Mid-America Regional Council Scenario Planning Workshop

Sponsored by the Federal Highway Administration

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Date:	January 31-February 1, 2017
Host Agency:	Mid-America Regional Council
Peer Agencies:	Delaware Valley Regional Planning Commission (Philadelphia, PA)
	Maricopa Association of Governments (Phoenix, AZ)
	Wasatch Front Regional Council (Salt Lake City, UT)
Federal Agency:	Federal Highway Administration

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This report summarizes noteworthy practices and key recommendations shared during a scenario planning workshop, hosted by the Mid-America Regional Council, on January 31-February 1, 2017, in Kansas City, Missouri. The Federal Highway Administration (FHWA) sponsored this event as part of its Scenario Planning Program and in connection with the Transportation Planning Capacity Building Program jointly run by FHWA and the Federal Transit Administration.

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Executive Summary

This report summarizes a 1.5-day scenario planning workshop held January 31-February 1, 2017, in Kansas City, Missouri, and hosted by the Mid-America Regional Council (MARC). The Federal Highway Administration (FHWA) sponsored this workshop under its Scenario Planning Program, which is run jointly with the Federal Transit Administration (FTA). The Scenario Planning Program is also part of the FHWA-FTA Transportation Planning Capacity Building Program. Contact information for the FHWA and MARC representatives involved in workshop planning as well as the workshop peers is included in Appendix B of this report.

MARC is the metropolitan planning organization for the bi-state Kansas City metropolitan area. Overall, the MARC region encompasses a total of 9 counties and 119 cities in Kansas and Missouri. The workshop introduced the concept of scenario planning to build awareness among MARC's stakeholders. MARC also used the workshop to share information on its current scenario planning efforts, including draft scenarios that have been developed based on stakeholder input from an earlier workshop organized by MARC in December 2016. The workshop planning team designed the workshop to allow opportunities for participants to provide feedback to MARC on the draft scenarios as well as for MARC to learn from peer experts about their scenario planning perspectives and experiences. Workshop participants shared input through full-group, break-out, and roundtable discussions.

Three peer experts participated in the workshop to provide presentations and perspectives on their agencies' experiences in using scenario planning:
1) Monique de los Rios-Urban, Performance Program Manager, Maricopa Association of Governments;
2) Brett Fusco, Assistant Manager, Long-range Planning, Delaware Valley Regional Planning Commission; and
3) Ted Knowlton, Deputy Director, Wasatch Front Regional Council.

Key takeaways shared throughout the workshop included:
- Scenario planning can be effective when placed in the context of the long-range planning process, as it can be used for guiding metropolitan transportation plan updates as well as updates or building linkages to other regional plans.

- Careful development of scenarios is critical. Value judgements embedded in the scenarios can reduce neutrality, which can result in less support for an effort. As much as possible, scenarios should represent plausible assessments of potential future risks.

- A values laddering process can help both in communicating scenarios and in linking actions. As the stories created by scenarios can be powerful, agencies should pay close attention to how they word scenarios and communicate these stories. Later actions or strategies can then tie closely to the scenarios in order to demonstrate a link to earlier feedback shared by the public and stakeholders. When developing scenarios, agencies should strive to have them be as neutral as possible and to tell a regional story. This approach to scenario development can help build community trust around the process as objective and fair as well as allow stakeholders to connect more closely to the scenarios.

- Scenario planning benefits from Big Data, data management, and performance measure efforts, and vice versa. While there are still challenges in tying scenario planning to programming and project selection, agencies are increasingly using performance measures to better demonstrate the differences among scenarios and to help connect a scenario planning process from a vision to implementation. Having information all in one place, such as through an online dashboard, can further help to make information accessible to staff and external partners.

The workshop provided an opportunity for MARC to share information on its current efforts and obtain input from participants, and for the peers to learn from each other about scenario planning noteworthy practices and challenges. Post-workshop evaluations submitted by participants showed that they found value in the workshop sessions and in participating in the event.

Overview of the Workshop

Goals of the Workshop

The Mid-America Regional Council (MARC) hosted the workshop to share information about the concept of scenario planning with its stakeholders, peer metropolitan planning organizations (MPOs), other transportation agencies, and other partners in attendance and to present draft scenarios for participants' review and feedback as part of MARC's current scenario planning process. The workshop was hosted in partnership with the Federal Highway Administration (FHWA) as part of the Scenario Planning Program, which is jointly run by FHWA and the Federal Transit Administration (FTA).

During the workshop, attendees learned about different applications of scenario planning from three peer presenters and participated in group discussions to provide their perspectives to MARC on the draft scenarios.

Selecting the Peers

In preparing for the event, the workshop planning team identified possible MPOs that could serve as peers during the workshop and share their perspectives on and experiences in applying scenario planning. Peers were selected based on their past use of scenario planning and on their similarities to MARC. The workshop planning team extended invitations to three MPO representatives to participate as peers based on these criteria. These peers were:

- Monique de los Rios-Urban, Performance Program Manager, Maricopa Association of Governments (MAG);
- Brett Fusco, Assistant Manager, Long-range Planning, Delaware Valley Regional Planning Commission (DVRPC); and
- Ted Knowlton, Deputy Director, Wasatch Front Regional Council (WFRC).

Format of the Event

MARC hosted the 1.5-day workshop in Kansas City, Missouri, on January 31-February 1, 2017. The three peer presenters, FHWA and FTA staff, representatives from other local MPOs and transportation agencies, and other partners also attended the workshop. A full list of attendees is available in Appendix C of this report.

The workshop featured presentations, full-group discussions, and break-out discussions.

On Day One, FHWA provided a brief overview of scenario planning and examples around the country. MARC shared information on trends in the region and its current scenario planning activities. In a later session, MARC presented more specifically on the draft scenarios developed based on input from an earlier workshop held in December 2016. During a full-group discussion, MARC posed a series of questions about the draft scenarios to workshop participants, who answered using their smart phones to access a polling website. A later break-out group discussion allowed opportunities for participants, in small groups, to focus on one scenario of their choice and address the potential regional policy implications of the selected scenario.

The three peers participated throughout Day One. They provided presentations during two panel sessions, offering their perspectives on and experiences in scenario planning. During the full- and break-out group discussions, they served as a "sounding board" for participants, sharing ideas and answering questions.

Day Two of the workshop focused on roundtable discussions related to: 1) peer perspectives on MARC's scenario planning approach; and 2) next steps for MARC's scenario planning effort.

The agenda for the workshop is provided in Appendix D of this report.

Introduction

MARC Background

MARC is the MPO for the bi-state Kansas City metropolitan area. Overall, the MARC region encompasses a total of 9 counties and 119 cities in Kansas and Missouri (Figure 1). As the MPO, MARC develops the region's Metropolitan Transportation Plan (MTP) and maintains the Transportation Improvement Program (TIP) to manage short-range transportation projects to be Federally funded.

MARC's current scenario planning activities link to a previous regional effort. In the early 2000's, MARC supported an effort to develop a regional vision for sustainable growth and development. The final vision, adopted in 2009, focused on the theme of "vibrant, connected, and green" and led to the development of a _Regional Plan for Sustainable Development_. The Plan, updated in 2014, provides key regional strategies to foster _vibrant_ places that provide access to jobs and services and other destinations and amenities; _connects_ places by creating corridors that accommodate different mode choices such as walking and bicycling; and promotes healthy lifestyles and residents through the conservation, restoration, and development of _green_ spaces in the community.

Figure 1: The MARC region covers 2 States, 9 counties, and 119 cities, serving 1.9 million people across 4,400 square miles.
Source: MARC, Regional Plan for Sustainable Development.

