Transportation Planning Capacity Building Program

Gulf Regional Planning Commission Scenario Planning Workshop

Sponsored by the Federal Highway Administration

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Date:	March 15-16, 2016
Host Agency:	Gulf Regional Planning Commission
Peer Agencies:	Florida Department of Transportation Pikes Peak Area Council of Governments Wilmington Area Planning Council
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Executive Summary

This report documents a 1.5-day scenario planning workshop held March 15-16, 2016, in Biloxi, Mississippi, and hosted by the Gulf Regional Planning Commission (GRPC). The Federal Highway Administration (FHWA) sponsored this workshop under its Scenario Planning Program, which is conducted jointly with the Federal Transit Administration (FTA). The Scenario Planning Program is also part of the FHWA-FTA Transportation Planning Capacity Building Program.

The workshop introduced the topic of scenario planning to GRPC partners and representatives from local, State, and Federal agencies, and provided an opportunity for GRPC to collect feedback on next steps for using scenario planning to better inform its planning process and leverage existing scenario planning resources and applications. Approximately 26 participants attended; see Appendix B for a list of workshop participants.

GRPC is the metropolitan planning organization (MPO) for the urbanized areas of Gulfport-Biloxi and Pascagoula-Moss Point. The GRPC planning region supports 15 member governments: 12 cities (Gulfport, Biloxi, Waveland, Bay St. Louis, Diamondhead, Pass Christian, Long Beach, Ocean Springs, D'Iberville, Gautier, Pascagoula, and Moss Point); and 3 counties (Hancock, Harrison, and Jackson).

GRPC requested the FHWA-sponsored workshop to share information about scenario planning with stakeholders in the region and to identify ways to leverage its existing scenario planning tool. The tool is a product from a grant project led by GRPC and completed in 2013 as part of the U.S. Department of Housing and Urban Development's (HUD) Sustainable Communities Regional Planning Grant Program. GRPC is considering how to update and use the tool as part of future updates to its long-range transportation plan (LRTP). The workshop also covered scenario planning's connections to resiliency and military base planning, given GRPC's coastal planning region and its coordination with local military base partners on an upcoming Joint Land Use Study.

Three peer experts participated in the workshop (two in-person and one remotely) to share their experiences in and perspectives on scenario planning:

- Dan Blevins, Principal Transportation Planner, Wilmington Area Planning Council (WILMAPCO);
- Maria Cahill, Senior Policy Analyst, Growth Management, Florida Department of Transportation (FDOT); and
- Craig Casper, Transportation Director, Pikes Peak Area Council of Governments (PPACG).

The peers' presentations addressed how they have used scenario planning in their agencies, including why their agencies were interested in scenario planning, what the drivers were, and how they approached the process. In addition, they discussed how they connect their scenario planning efforts to other related planning activities (e.g., those tied to resiliency planning, military base planning) and how scenario planning tools can be integrated into planning and decisionmaking processes.

The second day of the workshop allowed for smaller roundtable discussions among the peers, GRPC, and FHWA staff to focus more specifically on the GRPC scenario planning tool, its current uses, and possible opportunities for future uses. Eric Pihl of the FHWA Resource Center and product lead for the Rapid Policy Assessment Tool (RPAT), funded and developed by the Second Strategic Highway Research Program (SHRP2), also participated remotely in the second day of the workshop. Mr. Pihl reviewed how RPAT can be applied to evaluate long-range planning scenarios.

A primary goal of the workshop was to demonstrate the varied uses for scenario planning and to introduce the concept of scenario planning to workshop participants. Post-workshop evaluations submitted by participants indicated that this goal was met, as attendees noted that their knowledge of scenario planning increased as a result of the workshop. In addition, participants shared that they understood how GRPC's scenario planning efforts would benefit future LRTPs.

Overview of the Workshop

Goals of the Workshop

The GRPC scenario planning workshop had multiple goals, including the following:

- Introducing the concept of scenario planning;
- Explaining the common attributes of scenario planning and how they might benefit current transportation activities in the GRPC region;
- Sharing peer State department of transportation (State DOT) and MPO scenario planning activities and insights;
- Exploring resiliency and military base planning linkages to scenario planning; and
- Recognizing opportunities for using scenario planning to inform future planning activities.

In addition, the workshop sought to share feedback and perspectives from the peers to assist GRPC in identifying potential opportunities for using its existing scenario planning tool in the future.

Selecting the Peers

In designing the workshop, the planning team worked together to identify appropriate peers given the workshop goals set forth by GRPC. As goals included both introducing the concept of scenario planning as well as sharing input on the connections between scenario planning and other planning topics such as resiliency and military base planning, the team sought to engage peers who could speak to both of these points. Using these goals as the guiding framework for the workshop, the planning team extended invitations to three peers:

- Dan Blevins, Principal Transportation Planner, WILMAPCO;
- Maria Cahill, Senior Policy Analyst, Growth Management, FDOT; and
- Craig Casper, Transportation Director, PPACG.

Mr. Blevins and Mr. Casper participated in person, while Ms. Cahill joined the workshop remotely using a customized web room connection. Contact information for each of the peer representatives is included in Appendix A of this report.

Format of the Event

GRPC hosted the 1.5-day workshop at its offices in Biloxi, Mississippi, on March 15-16, 2016. The three peers, GRPC and FHWA staff, and representatives from across the Biloxi region, including other local MPOs and transportation agencies, participated. A full list of attendees is available in Appendix B of this report.

Day One of the workshop varied between panel presentations and group discussions to share information on scenario planning and allow for interactions among participants. Day Two involved a smaller group—the peers and GRPC and FHWA staff—that used a half-day format to focus more specifically on the GRPC scenario planning tool and information-sharing about SHRP2 C16 (RPAT). The agenda for the workshop is provided in Appendix C of this report.

Introduction

GRPC Background

GRPC provides planning support to 15 member governments: 12 cities (Gulfport, Biloxi, Waveland, Bay St. Louis, Diamondhead, Pass Christian, Long Beach, Ocean Springs, D'Iberville, Gautier, Pascagoula, and Moss Point); and 3 counties (Hancock, Harrison, and Jackson).[1] In addition, GRPC is designated as the MPO for the urbanized areas of Gulfport-Biloxi and Pascagoula-Moss Point where the populations exceed more than 50,000 residents (Figure 1). In its MPO role, GRPC is responsible for the region's transportation planning activities, from developing and updating the regional LRTP to supporting the prioritization process for transportation improvement projects in the State.

Figure 1: GRPC is the MPO for the urbanized areas of Gulfport-Biloxi and Pascagoula-Moss Point.
Source: GRPC

GRPC originally started exploring the use of scenario planning as part of its transportation planning process in the early 2000s. After Hurricane Katrina in 2005, GRPC saw a growing opportunity to use scenario planning as a way to plan for "what-if's." In 2010, GRPC received grant funding under HUD's Sustainable Communities Regional Planning Grant Program. With the grant funds, GRPC worked with partners to establish the "Plan for Opportunity," the region's first-ever sustainability plan.[2] The Plan for Opportunity presented a series of recommendations designed to promote land use decisions and development patterns that would support the region's diverse needs relating to transportation and land use, resilience, housing, water, food systems, and economic development. As part of the grant project, GRPC developed a scenario planning tool, which it used to compile and visualize information for the Plan. GRPC released the Plan for Opportunity in 2013.

In addition, GRPC is in the early stages of conducting Joint Land Use Studies (JLUS) in partnership with the Department of Defense (DoD) through the DoD Office of Economic Adjustment Compatible Use Program. The GRPC region is home to several military bases, including Keesler Air Force Base in Biloxi, which trains more than 30,000 students each year. As the region continues to grow, encroachment has become an issue, with increasing pressures on land surrounding the bases and on the bases' needs and uses.

The FHWA-sponsored scenario planning workshop provided a forum for GRPC staff and partner agencies to review GRPC's past scenario planning activities, discuss opportunities for leveraging GRPC's existing scenario planning tool as part of future LRTP updates, and explore ways to connect scenario planning to the upcoming JLUS and military base planning activities.

