moderator:** Jenny Zeng, Massachusetts Department of Transportation

*This session will evaluate the results of the Tabletop Exercise just completed and consider how participants performed in the context of scenario planning principles. Through the lens of the Tabletop Exercise, this session will demonstrate the benefits that scenario planning can have on decision making.*

- Patt Talvanna, Boston Consulting Group
- Alan Iny, Boston Consulting Group

**2:30 PM–3:45 PM****SESSION 10: Organizational Implementation****Location:** Fred Kavli Auditorium**Moderators:** Kerri Sullivan Woehler, Washington State Department of Transportation and Peter Plumeau, EBP

*The challenges of uncertainty and disruption facing transportation decision-makers today require flexible, adaptable responses. New problems require new thinking and new approaches – especially from the practitioners agency leaders rely on to conduct analysis and engage stakeholders to recommend near-term actions and long-term strategies. Scenario planning is broadly understood as a promising method to support this kind of decision-making, but is under-utilized by transportation agencies.*

*In this session, we'll take a closer look at how transportation agencies would benefit from scenario planning in their decision making while considering the influence of agency culture, organizational structure, business processes and governance on scenario planning implementation. Session participants will hear from transportation executive leaders about the opportunities and challenges they face in adopting scenario planning principles in their agency. [The session will incorporate interactive elements to increase engagement from participants.]*

- David Swallow, RTC of Southern Nevada (Las Vegas)
- Jitender Ramchandani, Virginia Office of Intermodal Planning and Investment
- Luciana Burdi, Massachusetts Port Authority

**3:45 PM–4:00 PM****Afternoon Break****Location:** West Court / Great Hall**4:00 PM–5:00 PM****SESSION 11: Integrating Scenario Planning to Support Agency Vision****Location:** Fred Kavli Auditorium**Moderator:** Stephen Woelfel, Massachusetts Department of Transportation

- Secretary Julie Lorenz, Kansas Department of Transportation



## WEDNESDAY, SEPTEMBER 21, 2022

8:30 AM–9:30 AM

### **Continental Breakfast / Networking**

Location: West Court / Great Hall

8:30 AM–12:30 PM

### **Registration**

Location: Fred Kavli Auditorium Hallway

## **Concurrent Sessions**

9:45 AM–11:00 AM

### **SESSION 12: Integration Opportunities in Your Organization and Tools to Make it Stick**

Location: Lecture Room

**Moderators:** Curtis Bradley, North Carolina Department of Transportation and Mike Knodler, University of Massachusetts, Amherst

*This session will discuss a number of tools that can help incorporate scenario planning into the analytical work of transportation agencies. It will also include a discussion of processes that can help advance agility in responding to change. Topics will cover uncertainty in travel forecasting (exploratory modeling and analysis, TMIP / EMAT), Vision Eval / incorporating automated vehicles into scenario planning models, and integrating scenario planning tools into the agency environment.*

- Robert Lempert, RAND Corporation
- Steven Popper, RAND Corporation
- Meghan Haggerty, Massachusetts Department of Transportation
- Hannah Twaddell, ICF

### **SESSION 13: Global Risk Assessment & Mitigation Strategies**

Location: NAS 125

**Moderator:** Michael McArdle, VHB

*When it comes to “thinking the unthinkable” and building organizational resiliency for an era of disruption, traditional long-range planning cycles are inherently limited. Risk and assurance leaders looking to take the next step towards resiliency must use the outputs from scenario planning to build enterprise-wide risk management (ERM). This session will cover the basic frameworks of ERM, the unique value proposition of ERM, tactics for low-cost implementation of ERM principles, and best practices for using scenario planning to build ERM capabilities that guide risk-informed decision-making.*

- Daniel Hebda, Gartner

11:00 AM–11:15 AM

**Morning Break**

Location: West Court / Great Hall

11:15 AM–12:30 PM

**SESSION 14: How Do you Plan to Integrate Scenario Planning into Your Agency**

Location: Fred Kavli Auditorium

**Moderator:** Alyssa Ryan, University of Arizona

*This session will include a discussion between members of the planning committee and conference participants on incorporating the use of scenario planning to meet disruptions while also advancing agency goals including the promotion of equitable decisions, system performance, and organizational capacity.*

1:30 PM–4:00 PM

**Committee Meeting - AJE10 Strategic Management**

Location: Lecture Room

**Chair:** Andrea d'Amato







## NOTES

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## TRANSPORTATION RESEARCH RECORD

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