Use of Scenario Planning in Transportation Planning

August 14–17, 2016
Double Tree by Hilton
Portland, Oregon

Organized by
Transportation Research Board

Sponsored by
American Association of State Highway and Transportation Officials

and by the Standing Committees on
Strategic Management (ABC10)
Statewide Transportation Data and Information Systems (ABJ20)
Metropolitan Policy, Planning, and Processes (ADA20)
Statewide Multimodal Transportation Planning (ADA10)
Transportation Programming and Investment Decision Making (ADA50)
CONFERENCE AGENDA

SUNDAY, AUGUST 14, 2016

9:30 a.m.–
ABC10 Committee Meeting
Noon
Mt. St. Helens Meeting Room

1:00 p.m.–
Scenario Planning Workshop A
2:30 p.m.
FHWA on Scenario Planning and Autonomous–Connected Vehicles
Three Sisters/Mt. Bachelor

This workshop, sponsored by the Federal Highway Administration (FHWA), will explain traditional scenario planning in transportation planning. Speakers will showcase tools, resources, and materials that cover a wide range of scenario planning techniques and uses; demonstrate how to advance transportation system management and operations through scenario planning; and consider the use of scenario planning to support planning for connected and autonomous vehicles.

Moderator:
James Garland, FHWA

Speakers:
Brian Betlyon, FHWA Resource Center
Reena Matthews, FHWA Office of Human Environment
Kate Ange, Renaissance Planning Group, representing FHWA Office of Operations
Egan Smith, FHWA Intelligent Transportation Systems Joint Program Office
Brian Cronin, FHWA Office of Operations Research and Development

Scenario Planning Workshop B
Public Involvement
Mt. Hood

Does public involvement look different when engaging in scenario planning? This interactive workshop will start with presentations by experts to share case studies and lessons learned from scenario planning efforts that have engaged community leadership, stakeholders, and citizens in the process—the good, the bad, and the ugly. Participants will break into small groups to develop a public engagement plan that addresses a full range of challenges.

Moderators:
Coco Briseno, California Department of Transportation (Caltrans)
Claudia Bilotto, WSP–Parsons Brinckerhoff

Speakers:
Terry Moore, ECONorthwest
Liz Sanford, Atlanta Regional Commission
Robyn Austin, Kittelson and Associates
Katie Benouar, Caltrans

Group Exercise PPT
Group Exercise Summary
Participant Workbook
CONFERENCE AGENDA: Sunday (continued)

2:30 p.m.– Break, Cascade Ballroom Foyer
3:00 p.m.

3:00 p.m.– Scenario Planning Workshops A&B (continued)
4:30 p.m.

5:00 p.m.– Keynote Speaker
6:30 p.m.

Peter Bishop, Founder and Executive Director, Teach the
Future Three Sisters/Mt. Bachelor

Teach the Future is a national initiative to establish futures thinking as a natural component of education. Bishop previously served as Director of the Foresight program at the University of Houston, Texas. The Foresight program offers the first-ever degree in futures studies and has graduated more than 300 professional futurists. Join us for a fascinating opening session that will challenge traditionally held views on the future.

www.teachthefuture.org
CONFERENCE AGENDA

Monday, AUGUST 15, 2016

7:00 a.m.– ADA20 Committee Meeting
8:00 a.m. Roosevelt Meeting Room

Registration and Breakfast

8:00 a.m.– Welcome and Context Setting: Why Are We Here?
8:30 a.m. Three Sisters/Mt. Bachelor/Mt. Hood

Moderator:
Jerri Bohard, Oregon Department of Transportation (DOT)

Speaker:
Ryan Rice, Colorado DOT

8:30 a.m.– What's Driving All This Change?
10:00 a.m.

The opening session provides an overview of the key drivers of change that may combine and collide in unpredictable ways to affect social, economic and environmental well being and to challenge planners preparing for the future. This opening session provides foundational information for the rest of the conference and for future scenario planning efforts.

Moderator:
Jerri Bohard, DOT

Sociodemographics
Freight
Technology and Autonomous–Connected Vehicles
Climate Change
Economics

Speakers:
Mark Bradley, Resource Systems Group
Barbara Ivanov, University of Washington
Mark Jensen, Cambridge Systematics
Michael Meyer, WSP–Parsons Brinckerhoff
Terry Moore, ECONorthwest

10:00 a.m.– Break
10:30 a.m. Cascade Ballroom Foyer
10:30 a.m.–Noon  

**Future Planning Today (Part 1): Long-Range Planning**  
*Three Sisters/Mt. Bachelor/Mt. Hood*

*Moderator:*  
Uri Avin, University of Maryland

**Presentation A**  
*A Conceptual Structure for Scenarios and Tools*

Participants will learn about a plethora of scenarios at this conference. This presentation will provide a structure for defining various kinds of scenario approaches and how they can be executed most effectively. It will bridge conceptual approaches with the models and tools used to conduct the work, drawing on recent research and publications.