[1] For more information, please visit the GRPC website: http://www.grpc.com/about-grpc/.
[2] Information on the Plan for Opportunity is available at: http://www.gulfcoastplan.org/

Presentation and Discussion Highlights

Welcome and Introduction

David Taylor, GRPC Planning Director, and Claiborne Barnwell, Team Lead, Project Development Team, of the FHWA Mississippi Division, opened the workshop and provided welcoming remarks. Jim Thorne, Metropolitan Planning Specialist with the FHWA Resource Center, facilitated the workshop.

Mr. Taylor shared that GRPC has been engaged in scenario planning for more than a decade, dating back to before Hurricane Katrina. GRPC has long recognized the benefits that scenario planning can provide and is increasingly looking to use scenario planning in its transportation planning processes.

The idea for the workshop first came about from coordination with the FHWA Mississippi Division. The Division notified the FHWA Scenario Planning Program of the workshop interest and, from there, the Program worked closely with GRPC and the Division to develop and organize the event.

Scenario Planning Perspectives

Mr. Thorne first introduced the topic of scenario planning and its basic principles and benefits, and provided several short case study examples of how transportation agencies across the country have approached scenario planning. He also shared information on the FHWA Scenario Planning Program, its resources, and staff points of contact for additional information and questions. At the conclusion of Mr. Thorne's presentation, Ken Holland, GRPC Senior Planner-GIS, and Kenneth Yarrow, GRPC Planning Manager, presented trends in the GRPC region to help set the stage for the workshop discussions (Figure 2). Later in the afternoon of Day One of the workshop, Elaine Wilkinson, GRPC Executive Director, provided an overview of the upcoming GRPC JLUS effort.

Getting Started: An Overview of Scenario Planning

Scenario planning is a process to define alternative futures and strategically consider critical decisions and their implications. Originally used in a military and corporate planning context in the 1960s, transportation agencies often apply scenario planning today to explore the interaction of transportation and other community issues and features. Scenario planning helps agencies and their stakeholders think about what the future might look like over the next several decades. Mr. Thorne likened scenario planning to a "Rip Van Winkle" approach—asking participants to imagine, if they fell asleep and awoke 20-30 years from now, what the future might look like. Trends occurring today may affect what happens over time (e.g., advances in autonomous and connected vehicles, Millennial travel behavior and patterns, extreme weather events and resiliency, and the global economy).

Mr. Thorne noted that scenario planning can be done in many different ways. It is an enhancement of, not a replacement for, the traditional transportation planning process and can be adapted to fit different purposes, scales, and areas. Scenario planning can be used to provide "stories" about the future that complement sophisticated analysis tools. It can also be tied to visioning, transportation and land use coordination, and contingency planning efforts, as well as to trade-off analyses comparing and contrasting interactions among multiple factors such as public health and the environment.

Many transportation agencies are actively engaged in scenario planning. Mr. Thorne shared short case study examples of transportation agencies that have used scenario planning successfully, including:

- *Chittenden County Regional Planning Commission (Burlington, VT)*, which applied scenario planning in its Vision 2060 initiative. As part of its scenario planning activities, the Commission asked participants to share feedback on their visions for the region's growth and development through an interactive game in which participants placed "chips" on a map to imagine future development patterns;

- *Gainesville Metropolitan Transportation Planning Organization (Gainesville, FL),* which focused its scenario planning effort on the relationship between transportation investments and land use decisions. The agency developed a trend scenario based on existing factors and then created several other scenarios (e.g., compact area concept, town/village centers concept) to explore alternative futures, keeping in mind its goal to "keep it simple" and use a limited number of measures to evaluate the scenarios.
- *Binghamton Metropolitan Transportation Study (Binghamton, NY),* which applied scenario planning to a low-/no-growth region of New York State. The agency coordinated its scenario planning effort as part of a larger economic development plan to support the region's core.
- *Delaware Valley Regional Planning Commission (Greater Philadelphia Region, PA and NJ),* which has conducted a range of scenario planning efforts over the years. In one of its initial efforts, the agency created qualitative "what-if" scenarios to develop stories about possible futures, such as sprawl, in-migration, and out-migration.
- *Denver Regional Council of Governments (Denver, CO),* which has also performed several iterations of scenario planning as part of its transportation planning activities. The agency first developed a baseline scenario and created alternative scenarios that varied from the size of the urban footprint represented (from compact to expanded) and the focus area of transportation investment priorities, such as highways or transit. The agency then used spider diagrams to evaluate trade-offs among the scenarios.
- *Hillsborough Metropolitan Planning Organization for Transportation (Hillsborough, FL),* which emphasized a robust public engagement process as part of its "Imagine 2040" scenario planning effort. The agency developed three scenarios and involved the public to obtain feedback on the scenarios through an interactive website, online polling, in-person meetings, and attendance at other local venues.

Beyond the examples Mr. Thorne shared, FHWA offers a scenario planning website that provides scenario planning-related resources, including a scenario planning guidebook. The guidebook presents a framework for developing a scenario planning approach using six phases.[3] Staff at FHWA and FTA are also available for support on scenario planning questions and technical assistance.

GRPC Perspectives

Where Are We Now? A Look at Trends in the Region

GRPC is a coastal region, with much of the region's population and employment density located within the urbanized areas of Gulfport-Biloxi and Pascagoula-Moss Point. Mr. Holland and Mr. Yarrow explained that, after Hurricane Katrina in 2005, the community was concerned that residents would start moving away from the coast; however, over time, people have started to settle again in the coastal areas. The scenario planning process allowed GRPC to explore the "what-if's" for the community using the scenario planning tool it created, such as ways to improve mobility along the region's east-west corridor and opportunities for transit-oriented development (TOD). The tool built off of existing GRPC efforts prior to Hurricane Katrina to begin modeling trends in the region.

Figure 2: GRPC staff Ken Holland (top) and Kenneth Yarrow (bottom) present on trends in the region.
Source: USDOT Volpe Center

GRPC first started in 2001 with a Sustainability Index, a Geographic Information Systems (GIS)-based effort that identified existing land uses and potential opportunities for

[3] The six phases of scenario planning identified in the FHWA scenario planning guidebook are: *Phase 1:* How Should We Get Started?; *Phase 2:* Where Are We Now?; *Phase 3:* Who Are We and Where Do We Want to Go?; *Phase 4:* What Could the Future Look Like?; *Phase 5:* What Impacts Will Scenarios Have?; and *Phase 6:* How Will We Reach Our Desired Future?

future land uses in the region. The Sustainability Index was GRPC's first land use modeling effort for the coast.

In 2008, after Hurricane Katrina, GRPC developed the first iteration of its regional scenario planning tool as part of its 2008 LRTP update. The initial tool relied heavily on a GIS software platform and could only support one user at a time so it was difficult to engage stakeholders fully as part of its use. In this early effort, GRPC identified a "scenario canvas" for the region, digitizing the region's more than 550 Traffic Analysis Zones (TAZs) and modeling transportation trip data (e.g., generation, distribution, mode, and route) and land uses across each TAZ. GRPC's plan at the time was to build a digital bridge between its LRTP, which addressed much of the transportation data, and local land use plans created by the region's communities.

In 2010, GRPC was selected as a grant recipient under the HUD Sustainable Communities Regional Planning Grant Program. The grant funding allowed GRPC and its partners to establish the Plan for Opportunity and build upon the scenario planning tool. With consultant support, GRPC increased access so that users could access the tool via a web-based "cloud" data platform rather than a single desktop computer.

GRPC focused its scenario planning efforts by benchmarking existing conditions and establishing goals and a desired approach. The six HUD Livability Principles guided the goals, all of which connected to local land use decisions (e.g., creating opportunities for TOD).[4] GRPC concentrated on areas it identified as "activity centers," which already had close proximity to destinations such as schools, parks, and grocery stores; many intersections; and a high concentration of employees; these "activity centers" became the focus of the scenario planning effort, as they appeared to have the highest potential for attaining the goals.

