Use of Scenario Planning in Transportation Planning

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

Organized by:
Transportation Research Board

Sponsored by:
Strategic Management (ABC10)
Metropolitan Policy, Planning, and Processes (ADA20)
Statewide Multimodal transportation Planning (ADA10)
Transportation Programming and Investment Decision-Making (ADA50)
Statewide Transportation Data and Information Systems (ABJ20)
American Association of State Highway and Transportation Officials

American Association of State Highway and Transportation Officials
CONFEREECE AGENDA

SUNDAY, AUGUST 14, 2016

9:30 am - 12:00 pm  **ABC10 Committee Meeting**, Mt. St. Helens Meeting Room

1:00 - 2:30 pm  **Scenario Planning Workshop A**, FHWA on Scenario Planning and Autonomous/Connected Vehicles

This workshop, sponsored by FHWA, will help frame the conference for attendees by providing an explanation of traditional scenario planning. The workshop will showcase tools, resources, and materials that cover a wide range of scenario planning techniques and uses. Attendees will also get to view a demonstration on how to advance transportation system management and operations through the scenario planning process. An additional focus will be placed on the utilization of scenario planning to support the implementation and planning for the future of autonomous and connected vehicles and the systems to support them.

**Moderator:**
James Garland, FHWA

**Speakers:**
Brian Betlyon, FHWA
Reena Matthews, FHWA
Wayne Berman, FHWA
Egan Smith, FHWA
Dave Harris, FHWA

**Scenario Planning Workshop B**, Public Involvement

The workshop will begin by framing the context by sharing 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. Common challenges, such as communicating technical findings to a non-technical audience, and effectively facilitating a team of technical and communications staff to do so, will be addressed. After the presentation, workshop participants will be given a scenario planning activity and will be asked to work together to develop a public engagement plan that includes their audience, tactics, and key messages. Breakout groups will work together in teams with an experienced public-engagement facilitator and a scribe to note how the group proceeded through the exercise and to present the final plan and messages to the group. The workshop will conclude with a representative from each group sharing the results of the exercise and the keynote wrapping up with their observations.

**Moderators:**
Coco Briseno, Caltrans
Claudia Bilotto, WSP | Parsons Brinckerhoff

**Speaker:**
Terry Moore, ECONorthwest
Liz Sanford, Atlanta Regional Commission
Robyn Austin, Kittleson and Associates
Katie Benouar, Caltrans
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2:30 - 3:00 pm  
Break

3:00 - 4:30 pm  
Workshops Continued

5:00 - 6:30 pm  
Keynote Speaker: Peter Bishop, Founder and Executive Director, Teach the Future

Teach the Future is a national initiative to establish futures thinking as a natural component of education.

Dr. Bishop previously served as Director of the Foresight program at the University of Houston. The Foresight program was established as the first degree in Futures Studies in the world. It has graduated over 300 professional futurists. Join us for a fascinating opening session which will challenge traditionally held views on the future.

Peter Bishop, Teach the Future
www.teachthefuture.org

MONDAY, AUGUST 15, 2016

7:00 - 8:00 am  
ADA20 Committee Meeting, Roosevelt Meeting Room

7:00 - 8:00 am  
Registration and Breakfast

8:00 - 10:00 am  
What’s Driving all this Change?

The opening session provides an overview of the key drivers of change that may combine and collide in unpredictable ways. This opening session provides foundational information for the rest of the conference and your future scenario planning efforts. Topics include:

- Climate Change
- Economics
- Freight
- Sociodemographics
- Technology and Autonomous / Connected Vehicles

**Moderator:**
Jerri Bohard, Oregon Department of Transportation

**Speakers:**
Mark Bradley, Resource Systems Group
Michael Meyer, WSP Parsons Brinckerhoff
Terry Moore, ECONorthwest
Barbara Ivanov, University of Washington
Ryan Rice, Colorado Department of Transportation
Mark Jensen, Cambridge Systematics
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10:00 - 10:30 am  Break

10:30 am - 12:00 pm  Future Planning Today (Part 1): Long Range Planning

Moderator:  
Uri Avin, University of Maryland

Presentation A, Scenario Planning with Communities

Utah's population is anticipated to nearly double by 2050. That means nearly twice as many transportation demands on the state's roads and transit lines. Utah's four largest transportation agencies are conducting the Wasatch Front Central Corridor Study to recommend a transportation scenario set for the Interstate 15/Front Runner (commuter train) corridor. Since the organizations are scenario planning for a 2050 landscape of advanced technology population, leadership, and policy, they know it will not be enough to just provide concrete recommendations. This session will begin with a presentation that includes population projections and technology trends, comparisons with cities that have similar populations to Salt Lake 2050 projections, cross-sections and maps that show corridor constraints, road and transit seat utilization graphics, three scenarios with different combinations of transportation improvements, and each scenario's placement on the Transportation Demand Spectrum. The remainder of the session allows participants to ask detailed questions about the scenario planning process at various workshop stations.