*Speaker:*  
Uri Avin, University of Maryland

**Presentation B**  
*Exploring Florida’s Transportation Future*

Florida DOT used scenario planning to update its long-range transportation plan in 2015. This presentation will focus on the process used to develop five alternative futures, the techniques used to engage transportation partners in their development, and the impact that the alternative futures had on Florida DOT’s final plan.

*Speakers:*  
John Kaliski, Cambridge Systematics, Inc.  
Brian Watts, Florida DOT

**Presentation C**  
*The Wasatch Front: Lessons from Regional and Corridor Scenarios*

Utah’s four largest transportation agencies are conducting scenario planning for a 2050 landscape of advanced technology, population, leadership, and policy in support of the Wasatch Front Central Corridor Study along I-15 and the Front Runner commuter train corridor. This session will explore the sociodemographic and transportation context and projections for the region for 2050, along with comparisons with cities with similar 2050 projections. This information informed the development of three distinct scenarios of transportation improvements, each with a different placement on the Transportation Demand Spectrum.

*Speakers:*  
Jeff Harris, Utah DOT  
Shawn Seager, Mountainland Association of Governments
Presentation D
San Diego’s Transportation Scenario Planning: Fiscal and Technological Implications

The San Diego Association of Governments (SANDAG) is both the single-county metropolitan planning organization and transportation commission for San Diego County. The county’s half-cent sales tax program for regional transportation is administered by SANDAG, and all of the transit projects in the region are developed by SANDAG. In 2003 SANDAG developed three fiscal scenarios to inform the development of the Regional Transportation Plan: fiscally constrained, reasonably expected, and unconstrained. This was at a time when the region sought to extend the sales tax, which passed by a two-thirds countywide vote in 2004. The presentation will focus on the application of scenario planning in support of a future that includes another attempt to raise the sales tax for transportation investment in November 2016 and on transportation technology enhancements that are already surfacing.

Speaker:
Muggs Stoll, SANDAG

Noon–Lunch
1:30 p.m.

Lunch
Future Planning Today (Part 2): Expand the Discussion with Stakeholder Engagement
Willamette Ballroom

Presentation A
A View to the Future

Speaker:
Shailen Bhatt, Executive Director, Colorado DOT

Presentation B
Foresight 750 Scenario Planning Resources

This presentation sets the stage for hands-on scenario exploration in the afternoon sessions. The Foresight 750 Series Keynote presentation, a result of the NCHRP 20-83 research series, explores subjects as diverse and impactful as:

- Freight scenario planning
- Climate change and extreme weather events
- Technology for enhancing transportation system performance
- Sustainability as an organizing principle for transportation agencies
- Energy and fuels: uncertain energy future
- Demographics and their effect on future travel demand

Speakers:
Thera Black, SCJ Alliance
Danny Rotert, Burns & McDonnell
1:30 p.m.–4:00 p.m.  
**Embracing Uncertainty: Hands-On Scenario Exploration**  
*Three Sisters/Mt. Bachelor/Mt. Hood*

The only thing certain about the future is uncertainty. Nevertheless, transportation planners engage the community in planning processes that describe and project future conditions in order to define long-range visions and outcomes, prioritize investments, and craft performance outcomes and performance measures to guide the way from here to there. In this interactive workshop, participants wade into the messy but creative and enlightening process of scenario development, using tools and information produced for the NCHRP Foresight Report 750 Series and Beyond Traffic 2045.

*Moderator:*
*Thera Black, SCJ Alliance*

4:00 p.m.–5:00 p.m.  
**Hands-On Scenario Exploration (continued)**

In this session learn how three state transportation departments have utilized scenario planning.