GRPC then engaged in a real-time scenario design and indicator scoring exercise, adjusting its baseline scenario to explore how different indicators might create resulting scenarios (Figure 3). GRPC tested a variety of indicators, including development intensity, development mix, residential water and energy uses, and bicycle lane miles, and weighted the indicators based on their relative importance.

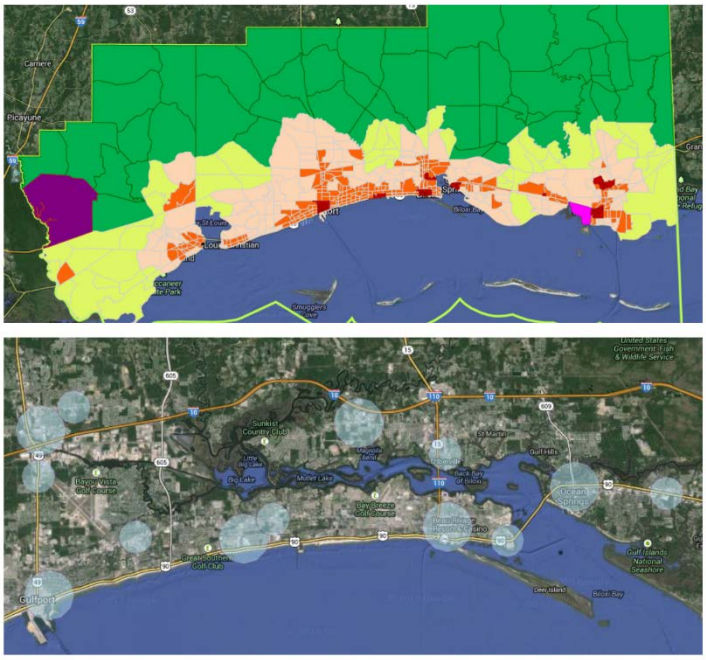

Figure 3: Examples of scenarios from GRPC's scenario planning effort: (top) scenario from Sustainable Regional Growth Workshop hosted by GRPC in July 2013; and (bottom) potential TOD intensification areas modeled by GRPC in December 2013
Source: GRPC

Upon the completion of the Plan for Opportunity in 2013, GRPC developed a TOD Node Scale, which fed into its 2014 Work Program and used recommendations from the Plan. As part of this effort, GRPC created scenarios to investigate how two vacant parcels might become potential opportunity areas for

[4] The six HUD Livability Principles are: 1) Provide more transportation choices; 2) Promote equitable, affordable housing; 3) Enhance economic competitiveness; 4) Support existing communities; 5) Coordinate policies and leverage investment; and 6) Value communities and neighborhoods. For more information, please visit: http://portal.hud.gov/hudportal/HUD?src=/program_offices/economic_resilience/Six_Livability_Principles.

TOD and assessed the scenarios' impacts and influences. More recently, in December 2015, GRPC completed growth allocations using local communities' future land use plans to help inform its next LRTP update due in 2018.

GRPC's goals for the FHWA-sponsored scenario planning workshop tied into the TOD Node Scale and growth allocation activities. In particular, GRPC noted interest in exploring model calibration for local environmental variables, particularly when local data is limited, and in applying the model for local land use planning. GRPC discussed that its scenario planning tool could be used as a resource for local decisionmaking and the next LRTP update due in 2018.

Current Connection: Joint Land Use Studies

Coming off of the HUD grant project, GRPC continued to focus on ways to apply the HUD Livability Principles, such as creating opportunities for mixed-use development. In spring 2015, the DoD Office of Economic Adjustment approached GRPC about participating in two JLUS to promote compatible uses of the land surrounding two local military installations with the installations' military missions. The DoD and GRPC identified opportunities for two JLUS—for the Keesler Air Force Base in Biloxi and the Naval Construction Battalion Center in Gulfport, both of which are major employers in the region.

GRPC is now beginning the JLUS, with the first stage being Discovery. During this Discovery stage, GRPC will work closely with the Air Force and Navy to collect information and lead an extensive public involvement process, including public workshops. GRPC also plans to leverage the future growth scenarios it previously developed as well as its scenario planning tool to identify areas with potential compatibility issues near the two bases. For example, as Keesler Air Force Base is located in an urban area, GRPC can use the scenario planning tool to explore how development patterns and growth near the base might impact the base's ability to conduct military missions, and how the base's activities might impact the community (e.g., airborne noise issues). GRPC foresees opportunities to link the scenario planning tool to the JLUS and local land use plans to allow for use of the same data sources and assumptions and to help local communities update their local land use plans and zoning policies and regulations based on the results of the JLUS.

Peer Approaches to Scenario Planning

Three peer agencies—WILMAPCO, PPACG, and FDOT—provided presentations on how their agencies have used scenario planning. The peers participated in two peer sessions during the workshop. The first session presented an introduction to the peers' scenario planning efforts, while the second focused more specifically on their scenario planning processes used and the connections to other planning topics, such as resiliency and military base planning. Below summarizes the presentations and themes presented across both peer sessions.

Wilmington Area Planning Council

Dan Blevins, Principal Transportation Planner, WILMAPCO

WILMAPCO is a two-county, two-State MPO, whose region covers New Castle County, Delaware, and Cecil County, Maryland. The WILMAPCO region as a whole supports approximately 652,000 residents (550,000 in the more urban New Castle County, and 102,000 in the more rural Cecil County). Mr. Blevins framed his presentations to discuss WILMAPCO's scenario planning efforts, particularly related to resiliency and sea level rise, while also explaining how his agency was able to achieve these efforts with limited resources and a small staff size of six.

The WILMAPCO region falls in between the Pennsylvania-New Jersey jurisdiction of the neighboring MPO to the north—the Delaware Valley Regional Planning Commission—and the Maryland jurisdiction of the Baltimore Metropolitan Council to the south. Falling within the Northeast Corridor megalopolis along

Interstate 95 (I-95), the WILMAPCO region often faces challenges relating to the heavy volume of through-traffic on the roads. As part of its regional forecasts for the region through 2040, WILMAPCO forecasts that vehicle-miles traveled and freight tonnage will continue to grow (32 percent and 37 percent increases respectively). The agency also forecasts a rapidly growing population of residents 65 years and over (75 percent increase) as well as a steady increase in employment, households, and population (4 percent, 26 percent, and 13 percent increases respectively).

WILMAPCO used a scenario planning approach as part of its 2040 Regional Transportation Plan (RTP) update. As part of the update, WILMAPCO developed five land use growth scenarios that considered: 1) current land use projections; 2) acceleration of development in the southern part of the MPO's planning region ("southern growth"); 3) centralization of this "southern growth"; 4) redevelopment of the region's northern half; and 5) slower growth in the region. WILMAPCO also tested two transportation scenarios relating to: 1) RTP constrained projects; and 2) RTP constrained projects plus modest transit improvements.

In addition, WILMAPCO has started integrating scenario planning into its resiliency activities. As WILMAPCO's planning region includes the Delaware coastline, sea-level rise is an issue of concern. The agency developed inundation scenarios for New Castle and Cecil counties as part of a sea-level rise vulnerability assessment to identify at-risk infrastructure and critical roadways that would be potentially impacted by sea-level rise. Mr. Blevins noted that identifying the critical roadways was useful, particularly for planned projects; if a project is planned and identified in the RTP but within an inundation area, WILMAPCO can use the scenarios to consider how potential sea-level rise impacts might affect the project and modify project design accordingly. The scenarios allow WILMAPCO to evaluate the cost of maintaining existing infrastructure in the event of sea-level rise. WILMAPCO also partnered with the University of Delaware to explore sea-level rise impacts on the I-95 Corridor in Delaware. The study further examined the impacts that sea-level rise and storm surge might have on the region's transportation network, population, and land uses, and presented recommendations for how sea-level rise impacts can be addressed in the transportation planning process.