These past efforts feed into MARC's scenario planning initiative to engage stakeholders in thinking about what the future might bring and to refresh the vision for the region. In fall 2016, MARC launched its scenario planning activities, which included two workshops where participants discussed potential driving forces and their possible impacts on the region. These activities were meant to be interdisciplinary and impact various areas of MARC's work as an agency, beyond transportation planning. In light of this, other interest groups and constituencies participated in the process, including stakeholders more involved in housing, emergency preparedness, and environmental work. The January 2017 workshop, following the two workshops and sponsored in partnership with FHWA, brought in the perspectives of three peer agencies and further examined how alternative futures might look and how these could be connected to the regional vision.
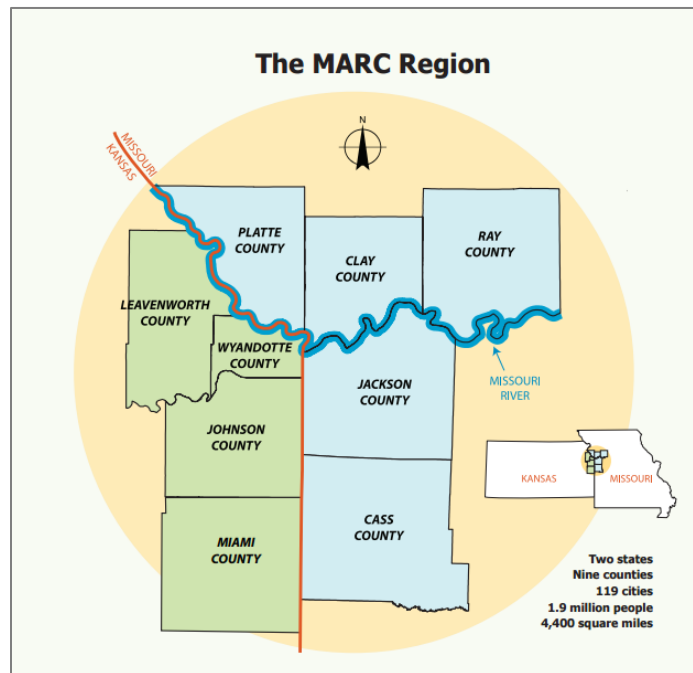
Presentation and Discussion Highlights

Welcome and Introduction

MARC and FHWA representatives welcomed participants to the workshop and provided opening remarks. Jim Thorne, Metropolitan Planning Specialist with the FHWA Resource Center, facilitated the event.

David Warm, MARC Executive Director, opened the event, and thanked participants and the peers for attending and supporting the workshop (Figure 2). He expressed MARC's interest in using a scenario planning approach and how the workshop would help the MPO and other regional constituencies move forward in their efforts.

Figure 2: David Warm, MARC Executive Director, welcomes participants to the workshop.
Source: USDOT Volpe Center

Kevin Ward, FHWA Missouri Division Administrator, and Rick Backlund, FHWA Kansas Division Administrator, also provided short welcoming remarks. Both discussed key trends and challenges that the Kansas City region is likely to face in the future and how scenario planning can be a helpful tool in addressing such issues. Mr. Ward and Mr. Backlund noted topics, such as an increase in freight traffic throughout the region and new technologies, which will potentially affect transportation systems.

Scenario Planning Perspectives

Mr. Thorne first provided an overview of scenario planning generally. Ron Achelpohl, MARC Director of Transportation and Environment, and Frank Lenk, MARC Director of Research Services, then provided information on trends in the Kansas City region and on MARC's scenario planning efforts.

Overview of Scenario Planning

"If we look 30 years into the future, what will the Kansas City region look like?" This was the first question Mr. Thorne posed to workshop participants. For example, there may be changes to the economy, demographic characteristics, energy supply and cost, quality of life, and where and how people live, work, and travel. Mr. Thorne noted that scenario planning can be used to help account for these uncertainties in the transportation planning process.

Scenario planning is a long-term strategic planning process that is meant to define alternative future conditions. There are a range of approaches to scenario planning, but overall, it involves the development of plausible stories about the future. In the transportation context, agencies have traditionally used scenario planning to consider the interaction of land use and transportation to achieve a "desired" end state (known as "normative" scenario planning). Today, there is an evolving practice (known as "exploratory" scenario planning) that considers "driving forces," or external forces that are highly uncertain and might impact future conditions in some way. In this type of practice, the final product is not a desired end-state scenario, but rather, the process of testing and exploring different driving forces and the possibilities that might result. Mr. Thorne noted that scenario planning is not meant to create one prediction about the future, but rather, to generate better decisions and discussions about the future and associated uncertainty.

Mr. Thorne presented several examples of how agencies across the country have used scenario planning. For example:

- In the Seattle region, the Puget Sound Regional Council used scenario planning to create three scenarios. The scenarios focused on different aspects, evaluating how land use and the transportation system might look if: 1) trends continued as planned; 2) growth was focused in larger cities; and 3) growth was focused in smaller cities and towns.

- The Denver Regional Council of Governments compared the region's urban footprint against transportation investment priorities. The agency first determined a baseline and then created scenarios to look at different options (e.g., if more funding was invested in highways or transit, if the region was more compact versus expanded, etc.).
- The National Cooperative Highway Research Program (NCHRP) *Report 750 Series: Strategic Issues Facing Transportation* (known as "Foresight 750") was a significant research effort, led by the Transportation Research Board, which looked at major trends and changes in technology and constructed narratives that described a future possible world. The different trends led to different futures. The goal of the research effort was not to select a desired end-state scenario but to examine how agencies might better prepare for a range of possible futures.

Lastly, Mr. Thorne discussed the scenario planning resources offered by FHWA. These resources include research efforts and guidebooks, including a six-phase framework for doing scenario planning as well as the FHWA scenario planning website. The website provides additional resources on scenario planning, including guidebooks and summary reports from workshops and webinars.

Scenario Planning at MARC: Overview of Current Scenario Planning Efforts and Trends in the Region

Mr. Achelpohl and Mr. Lenk began by presenting the status of MARC's scenario planning activities and sharing information on current trends and driving forces.

Scenario Planning Efforts

MARC considers its scenario planning effort as an interdisciplinary approach that builds from the existing "vibrant, connected, and green" regional vision for sustainable growth and development. MARC previously began exploring how future planning, housing, and economic development might work in the region and saw scenario planning as a way to address future driving forces, such as new transportation technologies.

MARC then set out to develop a process for its scenario planning activities (Figure 3). MARC is actively working to integrate scenario planning into the next update of its MTP, due in June 2020. MARC also plans for its scenario planning activities to be interdisciplinary and to impact various areas of its work as an agency, beyond transportation planning.

Process

1. ANTICIPATE what the future might bring
   Fall/winter 2016 — Dec. 14 & Jan. 11 Driving Forces workshops
2. Analyze alternative FUTURES
   Winter 2017 — committee & staff work to construct alternative futures
3. Set POLICY direction
   Spring 2017 — Jan. 31 Scenario Planning workshop at Kauffman Foundation
4. INTEGRATE into regional plan updates
   Starting summer 2017

Figure 3: MARC anticipates having four steps for its scenario planning process.
Source: MARC.

MARC anticipates using the following process (Figure 3):

1. ANTICIPATE what the future might bring
2. Analyze alternative FUTURES
3. Set POLICY direction
4. INTEGRATE into regional plan updates

MARC completed Step 1 through two "Driving Forces" workshops held in fall/winter 2016. During these workshops, participants identified potential driving forces and the opportunities and concerns around each driving force. In Step 2, MARC staff prepared alternative future scenarios based on the input shared during the "Driving Forces" workshops. The January 31st workshop held in partnership with FHWA served as an opportunity for MARC staff to present the draft scenarios and obtain participant feedback on the drafts, particularly on potential policy implications.

Moving forward, MARC plans to further refine the scenarios based on the input received and identify possible policy directions (Step 3). The final step, Step 4, will focus on integrating the results of the scenario planning activities into MARC's MTP and other regional plan updates, starting in summer 2017.

Trends in the Region

There are several trends likely to impact the MARC region in the future, including the following:
- *Demographic trends and forces*—The region is becoming more diverse. The region is also becoming older. Nearly 60 percent of the region's population growth over the next two decades will come from older adults. These changing demographics will likely influence housing and neighborhood demands.
- *Economic trends and forces*—Economic competition is increasingly occurring at the global stage. In the Kansas City region, employment growth is primarily found in the professional-technical services and medical sectors, which could be opportunity areas in the future. While the region's academic institutions are strong in education and business programs, science-based degrees are more limited.
- *Environmental trends and forces*—Changing weather patterns are becoming more frequent, including increasing warm temperature days, variability in precipitation rate, and drought.
- *Technological trends and forces*—The adoption of new technologies is accelerating. It is likely that new technologies such as automated and connected vehicles will be adopted at a quicker rate than past technologies (e.g., the telephone, radio, and television) have been.

Mr. Achelpohl and Mr. Lenk noted that all of these trends and forces provide the background for the future driving forces that MARC is examining. The five driving forces are:

- *Technology* (e.g., Internet of Things, automated vehicles, cleaner energy technologies)
- *Demographics* (e.g., aging population, more diversity, changing nature of poverty)
- *Economic Forces* (e.g., globalization, portability of capital, global labor market)
- *Changing Climate* (e.g., extreme weather, higher temperatures, more flooding)
- *Public Expectations* (e.g., desire for more choices, generational differences, resource constraints)

Throughout MARC's "Driving Forces" workshops, the MPO heard more concerns about the future than opportunities. There was interest in focusing on education as a strategy to address future uncertainties. One of the key takeaways was that economic forces, technology, and public expectations will likely be the leading influences on the region's future.