*Moderators:*
*Thera Black, SCJ Alliance*
*Danny Rotert, Burns & McDonnell*

**Presentation A**  
**Using an Analysis of Driving Future Forces to Drive Strategic Metropolitan Planning Organization (MPO) Long-Range Planning**

The Delaware Valley Regional Planning Commission (DVRPC) convened a collaborative, interdisciplinary futures group of experts from various fields to think comprehensively about key emerging trends. This session will focus on the most significant forces identified by the futures group: enduring urbanism, the free agent economy, severe climate, transportation on demand, and the U.S. energy boom. These future forces were analyzed and modeled as what-if scenarios out to the year 2045. Attendees will learn about this sophisticated scenario-building effort from one of the leading MPOs in the country.

*Speaker:*
*Brett Fusco, DVRPC*

**Presentation B**  
**Employing Scenario Planning to Inform Internal Target Setting**

Massachusetts DOT introduced scenario-based planning in the development of its 2014 statewide plan, weMove Massachusetts, creating a cross-modal tool to inform capital investment decision making and performance planning. Massachusetts DOT used
the Planning for Performance tool as one of the cornerstones of its 2017–2021 Capital Investment Plan. The DOT currently is undertaking a target-setting process to determine measurable goals for each of its divisions. This spring, Massachusetts DOT conducted an agencywide workshop to begin this target-setting work. The Foresight approach to scenario planning was central to this internal engagement. This session will illustrate how senior leaders considered alternative future scenarios and their respective influences on transportation and division goals as a part of their planning efforts.

Speaker:
Steve Woelfel, Massachusetts DOT

Presentation C
Optimizing Performance and Investment Decisions Through Scenario Planning: Arkansas’ Journey

The use of performance data to best allocate limited resources across various types of investments continues to be a persistent challenge for transportation organizations. Although many agencies use pavement or bridge management systems to help understand the short-term impact of their investments, longer-term horizons rarely are used to assess the impact of alternate investment choices on performance.

The Arkansas State Highway and Transportation Department (AHTD) developed an innovative performance-based planning approach as part of its Long-Range Intermodal Transportation Plan (LRITP). Like all state transportation organizations, AHTD has investment needs that far exceed available revenues. Presenters will showcase how AHTD developed a transparent and accountable process for developing and implementing its LRITP.

Speakers:
Jessie Jones, AHTD Kevin Ford, Decision Lens
CONFERENCE AGENDA

Tuesday, AUGUST 16, 2016

7:00 a.m.–  Registration and Breakfast
8:00 a.m.    Cascade Ballroom Foyer

8:00 a.m.–  Connecting Scenario Approaches with Scenario Tools
10:00 a.m.  Three Sisters/Mt. Bachelor/Mt. Hood

This session focuses on tools of the trade for scenario planning, from traffic modeling to climate change.

Moderator:
Maren Outwater, Resource Systems Group

Speakers:
Rob Goodspeed, University of Michigan
Matt Noonkester, City Explained, Inc.
Mark Bradley, Resource Systems Group
Tara Weidner, Oregon DOT
Terry Moore, ECONorthwest
Uri Avin, University of Maryland

10:00 a.m.–  Break
10:30 a.m.   Cascade Ballroom Foyer

10:30 a.m.–  Connecting Scenario Approaches with Scenario Tools: Case Studies
Noon

A full range of case studies will be presented, with a focus on the practical application of tools currently being used by research organizations at the forefront of scenario planning.

Case Study A
Texas Statewide Vehicle Miles of Travel Scenario Calculation Tool
This quick-response tool was developed for use by the Texas state legislature and policy analysts to forecast vehicle miles of travel under different scenarios while controlling for trade, population change, and shifting employment.

Speaker:
Byron Chigoy, Texas A&M Transportation Institute (TTI)
Case Study B
Integrating Climate Change into Scenario Planning: Can Mitigation Measures Also Make a Region More Resilient?
This case study focuses on the use of scenario planning for climate change adaptation planning and traditional long range transportation and land use planning to show stakeholders how transportation and land use decisions made today can affect resiliency and sustainability in the future. This case study will demonstrate the various resources that were developed as a part of the project.

Speaker:
Benjamin Rasmussen, U.S. Department of Transportation Volpe Center

Case Study C
Paths of Automated and Connected Vehicle Deployment: Strategic Roadmap for State and Local Transportation Agencies

This case study helps answer the question, “What strategies can transportation agencies begin implementing to help them function effectively, regardless of what the future brings?” The methodology used in this research project is a real-world, low-tech, nonproprietary example of how scenario planning can be used to address complex issues. The case study will explain the two scenarios that were developed and how the process can help transportation organizations prepare for the future of automated and connected vehicles.