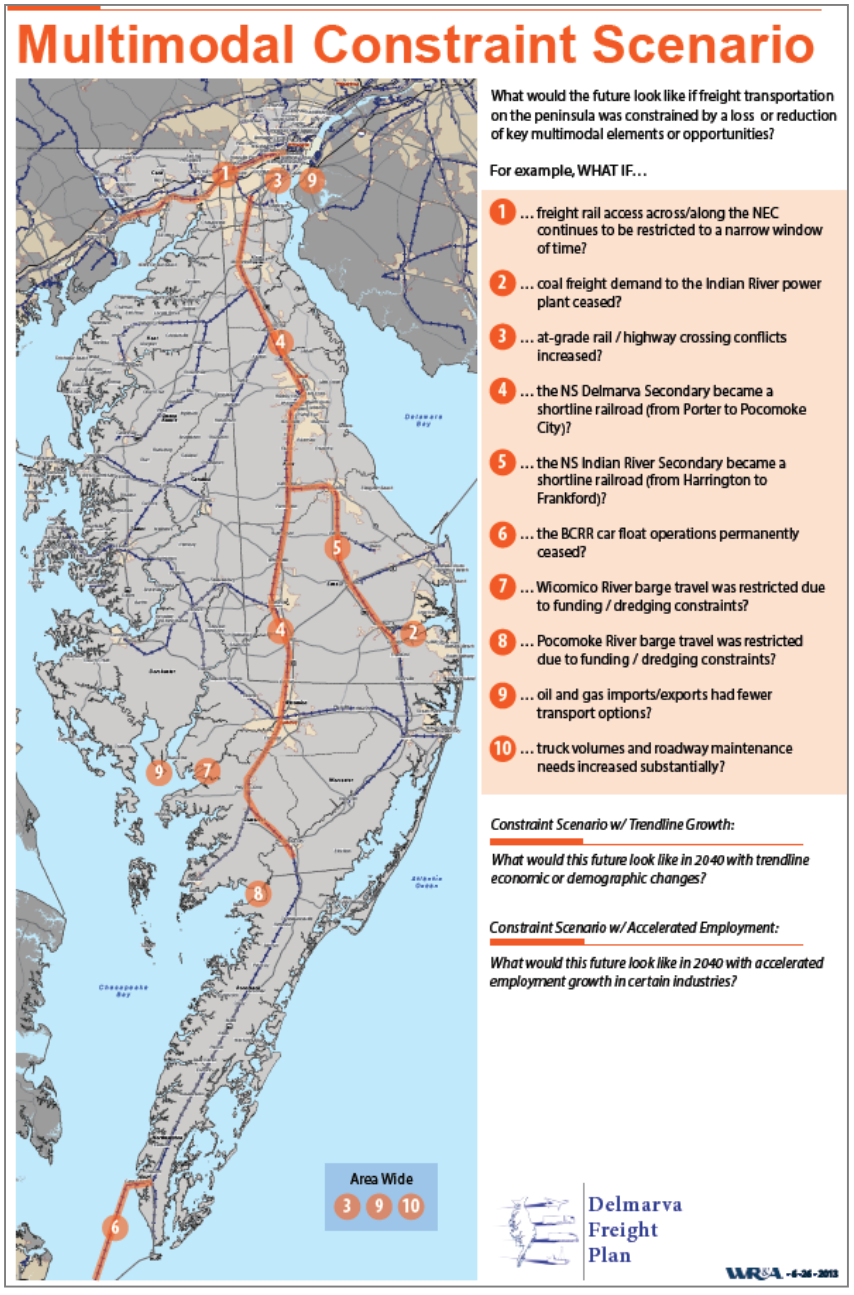

Figure 4: Multimodal Constraint Scenario from the Delmarva Freight Plan
Source: WILMAPCO

Lastly, Mr. Blevins discussed WILMAPCO's scenario planning work tied to freight. WILMAPCO developed the Delmarva Freight Plan, a multi-modal effort across several States and MPOs that evaluated the region's freight system along the Delmarva Peninsula.[5] Using Cube Cargo[6], the plan integrated freight flows, commodity flow modeling, and performance-based scenario planning and identified key factors "to react to" (e.g., rail service loss, port expansion or market shifts, inland waterway loss) and "to influence" (e.g., rail service efficiencies, intermodal infrastructure, infrastructure preservation). The resulting scenarios addressed future constraint possibilities such as decreased rail access on the Peninsula or increased reliance on trucks as well as multi-modal improvements such as expanded or improved rail facilities and enhanced intermodal facility access (Figure 4).

Pikes Peak Area Council of Governments

Craig Casper, Transportation Director, PPACG

PPACG is the MPO for the Colorado Springs region in Colorado. Similar to GRPC, PPACG has a military base presence in its region, with five military bases located within the region's bounds. Extreme weather is also an issue; however, for PPACG, the focus is on addressing extreme weather events instead of sea-level rise. Mr. Casper focused his presentations on PPACG's continued use of scenario planning over three long-range plan cycles and how the agency continues to innovate on new opportunities for scenario planning.

PPACG first began using a scenario planning approach in 2006 as part of the investment philosophy for its LRTP update (Figure 5). PPACG evaluated the cost of transportation projects in the LRTP and realized that they were unreasonably low and that it would not be possible to keep all of the projects in the plan with their updated cost estimates. Many of the projects listed were new road projects, and there was a limited focus on maintenance. The effort led to the creation of four scenarios addressing 1) business-as-usual; 2) maintenance (e.g., what do we need to do to maintain the existing system); 3) mode shift (e.g., what if we invest more in transit, or in pedestrian and bicycle facility improvements); and 4) "Transportation Systems Management and Operations", or TSMO (e.g., operational improvements, or how can we make corridors/lanes work better).

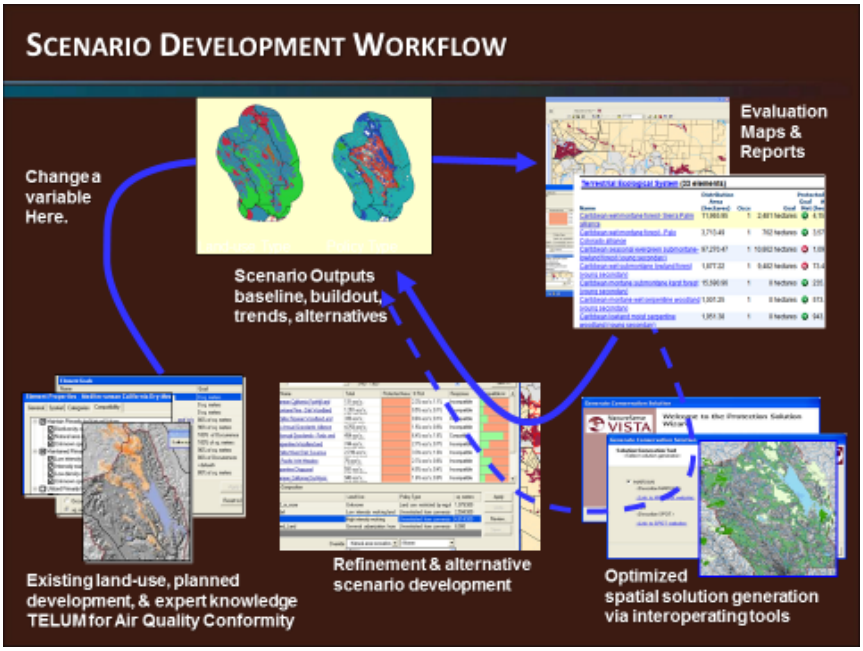

Figure 5: PPACG developed the workflow diagram (above) to demonstrate its scenario planning process.
Source: PPACG

The PPACG region has been growing since the 1960s when it had 30,000 residents; today, the population is approximately 684,000. The region also has a relatively young demographic, particularly males 18-25 years of age due to the large military base presence. New roads had been needed originally,