Peer Approaches to Scenario Planning

Following the MARC presentation, the three peers—representing WFRC, MAG, and DVRPC—shared information on their agencies' approaches to scenario planning as part of two peer sessions (Figure 4). The two sessions were: 1) imagining what the future will bring; and 2) considering the impacts. The summary below provides highlights of the themes discussed during these presentations.

Figure 4: Peers from three agencies present their agencies' scenario planning perspectives and experiences. From top-left, clock-wise: Ted Knowlton of WFRC, Monique de los Rios-Urban of MAG, and Brett Fusco of DVRPC. The peers respond to questions from the audience (bottom-left).
Source: USDOT Volpe Center; MARC (bottom-left image).

Peer Panel 1: Scenario Planning Perspectives—Imagining What the Future Will Bring

Ted Knowlton
Deputy Director, Wasatch Front Regional Council

Mr. Knowlton opened by noting that his presentation would highlight the use of normative scenario planning to create a desired end state or vision. While this is different from the exploratory scenario planning approach focused on driving forces, Mr. Knowlton discussed that both approaches are intended to lead to action so that the transportation system can thrive regardless of what the future might be.

WFRC is the MPO for the Salt Lake City region. The Salt Lake City region has similarities to the Kansas City region in that it is a metropolitan area of about 2 million residents, 4 counties, and 75 cities. While development occurs at the local level, Mr. Knowlton's presentation focused on the regional level and how scenario planning can be used, using insights from the Envision Utah scenario planning effort. Mr. Knowlton previously served as the Planning Director for Envision Utah.

Mr. Knowlton first started with an example. The West Layton Village Proposal was initially designed as a new community outside of Salt Lake City, and the City Council anticipated it to provide a mix of homes and destinations, including businesses and parks. However, local residents near the anticipated development did not agree, leading to a referendum vote and ultimately the end of the project. In laying

out the plan for the development, Mr. Knowlton discussed that the West Layton decision would have impacts on the region that were not fully part of the conversation and thus not considered in residents' voting decisions. These regional issues included housing affordability, shorter driving distances, cleaner air, and reduced impact on farmland. The value of regional scenario planning is in the opportunity to provide the space for these regional considerations.

Utah has been involved in scenario planning for about 20 years. It first started using the process in 1997, led by Envision Utah, a nonprofit, nonpartisan, voluntary partnership of businesses, government, and community. Envision Utah focused on the idea that the public has the right to choose its future, that public officials should serve the public's vision, and that the public will make good choices if presented with real options.

Envision Utah used scenarios to explore long-term, regional implications and promoted the effort extensively, through television, radio, newspaper, and other outlets. Through the process, 18,000 people became involved, serving as one of the largest public engagement initiatives ever conducted nationally. Two-thirds of participants indicated that they were interested in taking an approach that was different from what current plans showed.

From this outreach, Envision Utah developed a vision for the region, which focused on growing inward, protecting the Wasatch Back, building rail transit, promoting walkable communities, and conserving critical lands. Envision Utah then went about promoting strategies and policies that complemented the vision. Over a 10-year period, Utah residents invested the most per capita in the United States. The Utah Transit Authority performed a $185 million acquisition, purchasing 175 miles of rail right-of-way and creating 9 future transit corridors. The average single family lot size decreased by 22 percent to help save the land that people had indicated wanting to save. Capital and maintenance costs for investments decreased, and less land needed to be irrigated. All of these activities helped Envision Utah realize the regional vision originally developed.

Mr. Knowlton concluded his presentation by sharing key lessons learned from the Envision Utah scenario planning effort (Figure 5). These lessons centered around six themes:

Figure 5: The Envision Utah scenario planning effort found six key lessons learned: Neutral, Values, Stakeholders, Scenarios, Public Input, and Vision. *Source: WFRC.*

- *Neutral*—The effort took a neutral facilitation stance. At no point in the process did Envision Utah have a hidden motive. The overarching goal was to help the community think about choices and the implications of these choices for the future and to stand up for the results of the process.
- *Values*—Envision Utah conducted values research to think about why people care and how to talk about these issues.
- *Stakeholders*—Envision Utah relied on a prominent, balanced set of stakeholders. The idea was to have a set of stakeholders that represented the community geographically and politically so that people could see their interests reflected in the stakeholder balance. Stakeholders were asked to think about what they could work on together to emphasize commonalities.
- *Scenarios*—Envision Utah used scenarios to ask important questions. The scenarios resulted from the public engagement process and helped model potential choices and their outcomes, particularly in demonstrating the regional impacts of local decisions.
- *Public Input*—Envision Utah tied each step of the process back to public input. It was important for stakeholders to understand how the scenarios related to the public input provided.
- *Vision*—The vision captures imagination and motivates action. It should include clear, near-term strategies that tie closely to the original vision statements.
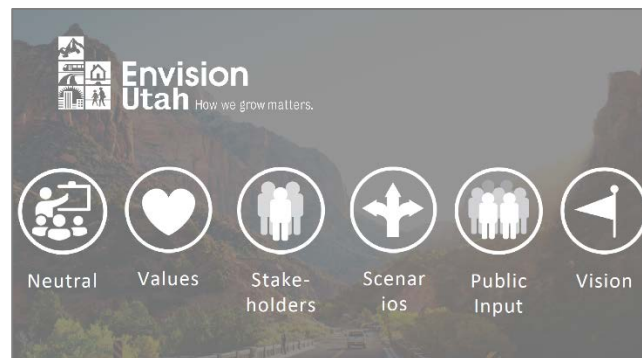
Mr. Knowlton noted that it is difficult to do all of the best practices he noted. Trust is a key part of a successful process and can take time to build. There are often multiple parts of the conversation that will need to happen before change might occur.

In his current role as Deputy Director of WFRC, Mr. Knowlton is working with cities to have discussions about their comprehensive plans within the context of regional scenarios. Most cities develop a comprehensive plan every 5 years, typically with a planning horizon of 20 years. WFRC is engaging the cities to think about what happens beyond the comprehensive plan horizon and how they can work together to consider regional issues.

Monique de los Rios-Urban
Performance Program Manager, Maricopa Association of Governments

MAG is the MPO for Greater Phoenix, serving approximately 4.1 million people across an area of 10,600 square miles. The region has been growing since 2000. From 2000 to 2012, population grew by 30.6 percent and continues to grow by roughly 3 percent per year. Employment is also growing. In addition, the region has about 850 centerline miles of freeway and highway and a growing transit system, including a 20-mile light rail line that serves 14 million riders annually.

Ms. de los Rios-Urban noted that, while MAG has not formally used a scenario planning process, it participated actively in a scenario planning effort led by the Arizona Department of Transportation (ADOT) at the State level. MAG is currently developing its next Regional Transportation Plan (RTP) update and plans to incorporate many of the themes found and lessons learned through the statewide process. MAG anticipates imagining different alternative futures through its RTP, focusing on an "Imagine" theme.

Ms. de los Rios-Urban first provided an overview of scenario planning and its benefits before further discussing the ADOT effort. Scenarios represent alternative future conditions that could potentially occur in response to different drivers. Scenario planning can help expose different realities and inform political and decisionmaking processes in a comprehensive way. In a transportation context, scenario planning allows for better integration between land use and transportation planning. In addition, scenario planning helps engage diverse stakeholder groups and address the 3Cs (comprehensive, continuous, coordinated) of systems planning.

Ms. de los Rios-Urban reiterated the three different approaches to scenario planning—predictive, normative, and exploratory. A predictive approach follows the trend, while a normative process is more aspirational, culminating in a desired end state or preferred scenario. The exploratory approach focuses on uncertainties or contingencies that might occur in the future; the goal of this approach is not to end with a preferred scenario but rather a range of different possible alternative futures. Ms. de los Rios-Urban also discussed how scenario planning can be integrated with performance-based planning and programming (PBPP) and shared a step-by-step graphic to show how PBPP can be nested into a scenario planning process (Figure 6). Ms. de los Rios-Urban focused more specifically on MAG's PBPP process in the afternoon session but noted that MAG places a large emphasis on PBPP, including producing plans that are performance-based, using Excel-based tools to measure and track investments for the region, and engaging in dialogue with local governments about ways to make a PBPP approach successful.

Figure 6: Steps for a scenario planning process start with analyzing context and end with implementing and monitoring actions and plans.
Source: MAG.