Speaker:  
Lisa Zundel, Utah Department of Transportation  
Jeff Harris, Utah Department of Transportation  
Shawn Seager, Mountainland Association of Governments

Presentation B, Using Alternative Futures to Engage the Public: The Florida Transportation Plan

The Florida Department of Transportation (FDOT) used scenario planning as it updated its long range transportation plan in 2015. This presentation will focus on the reasons FDOT used scenario planning, the process used to develop five alternative futures, and the techniques used to engage transportation partners and the public when developing the alternative futures. The presentation will also focus on the impact considerations that the alternative futures had on FDOT’s final plan, including restructuring the plan into a three-part document, the introduction of a new goal of "More Transportation Choices" in response to the common theme across all futures for more diversity and redundancy in the state's transportation options, a significant revision to the goal of maintaining the Florida's transportation assets, and the adoption of new objectives and strategies to guide FDOT and other transportation partners in making future decisions.

Speaker:  
John Kaliski, Cambridge Systematics, Inc.  
Brian Watts, Florida Department of Transportation
**Presentation C, SANDAG Scenario Planning Lessons Learned**

The San Diego Association of Governments (SANDAG) has been developing regional transportation plans for San Diego County since the 1970s. SANDAG is a one-county Metropolitan Planning Organization as well as the 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.

This responsibility to administer the local sales tax funds has significantly impacted the regional planning process in several ways. In the 2003 update of the Regional Transportation Plan, there were three scenarios developed: fiscally constrained, reasonably expected and unconstrained. At the time, local sales tax funds were running out and the region was seeking to extend the sales tax – which passed by a 2/3 county-wide vote in 2004. Since then, the Regional Transportation Plan was updated three additional times. The scenarios assessed in these updates focused on varying the regional transportation network by mode, project phasing and by extending the forecast period out to 2050. In addition, state legislation in California mandated that regional transportation plans focus on reducing the growth of greenhouse gas emissions through regional per capita reduction targets established by the California Air Resources Board.

The presentation will focus on changes in the application of scenario planning and on anticipated changes in the future – a future that includes another attempt to raise the sales tax for transportation investment in November 2016 and a major focus on transportation technology enhancements that are already surfacing.

**Speaker:**
Muggs Stoll, San Diego Association of Governments

**12:00 - 1:30 pm**

**Future Planning Today (Part 2): Expand the Discussion with Stakeholder Engagement**

**Moderator:**
Coco Briseno, Caltrans

**Presentation A, Using an Analysis of Driving Future Forces to Drive Strategic MPO Long-Range Planning**

The Delaware Valley Regional Planning Commission convened a collaborative, interdisciplinary futures group to get input from experts in a variety of fields to think comprehensively about key emerging trends that will shape the future, to see how the region can benefit from long-term foresight, to allow participants to learn from the process and use it to guide their actions, to improve strategic decision-making, and to build partnerships. 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. This modeling highlights how the region may change over the next 30 years, potential shifts in travel patterns, as well as potential challenges and opportunities that may arise. Attendees interested in developing similar endeavors will have an opportunity to learn about this sophisticated scenario building effort from one of the leading MPOs in the country.

**Speaker:**
Brett Fusco, Delaware Valley Regional Planning Commission
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Presentation B, Foresight 750 Series Keynote Presentation

Join us as we set the stage for hands-on scenario exploration during 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 - our uncertain energy future
- Demographics and their effect on future travel demand

Speakers:
Thera Black, SCJ Alliance
Danny Rotert, Burns & McDonnell

1:30 - 4:00 pm

Hands-On Scenario Exploration

Using TRB Foresight Report 750 Series predeveloped scenarios and working in breakout groups, participants are immersed in scenarios such as Tech Triumphs and Global Chaos. Principles of scenario planning are introduced in a hands-on way. The session will also include a facilitated report out. A 20 minute break will be taken during the session.

Moderator:
Thera Black, SCJ Alliance
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4:00 - 5:00 pm  
**Scenario Exploration, Continued**

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

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

**Presentation A, Optimizing Performance and Investment Decisions through Scenario Planning - Arkansas’ Journey**

Using performance data to best allocate limited resources across various types of investments continues to be a persistent challenge for transportation organizations. While many agencies use pavement or bridge management systems to help understand the short-term impact of their investments, longer-term horizons are rarely 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 a 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 step-by-step, repeatable process for developing and implementing its LRITP.

**Speakers:**
Jeff Carroll, High Street Consulting Group  
Jessie Jones, Arkansas State Highway and Transportation Department  
Kevin Ford, Decision Lens

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

The Massachusetts Department of Transportation (MassDOT) introduced scenario-based planning in the development of its 2014 statewide plan, *weMove Massachusetts, planning for performance* through the creation of a cross-modal tool to inform capital investment decision-making. MassDOT used the Planning for Performance tool as one of the cornerstones of its 2017-2021 Capital Investment Plan. MassDOT is currently undertaking a target setting process to determine measurable goals for each of MassDOT’s Divisions. This spring, MassDOT engaged in an agency-wide 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 Department of Transportation
6:00 - 7:30 pm  Tools Exhibit and Reception

The tools exhibit will feature scenario planning tools used throughout the industry and will run concurrently with the conference reception.