Speaker:
Melissa Tooley, TTI

Lunch
Exploratory Scenario Analysis Across a Range of Concerns,
Willamette Ballroom

Moderator:
Jeff Sudmeier, Colorado DOT

Presentation A
Baltimore–Washington Corridor: A Case Study in Progress

This case study looks at a real-world example of exploratory scenario analysis. Models used in the project include many of the models currently used by transportation planning agencies and speak to many of the policy issues that transportation agencies
must address. This project provides a comprehensive example of how to create
exploratory scenarios, examines how such scenarios can be analyzed using advanced
computer models, and shows how the output of such models can be used to identify and
adopt robust transportation and land use policies.

Speaker:
Gerrit Knaap, National Center for Smart Growth, University of Maryland

Presentation B
California Transportation Plan 2040

Caltrans planners faced an unprecedented challenge in approaching the California
Transportation Plan 2040. Challenges included ambitious new legislation for reducing
greenhouse emissions, new policies and performance requirements, and the inclusion of
new stakeholders representing changing demographics and values, as well as emerging
trends in new mobility enabled by technological advances and the sharing economy.
Three future scenarios that bundled strategies for reducing greenhouse gases were
developed with stakeholders and a new statewide interregional model was developed
to model the scenarios. One of the most difficult aspects of the scenario planning was
explaining what they meant to stakeholders and the public. Caltrans can discuss how the
scenarios were developed, modeled, and portrayed and explained to partners, as well
as how the agency responded to feedback and how lessons learned are being applied to
scenario planning for next time.

Speaker:
Katie Benouar, Caltrans

1:30 p.m.–
3:00 p.m.

Building Your Own Scenarios and Responses  
Three Sisters/Mt. Bachelor/Mt. Hood

Breakout group participants are challenged to develop investments strategies and to
identify organizational changes to address the scenarios in which they’ve been placed.
In this session, participants are beginning to apply the principles of scenario planning to
policies and actions that may be used within their own transportation organization.

Moderator:
Danny Rotert, Burns & McDonnell

3:00 p.m.–
3:30 p.m.

Break, Cascade Ballroom Foyer
3:30 p.m.–5:00 p.m.  

**Building Your Own Scenarios and Responses: Reflections on Real-World Implications**  
*Three Sisters/Mt. Bachelor/Mt. Hood*

Interactive sessions throughout the conference have engaged participants in developing scenarios and responding to challenges. Presentations have demonstrated not just how to weave uncertainty into planning process, but why it’s important. This breakout session engages participants in exploring a big “what if” question facing their own organizations: “What if you knew one of these scenarios was imminent? What should your organization do differently today to accommodate a future that looks more uncertain than currently envisioned?” Working together, participants will evaluate the capacity of their processes and plans to respond to uncertainty, and the means by which scenario planning can be adopted into agency practice.

*Moderators:*
Joe Crossett, High Street Consulting Group  
Thera Black, SCJ Alliance
CONFERENCE AGENDA

Wednesday, AUGUST 17, 2016

7:00 a.m.– 8:00 a.m.  
Breakfast  
Cascade Ballroom Foyer

8:30 a.m.– 10:00 a.m.  
Part A  
Individual Scenario Report-Out: Lessons from Your Scenarios

Conference attendees share individual lessons learned from the scenarios they developed during the conference.

Moderator:  
Julie Lorenz, Burns & McDonnell

Part B  
Panel Discussion: Applying Lessons Learned Across Agencies

Transportation agency leaders from across the country participate in a panel discussion that explains how attendees can take lessons learned from the conference and can begin applying them within their own transportation organizations.

Moderator:  
Julie Lorenz, Burns & McDonnell

Panelists:  
Tom Schwetz, Lane Transit District  
Brett Fusco, DVRPC  
Matthew Garrett, Oregon DOT

10:00 a.m.– 10:30 a.m.  
Break

10:30 a.m.– Noon  
The Future Is Now: Best of the Best from Smart Cities Finalists

In the concluding session of the conference, speakers focus on the ways in which future demands already affect transportation agencies. Learn from the best of the best as some of the finalists from U.S. DOT’s Smart City Challenge share how their cities are innovating to prepare for the ever-changing future.

Moderator:  
Julie Lorenz, Burns & McDonnell

Panelists:  
Brian Cronin, Office of Operations Research and Development, FHWA  
Alex Pazuchanics, Office of Mayor William Peduto, City of Pittsburgh  
Adrian Pearmine, DKS Associates, City of Portland, Oregon  
Jason Jonmichael, Smart City Team, City of Austin, Texas