Ms. de los Rios-Urban then provided an overview of the ADOT scenario planning activities, in which MAG was actively involved as a stakeholder. The activities were tied to the development of ADOT's statewide long-range transportation plan, "What Moves You Arizona." ADOT used the NCHRP Foresight 750 series in its efforts to discuss potential alternative futures and focus on different driving forces (Figure 7).
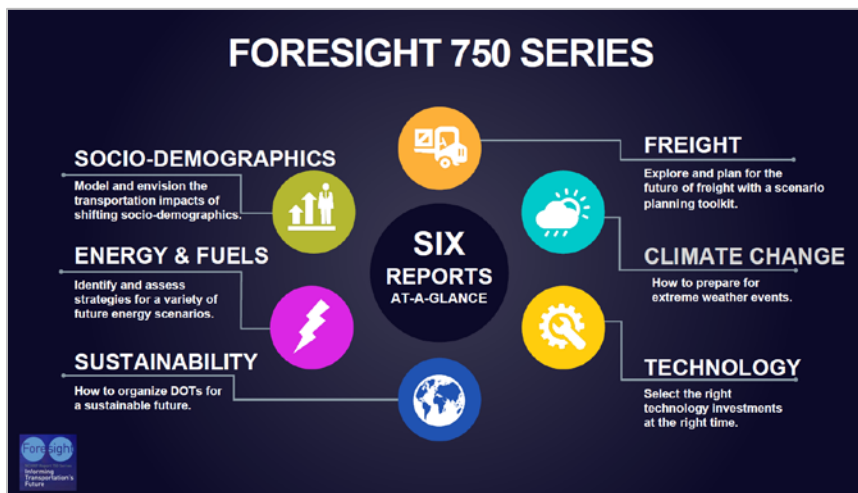
Figure 7: The NCHRP Foresight 750 series addresses a variety of driving forces.
Source: MAG; NCHRP.

ADOT combined insights from Foresight 750 with an add-on tool called Decision Lens. The tool allowed ADOT to bring big ideas from the Foresight 750 discussions into decisions that are made day-to-day. Users can perform outcome comparisons and decide how to invest using a return-on-investment functionality and value diagram. The tool results in a final bubble chart that allows users to evaluate the benefits and impacts of various investment decisions.

Overall, ADOT found the process to be beneficial but with some challenges. The results of the Decision Lens process led to recommended statewide investments. More than 50 ADOT staff and stakeholders were involved in the process, gaining a better understanding of the challenges decisionmakers face in weighing trade-offs. There were some challenges, however, as some of the modules were complex in the application of the various trade-off analyses. Additional challenges included the intricate relationship between weighing investment areas and allowing for an optimized allocation of resources. Through the effort, ADOT, MAG, and others learned how dynamic and multi-dimensional the decisionmaking process can be.

Brett Fusco
Assistant Manager, Long-Range Planning, Delaware Valley Regional Planning Commission

DVRPC is a bi-state MPO, similar to MARC. Its planning region includes 2 States (New Jersey and Pennsylvania), 9 counties, and 351 municipalities, serving 5.7 million residents and 3 million jobs. The region has a similar growth rate to Kansas City.

DVRPC has used scenario planning in many different iterations through the years. The first set of scenarios focused on the connections between land use and transportation and how different trends shape land use patterns. In 2007, DVRPC began using a land use model to think about how land use patterns might emerge, which supported its 2035 long-range transportation plan (LRTP) update. DVRPC reached out to the public and stakeholders to develop a preferred scenario that could be modeled. For its 2040 LRTP, "Connections 2040," DVRPC focused on funding the region's transportation system. The MPO looked at different levels of funding and incorporated these into scenarios. DVRPC also built an online tool, "Choices and Voices," which allowed the public to provide input electronically.

DVRPC is now turning to exploratory scenario planning. The agency was previously a host site for the Foresight 750 series, which introduced it to the exploratory approach. DVRPC has been thinking about external forces and trends over which it does not have control and how these will impact the region's vision and goals. The MPO first established a Futures Group, a multi-disciplinary group to brainstorm future forces, determine the most likely and impactful forces, create "what-if" scenarios and analyze what these mean for the region and the probable impacts they would have, and identify universal actions and contingent actions. The final result was a short, graphic publication that could be incorporated into "Choices and Voices."

The Futures Group used an Impact-Likelihood voting method to identify background forces and where they fell in terms of impact (low to high) and likelihood (low to high). The five forces identified as high-impact and high-likelihood were the ones the Group focused on most closely:

- Enduring Urbanism
- The Free Agent Economy
- Severe Climate
- Transportation on Demand
- The U.S. Energy Boom
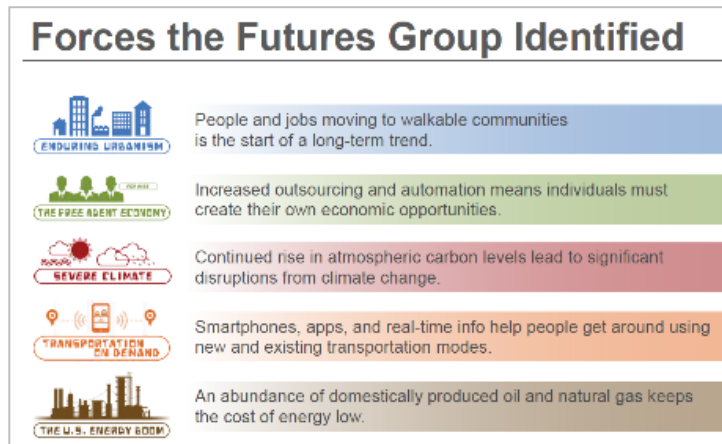
Figure 8: DVRPC's Futures Group identified five driving forces. *Source: DVRPC.*

These five forces—Enduring Urbanism, Free Agent Economy, Severe Climate, Transportation on Demand, and U.S. Energy Boom—became the primary drivers for the five scenarios DVRPC developed (Figure 8). For each "what-if" scenario, DVRPC thought about how the future might look like for each one individually. The MPO also identified other background forces, such as aging population, improving freight logistics, and worsening infrastructure conditions, that would likely impact all of the scenarios. DVRPC then used models to model the various futures, conducted research, and also relied on Impacts 2050, a strategic model and software tool developed as part of the NCHRP Foresight 750 series, and the Rapid Policy Assessment Tool available through the FHWA Second Strategic Highway Research Program.

DVRPC noted that the goal of its effort was not to conduct a normative scenario planning process. Instead, the agency sought to reach consensus on the future forces that would most likely affect change and how the region could better prepare for these changes (Figure 9). For each future force, DVRPC developed contingent actions and universal actions. Contingent actions were ones that responded to the force itself. For example, in the Enduring Urbanism scenario, contingent actions included redeveloping suburban office parks as mixed-use centers and protecting industrial zones. Universal actions were those that applied to all of the scenarios, such as increasing regional transportation funding and encouraging infrastructure resiliency. The universal actions were ones that could work well across all of the alternative futures.
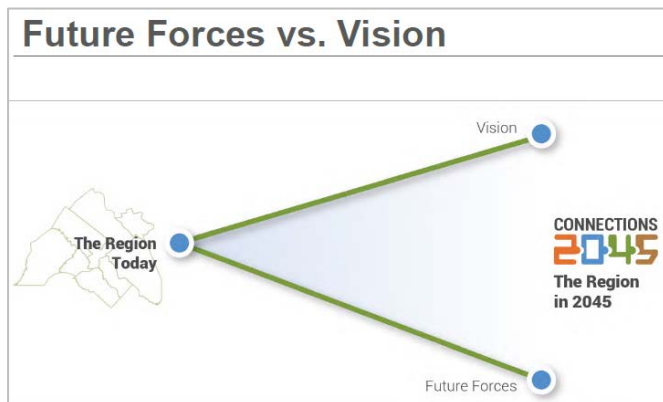

Figure 9: DVPRC used an exploratory scenario planning process to think about future forces that would likely affect change in the region.
Source: DVRPC.

In concluding his presentation, Mr. Fusco shared lessons learned from DVRPC's latest scenario planning effort. These lessons primarily addressed how scenarios could be structured and maximized in the future and current gaps DVRPC found. Mr. Fusco noted that the scenarios likely did not capture the full impact of the "digital revolution" and could be updated in time. In addition, additional research is needed on how to better represent low-cost energy futures as well as infrastructure maintenance moving forward. In its effort, DVRPC explored how the five forces interact with each other, but more research is needed about what might happen if several of them emerged in the future. Lastly, Mr. Fusco discussed that the recent past is not necessarily a useful guide for the future, as there is tremendous uncertainty about what the future might hold.