[5] For more information on the Delmarva Freight Plan, please visit: http://www.wilmapco.org/delmarva/.
[6] For more information on Cube Cargo, please visit: http://www.citilabs.com/software/cube/. Reference of this tool is provided in this report as part of the summary of the WILMAPCO presentation; this reference is not meant to endorse Cube Cargo or any particular scenario planning tools. FHWA recognizes that many tools are available and encourages agencies to use the tools that work best for them.

but now, the region also needed to allocate resources to maintain the existing transportation system. PPACG used the FHWA HERS-ST tool to estimate its maintenance needs into the future.[7] Advocates also expressed interest in encouraging more transit and pedestrian and bicycle trips. The intergovernmental Major Thoroughfares Task Force further provided input on operational improvements and ways to improve traffic flows on existing roads. PPACG collected input from advocates, the Task Force, and from the public on how investments should be allocated through a series of scenario development workshops. Through the workshops, stakeholders indicated preferences to invest in maintenance, mode shift, and TSMO, and to develop a hybrid scenario that reflected elements of these three original scenarios. PPACG also worked with its board of directors to invite agencies and stakeholders that make decisions that impact, or are impacted by, transportation investments to provide input; this group included many Federal and State resource and regulatory agencies. By broadening its stakeholder group, PPACG was able to obtain input on goals for the region beyond transportation (e.g., preserving the environment, increasing density downtown).

For PPAC's second use of scenario planning in 2010, instead of investment portfolio scenarios, PPACG staff created four land-use scenarios for the 2035 LRTP update focusing on: 1) infill development; 2) sprawl or "accelerated trend" development; 3) environmental protection (e.g., presenting the environmentally least damaging options); and 4) the preferred scenario. The preferred scenario was a hybrid of the other three scenarios, which assembled beneficial aspects of each of the previous three scenarios in order to accomplish the goals of the multiple partner agencies participating in the planning process.

PPACG applied a variety of tools and models to evaluate and assess its scenarios, including several free resources offered by Federal agencies: Transportation Economic Land Use System (TELUM)[8]; Motor Vehicle Emission Simulator (MOVES)[9]; and the Nonpoint-Source Pollution and Erosion Comparison Tool (N-SPECT)[10]. PPACG used CommunityViz to estimate broader impacts of the scenarios tied to economic, environmental, and social factors.[11] NatureServe Vista[12], an ArcGIS extension, allowed PPACG to model the scenarios' ecological impacts, including on species, habitats, and ecosystems. PPACG is also currently participating in the SHRP2 PlanWorks Implementation Assistance Program, which focuses on ways to improve how agencies develop, prioritize, and inform transportation plans and projects.[13]

The scenario tools and inputs helped PPACG when evaluating transportation projects. PPACG scored each and every transportation project against the three base scenarios. Through this evaluation, PPACG identified that 75 percent of the funding should go to the same core list of projects no matter how the region grew. As a final step, PPACG evaluated the assembled portfolio of projects against the preferred scenario.

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[7] For more information on HERS-ST, please visit: https://www.fhwa.dot.gov/infrastructure/asstmgmt/hersindex.cfm.

[8] TELUM is a tool sponsored by FHWA to help transportation agencies allocate regional growth and evaluate the land use impacts of transportation projects. Information on TELUM is available at: http://www.telus-national.org/products/telum.htm

[9] The U.S. Environmental Protection Agency's MOVES is an emission modeling system for estimating mobile source emissions across projects, counties, regions, and the Nation. For more information, please visit: https://www3.epa.gov/otaq/models/moves/

[10] The National Oceanic and Atmospheric Administration (NOAA) offers N-SPECT, or the open-source version known as "OpenNSPECT," which simulate potential water quality impacts from land uses and extreme weather events. Information on N-SPECT and OpenNSPECT is available at: https://coast.noaa.gov/digitalcoast/tools/opennspect.

[11] For more information on CommunityViz, please visit: http://placeways.com/communityviz/. Reference of this tool is provided in this report as part of the summary of the PPACG presentation; this reference is not meant to endorse CommunityViz or any particular scenario planning tools. FHWA recognizes that many tools are available and encourages agencies to use the tools that work best for them.

[12] NatureServe Vista, developed by NOAA and the NatureServe, integrates conservation and land use/resource planning data. For more information, please visit: https://coast.noaa.gov/digitalcoast/tools/natureserve-vista.

[13] Information about SHRP2 PlanWorks can be found at: https://fhwaapps.fhwa.dot.gov/planworks/.

Florida Department of Transportation

Maria Cahill, Senior Policy Analyst, Growth Management, FDOT

The theme of Ms. Cahill's presentations presented "a look back, a look at today, and a look ahead." Her presentations covered FDOT's scenario planning activities, for the Florida Transportation Plan and on resiliency and sea-level rise, as well as examples of scenario planning in Florida led by two of the State's MPOs.

Since the creation of FDOT, the State has seen a tremendous increase in population growth. In 2015, Florida surpassed New York as the third largest State. FDOT projects that, by 2040, the State's population will be growing older, becoming more diverse, and getting younger.[14] This growth has led to planning challenges and considerations related to congestion and vehicle-miles traveled; uncertainty over the impacts of autonomous vehicles; and transit boardings, which have increased slightly but still remain a small portion of overall travel patterns.

To begin planning for multiple futures as part of the statewide Florida Transportation Plan update, FDOT engaged in an alternative futures effort. FDOT held a series of public workshops and hearings to define the futures and develop goals, objectives, and strategies for each. Through the effort, FDOT determined common themes across all of the futures and emphasized that no one scenario might be the future. FDOT developed four scenarios, which it named after movie themes, to help demonstrate what each represented:

- "Groundhog Day," which demonstrated a return to Florida's historical growth patterns, where there was high population growth and a continuation of suburban development patterns;
- "It's a Small World," which focused on the global expansion of freight and on Florida as a global gateway for trade;
- "Tomorrowland," which emphasized technological innovations and a trend towards a younger workforce, expansion of the State's aerospace industry, and more residents living in urban areas;
- "Back to the Future," which focused on increased development in the State's rural areas and a rapid expansion of telecommuting technologies and renewable energy, as the population transitioned to a more suburban/rural lifestyle; and
- "Stormy Weather," which looked at possible risks for the State's future such as more extreme weather events, slowing in-migration, and the loss of one or more industries.

To develop the characteristics of each scenario, FDOT started with a technical team that included statewide, regional, and local transportation and industry partners. FDOT also organized a consulting team to prepare the data on trends. The State DOT then held a series of regional workshops to engage the public on defining the trends. While FDOT developed the initial idea for the movie themes in-house, it refined the characteristics for each scenario at the workshops. FDOT further engaged its steering committee through development and implementation of the plan update to make sure that each partner supported the adopted Florida Transportation Plan.

Lastly, Ms. Cahill shared information on FDOT's scenario planning activities on resiliency and sea-level rise and on other scenario planning efforts occurring in the State. In 2011, FDOT began the process of updating the Florida Transportation Plan, which is updated every five years. The Plan complemented an Energy and Climate Change Action Plan developed in 2008 by the Governor's Action Team on Energy and Climate Change. The Climate Action Plan presented strategies for climate change data and decisionmaking and initially supported much of the research conducted by FDOT on resilience.

[14] According to research performed by the University of Florida, Bureau of Economic and Business Research, using information from the U.S. Census Bureau, 24 percent of the State's population will be over 65 years of age in 2040 and 30 percent of the population will be Hispanic in 2040. In addition, the State will face the demands of serving both older and younger populations; as of 2010, 33 percent of the State's international immigrants are under the age of 25.

Strategies included monitoring assets and evaluating facility design and reconstruction to ensure that transportation assets continue to meet performance standards. In partnership with the University of Florida GeoPlan Center, FDOT developed a sea-level scenario sketch planning tool to assess transportation infrastructure potentially at-risk to projected sea-level rise. The tool follows a method designed by the U.S. Army Corps of Engineers for sea-level rise scenarios and allows users to view sea-level trends at the regional level using three components: a map viewer, GIS data layers, and a sea-level rise inundation surface calculator. The tool contributes to FDOT's commitment to address resiliency and FHWA's larger process tied to resiliency planning and vulnerability assessment (Figure 6).