7:30 - 10:00 pm  **ADA10 Committee Meeting**, Roosevelt Meeting Room

**TUESDAY, AUGUST 16, 2016**

7:00 - 8:00 am  Registration Breakfast

8:00 - 10:00 am  Connecting Scenario Approaches with Scenario Tools

This Tuesday morning session is focused on tools of the trade for scenario planning, from traffic modeling to climate change.

**Moderators:**
Maren Outwater, Resource Systems Group

**Speakers:**
Terry Moore, ECONorthwest
Michael Reilly, Metropolitan Transportation Commission
Rob Goodspeed, University of Michigan
Matt Noonkester, City Explained, Inc.
Mark Bradley, Resource Systems Group
Tara Weidner, Oregon Department of Transportation
Uri Avin, University of Maryland

10:00 - 10:30 am  Break
CONFERENCE AGENDA

10:30 am - 12:00 pm

Connecting Scenario Approaches with Scenario Tools: Case Studies

A full range of case studies will be presented with a focus on 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 tool was developed to be a quick response tool for use by the Texas State Legislature and policy analysts to forecast Vehicle Miles of Travel (VMT) under different scenarios while controlling for trade, population change and shifting employment.

Speaker:
Byron Chigoy, Texas A&M Transportation Institute

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, US 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 for this research project is a real-world, low-tech, non-proprietary example 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 organization prepare for the future of automated and connected vehicles.

Speaker:
Melissa Tooley, Texas A&M Transportation Institute
12:00 - 1:30 pm  Exploratory Scenario Analysis

Moderators:
Jeff Sudmeier, Colorado Department of Transportation

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 provided a comprehensive example of how to create exploratory scenarios, how such scenarios can be analyzed using advanced computer models, and showed 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 with new legislation requiring that the plan model a range of strategies to meet the State's ambitious GHG emissions reduction goals, policy direction to emphasize accessibility and other new performance measures, inclusion of new stakeholders representing areas such as health and active transportation, changing demographics, and emerging trends in new mobility enabled by technology and the sharing economy. Three future scenarios that bundled strategies for reducing GHG 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 we developed the scenarios, how we modeled them, how we portrayed and explained them to partners, the feedback we received and how we responded, and finally, lessons learned and how we are applying them to scenario planning for the next plan.

Speaker:
Katie Benouar, Caltrans
## CONFERENCE AGENDA

### WEDNESDAY, AUGUST 17, 2016

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>7:00 - 8:00 am</td>
<td>Breakfast</td>
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<tr>
<td>8:30 - 10:00 am</td>
<td><strong>Part A, Individual Scenario Report-Out: Lessons From Your Scenarios</strong></td>
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<td>Conference attendees share individual lessons learned from the scenarios they developed during the conference.</td>
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<td><strong>Moderator:</strong> Julie Lorenz, Burns &amp; McDonnell</td>
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<td>3:30 - 5:00 pm</td>
<td><strong>Building Your Own Scenarios and Responses, Continued</strong></td>
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<td>What if you knew your scenario was imminent? What would you do differently today? Breakout group participants will work together to address these questions and others which take scenario planning to the next level of hands-on application.</td>
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<td><strong>Moderators:</strong> Joe Crossett, High Street Consulting Group, Thera Black, SCJ Alliance</td>
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<td>5:00 - 10:00 pm</td>
<td>Committee Meetings</td>
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<td>1:30 - 3:00 pm</td>
<td><strong>Building Your Own Scenarios and Responses</strong></td>
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<td>Break out group participants are challenged to develop investments strategies and 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 which may be used within their own transportation organization. Report outs will be captured in displays.</td>
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<td><strong>Moderators:</strong> Danny Rotert, Burns &amp; McDonnell</td>
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Part B, Panel Discussion: Applying Lessons Learned Across Agencies

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

Moderator:
Julie Lorenz, Burns & McDonnell

Panelists:
Tom Schwetz, Lane Transit District
Brett Fusco, Delaware Valley Regional Planning Commission
Kyle Schneweis, Nebraska Department of Roads

10:00 - 10:30 am  Break

10:30 am - 12:00 pm  The Future is Now: Best of the Best from Smart Cities Finalists

At the concluding session for the conference, we will focus on how future demands are already affecting transportation agencies in the present. Learn from the best of the best as some of the finalists from the U.S. Department of Transportation’s Smart City Challenge share how their cities are innovating to prepare for the ever-changing future.

Moderator:
Julie Lorenz, Burns & McDonnell

12:00 - 4:00 pm  Committee Meetings
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TRB sincerely appreciates and thanks the following organizations for their generous support of the Scenario Planning Conference.

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