Peer Panel 2: Scenario Planning Perspectives—Considering the Impacts

Ted Knowlton
Deputy Director, Wasatch Front Regional Council

In his second presentation, Mr. Knowlton focused on three primary topic areas: 1) understanding the impact of transportation on growth patterns; 2) communicating to underlying values; and 3) the WFRC approach to external driving forces.

Traditionally in the transportation planning world, agencies "fix" transportation patterns with transportation capacity solutions. For example, as a region grows, there may be a focus to widen roads to add capacity. Mr. Knowlton discussed, however, that often when this action to add capacity is taken, people may also change their behavior (e.g., change the route they take, travel farther, move farther away from their jobs). These changes can be good for individuals in the short term, but if a large number of people make these adaptive changes, then there is a risk that the congestion itself returns and the originally realized benefits go away.

In the forecasting world, WFRC typically focuses on understanding how transportation investments affect new development patterns and how these two (land use and infrastructure) then affect travel patterns. To develop its forecasts, WFRC uses a travel demand model as well as a real estate market model. WFRC considers scenario planning to be a "tool in its toolbox" to help think about what the future might bring. WFRC developed three scenarios—a baseline scenario, Scenario 2, and Scenario 3. The scenarios showed where development wants to be and does not want to be. Mr. Knowlton discussed that the scenarios all relate to the theme of the interaction between land use and transportation.

The scenarios build on one of WFRC's regional goals, adopted in October 2016—access to economic and educational opportunities. WFRC used the scenarios to explore the number of valued destinations that could be reached within a reasonable period of time (e.g., number of job opportunities within a 30-minute drive, number of skilled laborers located within a 30-minute travel shed). WFRC framed this exercise as one that allowed it to consider how to increase economic development opportunities through land use patterns. The economic development lens is a new way that WRFC is trying to think about how local land use and regional transportation affect the ability of the economy to thrive.

In part two of his presentation, Mr. Knowlton focused on communicating underlying values. He noted that lasting changes start with values and that values are the foundation of personal decisionmaking. In its scenario planning effort, Envision Utah used a values laddering process (Figure 10). The process starts by focusing on an attribute of growth, moving to a functional consequence and then a personal consequence, and finally ending with the specific value. Mr. Knowlton discussed that values research can be a way to communicate, that the words used matter, and that values research can substantially inform how agencies develop regional plans. Messages should be associated positively with individuals' values ladders in order to motivate involvement or action.
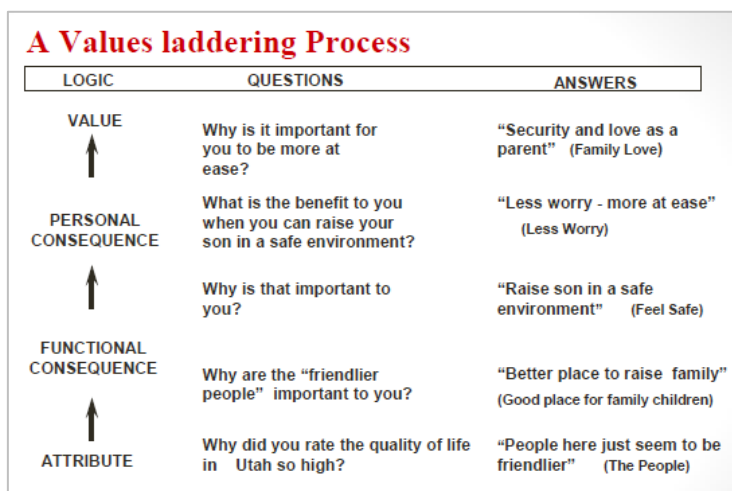
Figure 10: The values laddering process has four phases—attribute, functional consequence, personal consequence, and value.
Source: WFRC.

Lastly, Mr. Knowlton shared information on WFRC's approach to external driving forces. WFRC is currently considering using an exploratory scenario planning approach and is thinking about the best way to structure this effort. WFRC is preparing technically to understand the impacts on the region's transportation system as well as the model inputs before it engages stakeholders and the public through future outreach.

Monique de los Rios-Urban

Performance Program Manager, Maricopa Association of Governments

Ms. de los Rios-Urban focused her second presentation on tools and data to approach a problem and to plan for the future. The mandated plan that MAG is required to develop—like all MPOs—is the RTP, which has a 20-year planning horizon. The RTP may also include illustrative elements beyond the 20-year horizon. MAG uses agency-developed, performance-based tools to program funds and manage the allocation of various sources of funding coming into the MPO. The outcome of the process is the selection of projects that compose part of the five-year Transportation Improvement Program, or TIP.

MAG developed its Excel-based tools in partnership with stakeholders, who shared their priorities and criteria. MAG routinely works with different technical committees to implement the programming, spreadsheet-based tools. Modal committees use these spreadsheets during the project prioritization process when transportation projects are identified for inclusion in the TIP. Ms. de los Rios-Urban discussed how the tools have helped committee discussions become more technical and supported by data.

In addition, the volume of data continues to grow. MAG is focused on Big Data and how it can leverage this data in the best way possible.[1] One way to do this is to integrate and intersect different sets of data to obtain a new level of richness for the available data sets. MAG used various databases relating to the Metropolitan Phoenix region, such as housing affordability and socioeconomic characteristics, and translated this information into new "cross-pollinated" data sets. One example is MAG's effort to explore a series of overlaps between its transportation model and economic development data sets. MAG identified 120 intersections in the region and is currently analyzing the data to better understand the commute shed analytics (Figure 11). As part of this commute shed analytics research, MAG is looking at data connected to population, travel times, economic development, location of employers, and communities of concern. In addition, the MPO is exploring other areas of interest such as the mean

Figure 11: MAG performed a commute shed analysis by integrating various data sets.
Source: MAG.

travel times for commutes in the region, as it relates to socioeconomic data; potential opportunity areas for high-efficiency transit routes; and an affordability index of the region that can be analyzed at the sub-regional and corridor levels.

Lastly, to help meet Federal regulations and State requirements, MAG designed an interactive dashboard that provides maps and infographics on transportation statistics and traffic performance data for all transportation modes. The dashboard is publicly accessible, and MAG has found that members of the public and stakeholders regularly use this resource to explore the trends in the region, anticipating where the transportation infrastructure and services in the region are headed in the future. MAG also created commute travel plan comparisons that share information on commute times as well as project cards for every project that is built. MAG has found the project cards to be a helpful way to share information at public meetings, as they provide comprehensive information on projects' scope, location, schedule, and budget.

Brett Fusco

Assistant Manager, Long-Range Planning, Delaware Valley Regional Planning Commission

Mr. Fusco's second presentation, provided a more in-depth look at the "Transportation on Demand" scenario and its related factors. Topics discussed during the presentation included digital transportation infrastructure, transportation network companies (TNCs), and technology disruptions.

Mr. Fusco first introduced definitions for platforms and networks:
- A *platform* serves as a base upon which others can build, play, and/or iterate new applications, processes, or technologies.

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[1] Big Data is a term often used to describe large amounts of information; it can also refer to different types of data and resources and techniques to manage the data. Additional information can be found at: https://www.fhwa.dot.gov/publications/publicroads/16sepoct/06.cfm.

- A *network* is a group of interconnected people and things.
- A *network effect* occurs when a good or service becomes exponentially more valuable as more people use it.

Mr. Fusco then described urban areas as physical platforms that are being digitized. There is a merging of the physical and digital worlds occurring today. While transportation arrived late to the digitization process, it can help people move around, balance demand across modes, and ultimately lead to optimal transportation solutions at the individual and societal levels. Access to digital data and technology provides more information so that people can make the best choices for themselves about how to get around, which can help influence and guide decisionmaking. The digital process is also inspiring creativity for thinking about how people move. Much of this creativity stems from work occurring in the private sector, which has the impact to shift the future of transportation.

As there is a significant amount of uncertainty about what the future might hold regarding digital transportation infrastructure, Mr. Fusco discussed how DVRPC used scenario planning to think about this uncertainty (Figure 12). The MPO used a more traditional approach to scenario planning for this effort, focusing on the two biggest unknowns—1) will new technology services be more cooperative or more competitive; and 2) will these services grow slowly or quickly. These inputs allowed for a range of different future scenarios, including:

Figure 12: DVRPC developed four scenarios around the future of shared mobility.
Source: DVRPC.