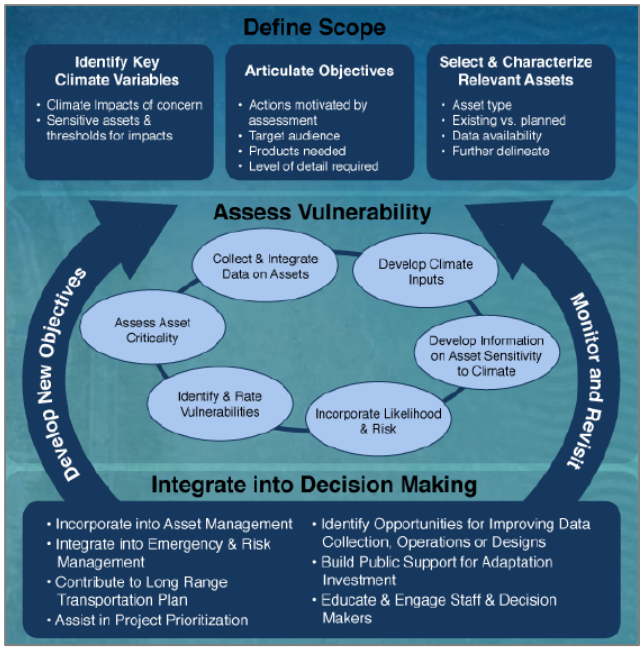

Figure 6: FDOT's sea-level scenario sketch planning tool supports a broader process for resiliency planning and vulnerability assessment.
Source: FHWA Climate Change and Extreme Weather Vulnerability Assessment Framework

Scenario planning is also growing as a resource for transportation planning in Florida. Ms. Cahill presented short case studies on the Hillsborough County MPO for Transportation and the Broward County MPO, which both participated in the FHWA Climate Change Resilience Pilot Program.[15] Hillsborough County MPO conducted an effort to simulate a significant storm event and evaluate its potential disruption to the transportation network and to the economy. The Hillsborough MPO adopted two different scenarios, one with minor improvements assumed and the other with more aggressive improvements assumed. Under the adopted scenario, the Hillsborough MPO anticipated that it would be able to cut economic losses in half. The Broward MPO focused its effort on network irregularities in connection with three climate stressors. The Broward MPO is using the pilot to collect information on hurricane evacuation routes so that it can determine the costs of adapting existing transportation facilities in the event of a significant storm.

Group Discussions: Themes, Challenges, and Next Steps

After the first set of peer presentations, workshop participants engaged in a group discussion to share perspectives and lessons learned from the peers' scenario planning experiences (Figure 7). These ideas and key takeaways from the peers' presentations are summarized below:

- *Scenario planning is a flexible approach that can meet different goals.* The peers each shared perspectives on their agencies' reasons for using scenario planning. For PPACG, it was about making more informed decisions. WILMAPCO saw scenario planning as a way to further establish a link between transportation and land use. FDOT recognized the flexibility in planning that a scenario planning approach can provide, particularly when trends seem to be moving in different directions.

[15] For more information on the FHWA Climate Change Resilience Pilot Program, please visit: https://www.fhwa.dot.gov/environment/climate_change/adaptation/resilience_pilots/.

- *"The only thing we know for sure about our growth forecasts is that they are wrong."* This quote shared by PPACG demonstrates the reality that no scenario created will ever be fully correct. Through data collection and analysis and stakeholder involvement, transportation agencies can develop scenarios that reflect "what-if" stories about plausible futures. These scenarios, however, are not meant to predict the future but rather to open discussions about what a community might want for its future.

Figure 7: Participants engage in a group discussion during the workshop.
Source: USDOT Volpe Center

- *Select an appropriate planning horizon as well as a manageable number of scenarios.* FDOT looked at a 50-year vision for its statewide transportation plan, but oftentimes, it can be difficult to predict a future so far away. WILMAPCO and PPACG noted that they typically hold to a 25-year planning horizon. The peers also agreed that the best number of scenarios is often less than six. PPACG originally aimed for five scenarios but then scaled back to four given the significant time investments needed to develop each scenario.

- *Scenario planning can help address a latent demand for stakeholder input.* PPACG and WILMAPCO shared that their scenario planning efforts were met with tremendous support from the public, particularly the bicycling community. PPACG also partnered closely with regional, State, and Federal agencies to demonstrate the value of its scenario planning activities. FDOT found success in focusing on the trends of coastal storms, sea-rise level, and tidal flooding as part of its scenarios to engage the public.

- *Consider carefully how information is conveyed, both for collecting input about scenarios and describing the scenarios themselves.* The peers noted that presenting clear and concise information can help strengthen public knowledge of scenarios and scenario planning concepts. PPACG used dots and dot densities to depict its region's residential and employment densities instead of relying on traditional transportation terms such as TAZ that may not be as familiar to stakeholders. While the movie titles used for FDOT's scenarios were not included in the final Florida Transportation Plan, the titles helped convey the main concept of each scenario during the public engagement process.

- *Move ahead with the data you have and begin to take action.* The peers discussed that scenario planning is not an area where agencies can ever stop collecting data. Because of the volume of data, there will always be additional data needed that was not available as part of the process. The goal is to maximize the data available and move forward as much as possible.

- *Scenario planning is an ongoing process.* Just as MPOs regularly update their LRTPs, scenarios also require updating. GRPC noted that transportation agencies need to provide opportunities for scenarios to evolve so that the scenarios can continue to be grounded in the current thinking of a community. Documenting the themes and characteristics of each scenario can help preserve thinking and provide a starting point for future updates.

At the last session of Day One, workshop participants shared ideas and feedback in a group discussion on next steps for scenario planning in Mississippi. These ideas are summarized below as each relating to a specific opportunity or connection. Feedback on the GRPC scenario planning tool was discussed more specifically as part of the Day Two discussions.

- *Opportunities and connections to comprehensive plans.* GRPC discussed that local jurisdictions will soon be updating their comprehensive plans. Mr. Blevins noted that WILMAPCO was able to coordinate its scenario planning efforts with a county comprehensive plan update occurring at the same time, which led to a land use scenario that tied into this plan update. GRPC's scenario planning tool uses designated land uses to define the GRPC region and "stitches" together all of the area's comprehensive plans. There will likely be opportunities moving forward to update the scenarios and inputs provided so that the scenario planning effort continues to evolve and reflect changes as the comprehensive plans are updated.

- *Opportunities and connections to military base planning efforts.* GRPC's upcoming JLUS and coordination with Keesler Air Force Base and the Naval Construction Battalion Center will allow for opportunities and discussions about how to balance future growth with potential compatibility issues near the bases. Scenario planning could be used to explore how growth near the bases might impact their missions and how the bases' activities might affect the community. GRPC's scenario planning tool could potentially leverage data from the JLUS to help show how growth and development patterns might relate to both the bases and the community in the future.

- *Opportunities and connections to public health.* Workshop participants discussed that scenario planning can be an opportunity to bring health considerations into the transportation planning process. One idea shared was to overlay "public health" data layers, if available, with open and green space layers. Participants noted that health data sources may be sensitive; PPACG discussed that it was able to add a "health in transportation" chapter to its 2035 LRTP by using a health analysis created by the region's schools, which PPACG then incorporated into its maps. Other opportunities tied to health could include focusing on recreational trips in addition to "purposeful" trips (e.g., to school, work, etc.), considering health as part of safety, and supporting Complete Streets policies.

- *Opportunities and connections to local resiliency planning efforts.* The City of Ocean Springs, Mississippi, recently received funding for a sea-level rise effort. The City performed an evaluation of its infrastructure and identified vulnerabilities. The evaluation showed an estimated 1.5 feet in sea-level rise over the next 150 years. Representatives from the Mississippi Department of Marine Resources noted that they are involved with the Gulf of Mexico Alliance, which works to address regional priority issues across the five Gulf States.[16] Other workshop participants noted that their agencies have received funding from NOAA to conduct scenario modeling, which may allow for future collaboration and partnerships.