- *Filling a Niche,* which is the "status quo" scenario in which the digital transportation network starts to take hold but TNC operators do not grow beyond specialized trips and transit and regional transportation remains largely the same as today;
- *A Tale of Two Regions,* which explores the further spread of digital transportation infrastructure where both transit agencies and TNCs are benefiting from partnerships, mostly in denser developed areas, while traditional auto-oriented transportation remains the primary mode outside of the urban core;
- *TNCs Take Off,* which envisions a future where private agencies are able to shift more nimbly to transportation needs, outcompeting public agencies and resulting in declines in transit use; and
- *Moore Growth*, which imagines the rise of Mobility-as-a-Service and partnerships between TNCs and transit agencies, leading to more convenient motorized options, growing traffic volumes and vehicle speeds, and a subsequent decrease in walking and bicycling.

Mr. Fusco noted that, in a traditional scenario planning effort, the MPO considers the potential disruptions; however, in this effort, DVRPC did not address specific impacts of highly automated vehicles (HAVs) in the scenarios. Over time, the MPO could explore how change happens with different transportation eras and periods of construction.

DVRPC has started thinking about HAVs and a number of other technologies. The initial thought is that the vehicles will operate within the existing infrastructure, but that they will need better lane markings and signs. Mr. Fusco noted that there is tremendous uncertainty around HAVs at this time, including unknown land use implications, pricing, connected versus automated vehicles, and how different modes connect.
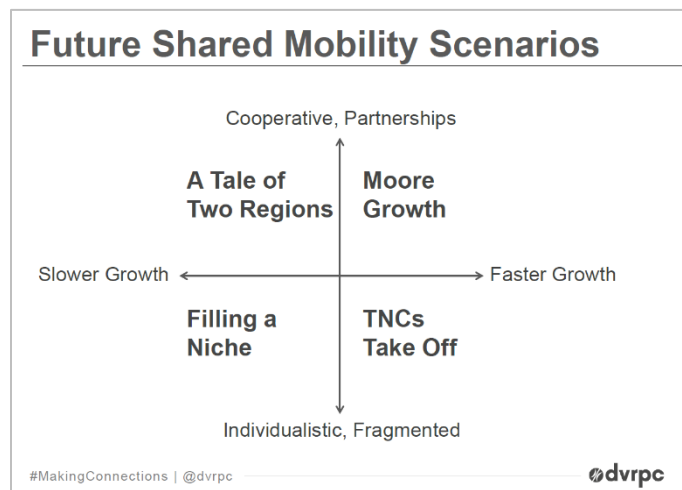
In his closing remarks, Mr. Fusco discussed that digitization and shard mobility provides an opportunity for a network "reset" and that public sector agencies play an important role in helping to coordinate network integration. Existing service providers can be successful if they are flexible and adaptable, even though funding may rely more heavily on the private market. DVRPC is focused on building an integrated, multi-modal transportation network as well as on improving access to information to help solve transportation problems.

Scenario Planning at MARC: A Deeper Dive into Scenario Development

Mr. Achelpohl and Mr. Lenk introduced four draft scenarios, developed by MARC staff, based on input shared at the earlier "Driving Forces" workshops. To develop the scenarios, MARC considered that all of the earlier five driving forces (Technology, Demographics, Economic Forces, Changing Climate, and Public Expectations) were likely to have an impact in each scenario, but that each scenario had a dominant force driving change.

Through the scenario planning process, MARC intended to show that each draft scenario represented a plausible alternative future based on varying interactions among the driving forces. The goal of the exercise was to illustrate a range of possible futures and not to select one particular scenario as the desired end state.

The four scenarios represented four possible futures for the region and were as follows:

- SLOW AND STEADY, which considers a slow population growth, development balanced between urban and suburban areas, and a limited turn to new technologies;
- WILD WEATHER, which explores the addition of residents as people move to the region from the East and West coasts, higher energy costs, and more frequent and severe weather events;
- TECH CITY, which focuses on the impacts of technology advancements, including more telecommuting, increased internet sales and low-cost automated freight delivery, and fewer opportunities to connect in person; and
- RISING PHOENIX, which imagines declines to key economic sectors in the region, low population growth, and diminished public resources but an increasing entrepreneurial spirit and growth of small business start-ups.

Additional information about the characteristics of the draft scenarios is provided in Appendix E.

Interactive Group Exercises

Throughout the workshop, attendees participated in discussions to share questions and ideas on scenario planning. During Day One, feedback on MARC's scenarios was the primary topic for the discussions. MARC first presented its four draft scenarios and then asked participants for their input through full-group and break-out group discussions. Day Two featured two roundtable discussions focused on the peers' perspectives on MARC's scenario planning approach and next steps for the effort. The following provides a summary of the themes heard during the Day One and Day Two discussions.

Full Group Discussion: Feedback on MARC Scenario Development

During the presentation of the MARC draft scenarios, Mr. Achelpohl and Mr. Lenk reiterated two key questions:

1) How realistic are these scenarios?
2) How can we as a region respond?

Participants offered feedback generally on the scenarios and questions they had. One of the primary points was that it was difficult to translate between the five driving forces and four scenarios and that one approach might be to tie the scenarios more closely back to the driving forces.

In the afternoon of Day One, participants revisited the draft scenarios, answering two questions for each scenario:

- How likely is the scenario to occur?
- What elements are missing or underemphasized?

Participants used their smart phones to answer the questions, with the results shown in real time. A summary of the feedback shared during the full-group discussion is provided in Appendix F.

Break-out Group Discussion: Regional Policy Implications

During the break-out group discussion, participants divided into four groups (Figure 13). Each group selected one of the scenarios presented by MARC for further discussion and addressed the following questions.

1. Pick a scenario and discuss:
   - Impacts on the region
   - What challenges does this scenario present? What opportunities?
   - What key policy implications does this scenario raise for the vision of a vibrant, connected, and green region?

Two of the groups elected to discuss the SLOW AND STEADY scenario. The other two selected the WILD WEATHER and TECH CITY scenarios for their discussions.

Ideas shared during the discussions included:
- There is a need for a culture of collaboration. Different communities or jurisdictions are moving at different paces, so it is important to recognize a range within the regional vision.
- It is almost inevitable that some type of extreme weather event will likely impact the region in the future. The more we can begin collaboration at the local level and then translate this to State and Federal partnerships, the better off we will be.
- We want to make sure we have a balanced approach and that we do not become a segregated region—whether it is ethnically, racially, economically, or a rural-urban divide. We will need to make sure that future policies are inclusive.
- New technology and the advancements of technology can help increase the value of a place. We want to strengthen our policies about place-making to help with this.

None of the groups chose the RISING PHOENIX scenario to discuss, and at the end of the break-out group report-outs, participants shared additional thoughts as well as addressed why they thought the groups chose the scenarios they did.

For additional information on the break-out group report-outs and discussion, please see Appendix F.

Figure 13: Participants listen to break-out group report-outs.
Source: USDOT Volpe Center.

Roundtable Discussions

Day Two of the workshop included two roundtable discussions. The first discussion focused on the peers' perspectives of MARC's scenario planning approach. The second discussion addressed next steps for MARC's scenario planning effort. Participants in the Day Two discussions included the MARC staff, the peers, and FHWA staff. Key themes from the discussions are provided below.

Peer Perspectives on MARC's Scenario Planning Approach

- ***Integrating Scenario Planning into the Planning Process****.* Participants discussed placing a scenario planning effort in the context of the long-range planning process. Information from a scenario planning exercise can help guide updates to the MTP as well as other regional plans. DVRPC begins every MTP update with scenario planning, using a three-step process. Step 1 is the preparation of scenarios, Step 2 is the development of a vision for the region, and Step 3 is the creation of strategies or policies that move the region toward the vision.
- ***Developing Scenarios.*** Removing value judgments is an important part of developing an effective scenario. Scenarios should be as neutral as possible so that they are seen as honest assessments of what the risks are. Oftentimes, there can be pressure to produce scenarios that are positive, but participants discussed the importance of not shying away from potential risks and addressing these risks in scenarios. DVRPC's exploratory scenario planning effort sought to demonstrate different potential risks without placing value statements on the scenarios.
- ***Communicating Scenarios.*** The story created by a scenario can be particularly powerful. Effective scenarios are those that engage stakeholders and help them imagine what potential futures might look like. Participants discussed how a "Day in the Life" framework could help share stories about people in each of the scenarios; however, this activity can be time-intensive, as it often requires multiple stories from multiple perspectives for each scenario. Participants agreed that using scenarios can often best help tell a regional story, rather than person-specific. In addition, agencies should pay attention to the wording used to describe scenarios when communicating to different audiences. WFRC's values laddering process helped make its scenarios more personal, but still neutral, so that people could connect to them.

Regional Policy Implications—Next Steps for MARC's Scenario Planning Effort

- ***Connecting Scenario Planning to Project Programming and Selection.*** The influence of scenario planning on participants' programming and project selection is still an opportunity area. DVRPC has been coordinating with its counties to identify projects that respond to the future forces. WFRC includes, within its programming criteria, a criterion on whether a project helps provide access to a designated center, which ties to the agency's "access to opportunity" effort. MAG has taken a comprehensive approach to embedding performance metrics into project-level decisionmaking by working with its technical committees, which then produce a final list of evaluated projects using the spreadsheet tool and specific criteria for each program.
- ***Linking Actions to Values.*** WFRC further shared how a values laddering process can help in a normative scenario planning process. Through a process of laddering, the agency can better understand the best way to talk about issues that activate the community. While this process is more commonly used at a community level, WFRC discussed how values could be "laddered up" to address more regional topics. Resulting actions or strategies then tie directly to the values initially identified by stakeholders.
- ***Leveraging Big Data.*** Scenarios often involve a tremendous amount of data. MAG created partnerships internally within its own divisions, as well as with ADOT, to integrate data sets as much as possible. MAG's resulting dashboard helps it provide easy-to-access information for MPO staff, citizens, consultants, policy makers, and others. The MPO is now looking at how other data sets inform transportation activities and potential new insights.
- ***Strengthening Technical Capacity.*** Participants discussed the technical capacity of their agencies to support scenario planning. Efforts typically require support from staff with Geographic Information Systems, modeling, and long-range planning backgrounds, among other disciplines. Recruiting talent and minimizing workload burdens on modeling staff can be challenging. MAG has found success in keeping close ties with a local university to bring on graduate students as interns, with the potential to promote them to full-time staff upon graduation.

Conclusion and Next Steps

The FHWA scenario planning workshop, hosted by MARC, provided an opportunity for MARC to share information on its proposed scenario planning approach, obtain feedback from participants and the peers on its draft scenarios, and further learn about scenario planning noteworthy practices.

Throughout the workshop, participants engaged in full-group and break-out group discussions to pose questions and share ideas on MARC's scenario planning process and next steps.

Participants provided additional feedback through evaluation forms submitted at the end of the workshop on Day One. While many attendees were already familiar with scenario planning prior to the workshop, they indicated that their familiarity grew after participating in the workshop. Many attendees were also involved in planning processes or community/regional decisionmaking in the region. Participants were particularly interested in the peers' presentations and participation. Overall, participants noted that the workshop provided them with a better understanding of how scenario planning works and that they found the workshop valuable.

Participants also found value in Day Two of the workshop, which included a smaller group of MARC staff, the peers, and FHWA staff. During the Day Two sessions, the peers shared their perspectives on MARC's scenario planning approach and offered suggestions and ideas for future considerations. As a result of these discussions, MARC plans to further explore and refine its scenarios. Future activities include revising the draft scenarios so that they are neutral and do not contain value judgments, and developing a communications approach to convey information about the scenarios effectively. Participants shared that the Day Two discussions helped contribute to one of MARC's goals for the workshop, in demonstrating how scenario planning can be used for interdisciplinary activities and not solely for transportation planning.

Appendices

A. About the FHWA-FTA Scenario Planning Program

The Transportation Planning Capacity Building (TPCB) Program is a joint venture of FHWA and FTA that delivers products and services to provide information, training, and technical assistance to the transportation professionals responsible for planning for the capital, operating, and maintenance needs of our nation's surface transportation system. The TPCB Program website (www.planning.dot.gov) serves as a one-stop clearinghouse for state-of-the-practice transportation planning information and resources. This includes over 70 peer exchange reports covering a wide range of transportation planning topics.

The TPCB Scenario Planning Program, jointly offered by FHWA and FTA, advances the state of the practice in scenario planning by encouraging agencies to learn more about or apply scenario planning as part of their transportation planning activities. The program offers a range of resources for agencies interested in scenario planning or in need of scenario planning technical assistance, including on-call technical assistance, peer-to-peer sharing, and customized webinars and workshops.

B. Key Contacts

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Susan	Barry	Missouri Department of Transportation
Mark	Bechtel	FTA Region 7
George	Binger	City of Lee's Summit - Public Works
Erin	Burroughs	God's Will In Action
Kevin	Bruemmer	City of Merriam - Public Works
Sara	Clark	TranSystems
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Edna	Cordner	Kansas Highway Patrol
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Darryl	Fields	Mid-America Regional Council
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Brett	Fusco	Delaware Valley Regional Planning Commission
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Kristin	Riott	Bridging The Gap
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Janelle	Sjue	
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Eugene	Suter	Clay County Extension Services
Jim	Thorne	FHWA Resource Center
Magi	Tilton	City of Lenexa
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Jared	Tremblay	Flint Hills MPO
Kris	Turnbow	City of Raymore
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Beth	Wright	City of Olathe
Greg	Youell	Metropolitan Area Planning Agency
Jan	Zimmerman	City of Raymore - Police Department

D. Workshop Agenda

Mid-America Regional Council (MARC)
Scenario Planning Workshop
Sponsored by the Federal Highway Administration (FHWA)
Kansas City, Missouri

Dates: January 31-February 1, 2017

Host Agency: MARC

Facilitator: Jim Thorne, FHWA Resource Center

Peers:
- Delaware Valley Regional Planning Commission (DVRPC)
- Maricopa Association of Governments (MAG)
- Wasatch Front Regional Council (WFRC)

Workshop Overview:
This 1.5-day scenario planning workshop, hosted by MARC, introduces the concept of scenario planning to build awareness and encourage information-sharing among MARC, its stakeholders, and three peer agencies. In addition, the workshop will provide an opportunity to share information on MARC's current scenario planning efforts. Peer experts from the Delaware Valley Regional Planning Commission, Maricopa Association of Governments, and Wasatch Front Regional Council will provide presentations on their agencies' scenario planning activities and perspectives on using scenario planning in the transportation planning process.

Workshop Goal:
Goals include: introducing the concept of scenario planning; and obtaining feedback on scenarios.

DAY ONE

Time	Session	Speaker(s)	Objective(s)
8:00 - 8:30 am	Registration and Check-in		
8:30 - 8:45	Welcome and Introduction	• David Warm Executive Director, MARC • Kevin Ward Division Administrator, FHWA Missouri Division • Richard Backlund Division Administrator, FHWA Kansas Division • Jim Thorne FHWA Resource Center; Workshop Facilitator	
8:45 - 9:00	Getting Started: An Overview of Scenario Planning	• Michael Barry GIS Specialist/Transportation Planner, FHWA Office of Planning • Jim Thorne FHWA Resource Center; Workshop Facilitator	

9:00 - 9:30	Scenario Planning at MARC: Overview of Current Scenario Planning Efforts and Trends in the Region	• Ron Achelpohl Director of Transportation and Environment, MARC • Frank Lenk Director of Research Services, MARC
9:30 - 9:45	BREAK	
9:45 - 11:15	Peer Presentation 1: Scenario Planning Perspectives – Imagining What the Future Will Bring	• Ted Knowlton Deputy Director, WFRC • Monique de los Rios-Urban Performance Program Manager, MAG • Brett Fusco Assistant Manager, Long-Range Planning, DVRPC
11:15 am - 12:00 pm	Scenario Planning at MARC: A Deeper Dive into Scenario Development	• Ron Achelpohl Director of Transportation and Environment, MARC • Frank Lenk Director of Research Services, MARC
12:00 - 1:00	LUNCH	
1:00 - 1:30	Full Group Discussion: Feedback on MARC Scenario Development	• Workshop Facilitator, Participants
1:30 - 3:00	Peer Presentation 2: Scenario Planning Perspectives – Considering the Impacts	• Ted Knowlton Deputy Director, WFRC • Monique de los Rios-Urban Performance Program Manager, MAG • Brett Fusco Assistant Manager, Long-Range Planning, DVRPC
3:00 - 3:15	BREAK	
3:15 - 3:45	Break-out Group Discussion: Regional Policy Implications	• Workshop Facilitator, Participants
3:45- 4:15	Break-out Report-out: Regional Policy Implications	• Workshop Facilitator, Participants
4:15 - 4:30	Recap of Day / Next Steps	• Workshop Facilitator, Participants
4:30 pm	Adjourn	

DAY TWO

Time	Topic	Speaker
8:30 - 9:00 am	Registration and Check-in	N/A
9:00 - 9:30	Review of Day One / Debrief	Workshop Facilitator, Peers, MARC Staff
9:30 - 10:30	Round Table Discussion #1: Peer Perspectives on MARC's Scenario Planning Approach	MARC Staff, Peers, FHWA, FTA, and FHWA Resource Center Staff
10:30 - 10:45	BREAK	
10:45 - 11:45	Round Table Discussion #2: Regional Policy Implications – Next Steps for MARC's Scenario Planning Effort	MARC Staff, Peers, FHWA, FTA, and FHWA Resource Center Staff
11:45 am - 12:00 pm	Wrap-up and Conclusions	MARC Staff

E. MARC Scenario Characteristics

MARC developed four draft scenarios, which were presented at the January 31st workshop for participant feedback. The following table provides information on the scenarios. The characteristics listed are directly taken from the presentation provided by MARC during the workshop.