Day Two Discussions

On the second day of the workshop, GRPC staff convened with the peers and FHWA representatives to discuss the ideas shared on Day One and further focus on next steps for GRPC's scenario planning tool.

Overview of SHRP2 C16 Rapid Policy Assessment Tool

Eric Pihl of the FHWA Resource Center joined workshop participants remotely using a webinar format at the start of Day Two to provide an overview of the SHRP2 C16 Rapid Policy Assessment Tool (RPAT). Mr. Pihl is the product lead for the SHRP2 RPAT initiative.

[16] Information on the Gulf of Mexico Alliance can be found at: http://www.gulfofmexicoalliance.org/

The goal of RPAT (previously known as "SmartGAP") is to provide agencies with a tool for integrated decisionmaking as part of land use development. RPAT has morphed into capabilities that go beyond high-level land use strategies; today, the product allows for a variety of investment strategies that agencies can couple to look at the synergies between demand and supply. Mr. Pihl noted that RPAT originally stems from the Oregon Department of Transportation's GreenSTEP model and therefore includes features relating to air quality emissions, energy use, and cost impacts over time.[17]

RPAT connects to scenario planning in that it allows agencies to formulate high-level alternative views of how the transportation system could look in the future. The tool presents the impacts of various factors on the transportation system, such as health, the economy, environment, and land use. Mr. Pihl noted that RPAT works particularly well as agencies move from the visioning stage to the planning phase and think about specific measures to represent planning factors in transportation plans (Figure 8).

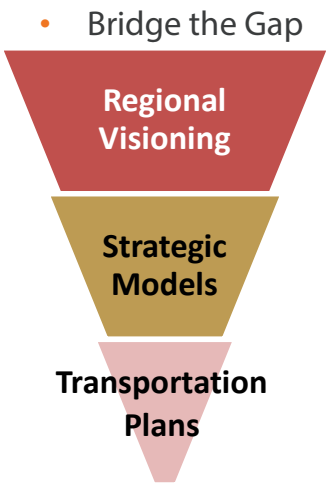

Figure 8: RPAT can help to "bridge the gap" between regional visioning efforts and transportation plans.
Source: FHWA

RPAT is a higher-level analysis tool that represents the dynamics between transportation supply and the individual characteristics of travel demand, the built environment, and policies. Mr. Pihl discussed that one of the interesting features of the tool is that it brings in data on household level demographic characteristics (persons by age and income) and firms (employees and industry), which relate to the composition of the local economy. The tool then allows users to better understand how individual households might react to changes in transportation policies (e.g., parking pricing). In addition, the tool can be run very efficiently, with hundreds of runs possible in a single day.

RPAT demonstrates impacts using a series of performance metrics, relating to direct travel, community, environment and energy, finances and the economy, and land market and location. For a full list of the performance metrics used by RPAT, please see Appendix E. RPAT communicates run results through bar charts for each scenario, including a scenario's metrics. All of the scenarios pivot off of a base scenario. By visualizing the scenarios and performance metrics through bar charts, RPAT can easily show the similarities and differences between scenarios. As a next step, FHWA is working to add an interactive dashboard to RPAT so that users will be able to move a "wheel" for each performance metric and see the shift in impacts in real time.

Mr. Pihl concluded his presentation by demonstrating the opportunity areas where RPAT can support the transportation planning process. State DOTs and MPOs can use RPAT to evaluate the performance of alternative policy scenarios and the extent to which they help meet and support regional goals and objectives. For example, the Delaware Valley Regional Planning Commission used RPAT to inform its public engagement effort known as "Choices and Voices." In addition, the Corvallis Area MPO in Oregon has implemented its own version of the performance metric "wheel," which FHWA plans to integrate into RPAT more formally. At each decision point, RPAT can help demonstrate the linkages between transportation systems, the built environment, and related impacts.

Overview of GRPC Scenario Planning Tool

Following Mr. Pihl's presentation, Ken Holland of GRPC provided a demonstration of the GRPC scenario planning tool. Mr. Holland reviewed the functionalities of the tool and showed participants how the tool works. The tool uses the scenario planning platform INDEX and offers a pre-loaded list of performance indicators.[18] Mr. Holland noted that the tool has many functionalities, including one that allows users to

[17] For more information on GreenSTEP, please visit: https://www.oregon.gov/ODOT/TD/TP/Pages/greenstep.aspx.
[18] For more information on INDEX, please visit: http://www.planningtoolexchange.org/tool/index. This reference is not meant to endorse INDEX or any particular scenario planning tools. FHWA recognizes that many tools are available and encourages agencies to use the tools that work best for them.

clone scenarios and another that provides a “paint” feature to highlight the area to be included in a scenario (Figure 9).

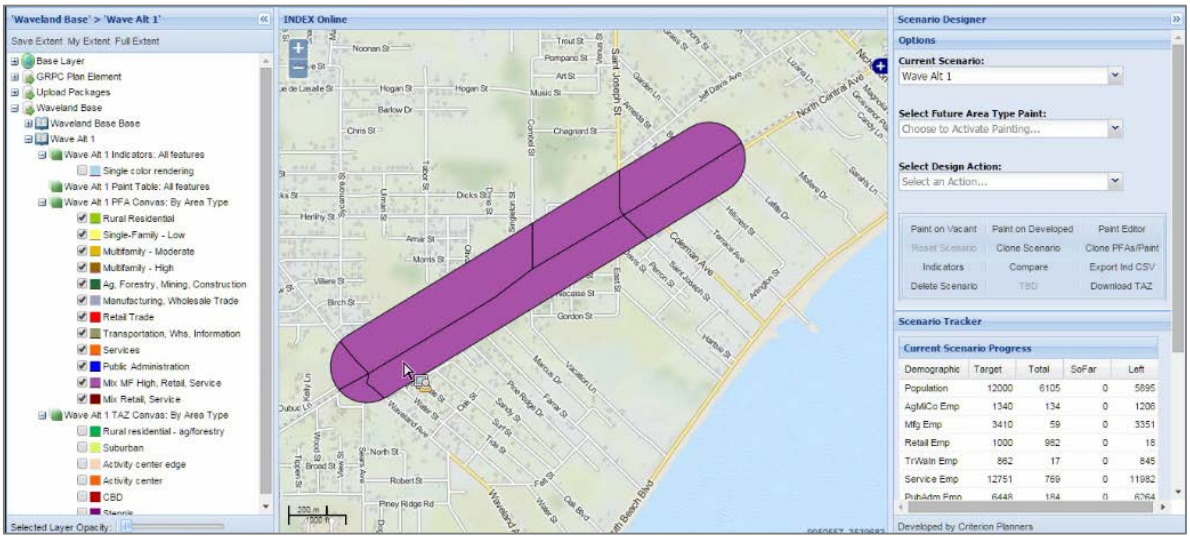

Figure 9: Snapshot of GRPC scenario planning tool
Source: GRPC

Feedback and Next Steps on the GRPC Scenario Planning Tool

GRPC, the peers, and FHWA staff discussed potential opportunities for GRPC’s scenario planning tool. Ideas shared included adding data for bicycle and trail networks so that users could “paint” a scenario in which a new trail is developed; incorporating economic data sources; leveraging the tool for local communities’ comprehensive plan activities; and using it for visualization and micro-simulation to demonstrate scenarios for decision makers and elected officials. Participants discussed that new data layers could be added to the tool to expand its functionalities and allow for continued updates.

As next steps, GRPC plans to further focus on opportunities for the scenario planning tool and ways to tie it to current planning activities in the region, particularly upcoming comprehensive plan updates. GRPC staff also noted that there may also be opportunities to explore developing a common vision for growth in the region as part of a future scenario planning effort.