Scenario Name	Characteristics
SLOW AND STEADY	- Population growth slows slightly. - White, non-Hispanic people become the minority. - Development balanced between urban and suburban areas while rural communities shrink. - Automated vehicles are a novelty. - Personal car ownership the norm, creating demand for infrastructure improvements. - Lack of innovative funding sources leaves roads and bridges in disrepair.
WILD WEATHER	- Super storms and rising seas ravage both coasts, driving people to solid, dry ground. - Kansas City sees more severe weather events, taxing critical infrastructure. - Public consciousness and political will shift toward innovative solutions. - Energy costs increase; production shifts to renewables. - Development of dense, walkable communities for all ages, incomes, and races means more active lifestyles and improved health outcomes.
TECH CITY	- Technology advances quickly, creating rapid economic growth. - Unemployment rises due to automation of most jobs. - Automated vehicles make roads safer, cleaner, more energy efficient. - Telecommuting is the norm. - Density decreases as travel costs decrease. - Society becomes disconnected and isolated.
RISING PHOENIX	- Rising energy prices lead to 21st Century's Great Depression. - Overall population growth stagnates due to declining birth rates, resistance to immigration. - Social inequality declines. - Labor shortage leads to rising wages. - Summers grow hotter and drier while rainy seasons grow longer. - Entrepreneurial spirit rises.

F. Full-Group and Break-out Group Discussions

The following sections summarize discussions from the full-group and break-out group portions of Day One. Content shared below may not reflect the opinions or policies of FHWA or FTA.

Full Group Discussion: Feedback on MARC Scenario Development

The following compiles questions and feedback shared during the full-group discussion on Day One.

- How is MARC dealing with hybrid scenarios, or overlaps?
  - *MARC Response:* MARC is posing the scenarios as narratives to ask "what-if" questions. The goal is not to create a scenario that is considered "good" or "bad." MARC worked to incorporate elements of positive and negative impacts of the different driving forces into each scenario.
- Do you anticipate labor shortage across the board in all scenarios, or will these shortages be in specific areas? How is MARC differentiating labor shortage (e.g., white collar, blue collar, etc.)?
  - *MARC Response:* There is no specific data here. The scenarios are descriptions of what the world might look like.
  - *MARC Response:* It depends on the scenario. In the TECH CITY scenario, tech workers would be in short supply, but there could be shortages in all categories.
- How is MARC considering diversity?
  - *MARC Response:* There is rising inequality in the TECH CITY scenario.
- Part of the framing of scenario planning is that it is important not to lose sign of the vision and the forces. The combination is what is powerful. You build out scenarios and assumptions, but at the end of the day, regardless of which scenario occurs, what are the actions to achieve the vision? Then you start to look at overlapping actions and the indicators that help with the action you take.
  - *MARC Response:* MARC has done a lot of work as a region to be vibrant, connected, and green. MARC is looking at having four scenarios to be able to test the vision against these and the strategies associated with this vision.
- The translation from the five driving forces to the four scenarios is difficult to understand without tying this back to the forces directly.
  - *MARC Response:* This is good feedback for next steps in refining the scenarios.

The following provides a high-level summary of responses to the smart phone questions posed to participants. Participants responded to the same two questions for each scenario. Please note that the table below provides example responses for brevity. Percentages are approximate, based on the number of participant responses; not all participants responded to all questions.

	How likely is the scenario?			What elements are missing or underemphasized?
	Highly likely	Somewhat likely	Not likely	
SLOW AND STEADY	45%	45%	10%	• Housing affordability • Impact on the environment • Globalization influences
WILD WEATHER	25%	50%	25%	• Need for resiliency • Cost of fuels • Limited relocation to Kansas City (or less quickly than scenario envisions)
TECH CITY	30%	50%	20%	• Continued urban sprawl • Importance of experiences and social interaction • Over-emphasis on automated vehicles
RISING PHOENIX	25%	50%	25%	• Over-emphasis on negative • Shortage of goods and services • Declining middle class

Break-out Group Discussion: Regional Policy Implications

The following lists the responses shared by the break-out groups during the Day One break-out group discussion focused on regional policy implications. Each group selected one of the four scenarios presented by MARC for discussion and addressed the following questions:

1. Pick a scenario and discuss:
   ● Impacts on the region
   ● What challenges does this scenario present? What opportunities?
   ● What key policy implications does this scenario raise for the vision of a vibrant, connected, and green region?

GROUP 1:

Scenario selected:	SLOW AND STEADY
Impacts on region:	We thought this scenario was the most likely.
Challenges/opportunities:	There needs to be a culture of collaboration. In this scenario, there is no driver to push people together and integrate. Everyone remains kind of independent. Moving ahead, different communities or jurisdictions will be moving at different paces. There needs to be a range for the regional vision. One key opportunity is the value of time. If the scenario is slow and steady and you can see changes approaching, you can use this time to build consensus and change direction if needed.
Key policy implications:	Moving in a slow and steady way gets back to the same challenge. It can be difficult to have people build consensus and integrate across agencies and communities.

GROUP 2:

Scenario selected:	WILD WEATHER
Impacts on region:	We discussed how it is almost inevitable that some type of extreme weather events occur. We talked about Hurricane Katrina and its effect on our local institutions.
Challenges/opportunities:	There is a need for collaboration. We talked about our bi-state region and opportunities for collaboration. We are in a better position to proceed.
Key policy implications:	There is a need for different levels of policy at the local, State, and Federal levels. The more that we can start with local communities and build upward, the better off we will be.

GROUP 3:

Scenario selected:	SLOW AND STEADY
Impacts on region:	We selected SLOW AND STEADY because, regionally, we will not be impacted by rising sea levels. There was a lot of concern about the impacts of stagnation and innovation—being proactive in our business community, being overwhelmed by globalization. There were concerns about not expanding or having transportation funding being diverted for other purposes.
Challenges/opportunities:	We discussed equity issues. We want to make sure we have a balanced approach and that we do not become a segregated region—whether it is ethnically, racially, economically, or a rural-urban divide. There are challenges with our housing ownership models, but there is also an opportunity to keep up infrastructure.
Key policy implications:	We talked about policy implications. They went all over the place at the end. A lot of our discussion focused on equity issues—that policy needs to make sure it is inclusive.

GROUP 4:

Scenario selected:	TECH CITY
Impacts on region:	We chose TECH CITY because it is an area of interest that is growing quickly and a strong focus of Kansas City, particularly with the recent Smart Cities application.
Challenges/opportunities:	One key challenge is the implications for privacy, security, and individual rights. For example, will a passenger in an automated vehicle have the ability if they own it to override its settings to stay within the speed limit? One key opportunity is the fact that technologies can increase capacity without increasing physical capacity. We could potentially redirect funding to other types of infrastructure. If we could be a more dispersed development pattern, this could make the region more affordable and attractive.
Key policy implications:	We had a rich discussion on policy implications. We started on the idea that technology and the advancements of technology increase the value of a place. We disagreed that place becomes less important in a technological revolution. We want to strengthen our policies about place-making to help with this.

G. Additional Resources

FHWA Scenario Planning Website
http://www.fhwa.dot.gov/planning/scenario_and_visualization/scenario_planning/

FHWA-FTA TPCB Website
https://www.planning.dot.gov/

FHWA Scenario Planning Guidebook
http://www.fhwa.dot.gov/planning/scenario_and_visualization/scenario_planning/scenario_planning_guidebook/

MARC Scenario Planning Website
http://www.marc.org/Regional-Planning/Creating-Sustainable-Places/Plans/Scenario-Planning

H. Acronyms

ADOT   Arizona Department of Transportation
DOT   Department of Transportation
FHWA   Federal Highway Administration
FTA   Federal Transit Administration
HAV   Highly Automated Vehicles
LRTP   Long-Range Transportation Plan
MARC   Mid-America Regional Council
MPO   Metropolitan Planning Organization
MTP   Metropolitan Transportation Plan
NCHRP   National Cooperative Highway Research Program
RTP   Regional Transportation Plan
TIP   Transportation Improvement Program
TPCB   Transportation Planning Capacity Building
USDOT   U.S. Department of Transportation
WFRC   Wasatch Front Regional Council