Conclusion and Next Steps

The FHWA scenario planning workshop, hosted by GRPC, provided an opportunity to explore the concept of scenario planning and its connections to resiliency and military base planning. During the workshop, participants also discussed potential opportunities for using scenario planning in Mississippi as well as ways to leverage GRPC’s existing scenario planning tool for future transportation planning activities.

The three peers—FDOT, PPACG, and WILMAPCO—offered insights into their agencies’ scenario planning activities, allowing workshop participants to gain a stronger understanding of the various ways scenario planning approaches can be applied.

Participants’ evaluation forms submitted at the end of the workshop indicated that their knowledge of scenario planning grew as a result of their attendance at the event. In addition, participants expressed that the most critical ideas learned during the workshop included: 1) learning about the variety of scenario planning and development tools available and how scenarios relate to joint land use activities; and 2) the connections between scenario planning / land use concepts and marine resources, public health, and economic development. These ideas and connections can serve as potential resources for GRPC moving forward as part of the next LRTP update.

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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C. Event Participants

FIRST NAME	LAST NAME	AGENCY
Eliot	Allen	Criterion Planners
Paul	Barnes	Harrison County
Dan	Blevins	Wilmington Area Planning Council
Scott	Burge	Central Mississippi Planning and Development District
Maria	Cahill	Florida Department of Transportation
Lesley	Callender	Central Mississippi Planning and Development District
Craig	Casper	Pikes Peak Area Council of Governments
Karen	Clark	Mississippi Department of Marine Resources
Geneva	Dummer	Heritage Trails Partnership
Nathan	Foust	Gulf Coast Community Design Studio
Kevin	Gillam	U.S. Navy / Gulfport
Jeremy	Harrison	City of Gulfport
Sammy	Holcomb	Mississippi Department of Transportation
Carolyn	Martin	City of Ocean Springs
Stephanie	Plancich	GRPC / MS Gulf Coast MPO
Rhonda	Price	Mississippi Department of Marine Resources
Gary	Randall	U.S. Navy / Gulfport
Leslie	Robertson	City of D'Iberville
Ed	Shambra	City of Biloxi
Rachel	Strauss	U.S. DOT / Volpe National Transportation Systems Center
David	Taylor	GRPC / MS Gulf Coast MPO
Jim	Thorne	FHWA Resource Center
Daphne	Viverette	Mississippi Department of Marine Resources
Bernie	Walker	U.S. Navy / Gulfport
Elaine	Wilkinson	GRPC / MS Gulf Coast MPO
Kenneth	Yarrow	GRPC / MS Gulf Coast MPO

D. Workshop Agenda

Gulf Regional Planning Commission (GRPC)
Scenario Planning Workshop
Sponsored by the Federal Highway Administration (FHWA)
Biloxi, Mississippi

Dates: March 15-16, 2016

Host Agency: GRPC

Facilitator: Jim Thorne, FHWA Resource Center

Peers:

- Florida Department of Transportation (FDOT)
- Pikes Peak Area Council of Governments (PPACG)
- Wilmington Area Planning Council (WILMAPCO)

Workshop Overview:
This 1.5-day workshop, hosted by GRPC, explores scenario planning, from its use in long-range transportation planning and implementation to its applications for local land use, coastal, resiliency, and military base planning. Peer experts from FDOT, PPACG, and WILMAPCGO will provide presentations on their agencies' scenario planning activities and perspectives on using scenario planning in the transportation planning process.

Workshop Goals:
Introduce the concept of scenario planning; "operationalize" broader use of GRPC's scenario planning tool; institutionalize and implement scenario planning in the transportation planning process; and address resiliency and military base planning linkages.

DAY ONE

Time	Session	Speaker(s)	Objective(s)
8:30 - 9:00	Registration and Check-in		
9:00 - 9:15	Welcome and Introduction	• David Taylor Planning Director, GRPC • Claiborne Barnwell Team Lead, Project Development Team, FHWA Mississippi Division • Jim Thorne FHWA Resource Center; Workshop Facilitator	
9:15 - 9:45	Getting Started: An Overview of Scenario Planning	• Jim Thorne FHWA Resource Center; Workshop Facilitator	
9:45 - 10:15	Where Are We Now?: A Look at Trends in the Region	• Ken Holland Senior Planner, GIS, GRPC • Kenneth Yarrow Planning Manager, GRPC	
10:15 - 10:30	BREAK		

10:30 - 11:45	Peer Panel 1: Three Agency Perspectives on Scenario Planning	• Dan Blevins Principal Transportation Planner, WILMAPCO • Maria Cahill Senior Policy Analyst, Growth Management, FDOT • Craig Casper Transportation Director, PPACG
11:45 am - 12:15 pm	Group Discussion: Scenario Planning in the Mississippi Context – Potential Themes and Challenges	Workshop Facilitator, Participants
12:15 - 1:00	LUNCH	
1:00 - 1:15	Recap of Morning / Introduction of Afternoon Sessions	• Jim Thorne FHWA Resource Center; Workshop Facilitator
1:15 - 1:45	Current Connections: Joint Land Use Studies	• Elaine Wilkinson Executive Director, GRPC
1:45 - 3:00	Peer Panel 2: Designing Scenarios to Fit Your Agency's Context	• Dan Blevins Principal Transportation Planner, WILMAPCO • Maria Cahill Senior Policy Analyst, Growth Management, FDOT • Craig Casper Transportation Director, PPACG
3:00 – 3:15	BREAK	
3:15 - 4:00	Group Discussion: Next Steps for Scenario Planning in the Mississippi Context	Workshop Facilitator, Participants
4:00 - 4:30	Recap of Day / Wrap-up	Workshop Facilitator, GRPC Staff

DAY TWO

Time	Topic	Speaker
8:30 am - 9:00	Registration and Check-in	N/A
9:00 - 9:15	Review of Day One / Set the Stage	Workshop Facilitator, Peers, GRPC Staff
9:15 - 9:45	Overview of SHRP2 C16 Rapid Policy Assessment Tool	• Eric Pihl SHRP2 C16 Product Lead, FHWA Resource Center
9:45 - 10:15	GRPC Scenario Planning Tool	• Ken Holland Senior Planner, GIS, GRPC
10:15 - 10:30	BREAK	
10:30 - 11:15	Round Table Discussion #1: Feedback on the GRPC Scenario Planning Tool	GRPC Staff, Peers, FHWA Staff
11:15 - 11:45	Round Table Discussion #2: Next Steps for the GRPC Scenario Planning Tool	GRPC Staff, Peers, FHWA Staff
11:45 am - 12:00 pm	Wrap-up and Conclusions	GRPC Staff

E. 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/

FHWA Climate Change and Extreme Weather Vulnerability Assessment Framework
http://www.fhwa.dot.gov/environment/climate_change/adaptation/adaptation_framework/

U.S. Army Corps of Engineers Sea-Level Change Curve Calculator
http://www.corpsclimate.us/ccaceslcurves.cfm

Online resources relating to Hillsborough County and Broward MPO pilots (as provided by Ms. Cahill):

- http://www.fhwa.dot.gov/environment/climate_change/adaptation/resilience_pilots/index.cfm
- http://www.planhillsborough.org/hillsborough-transportation-vulnerability-assessment-pilot-project/
- http://www.browardmpo.org/index.php/current-projects-studies/adapting-to-climate-change
- http://www.satellitebeachfl.org/Pages/ResilientCommunityProject.aspx
- http://www.satellitebeachfl.org/Documents/09-23-14%20-%20Coastal%20Resiliency%20SB%20Public%20Meeting.pdf
- http://www.southeastfloridaclimatecompact.org/compact-documents/
- http://www.broward.org/NaturalResources/ClimateChange/Pages/MeetingProcedures.aspx

SHRP2 Rapid Policy Assessment Tool Website
https://planningtools.transportation.org/551/rapid-policy-analysis-tool.html

Transportation Research Board - SHRP2 Capacity Research: “Effective of Smart Growth Policies on Travel Demand”
http://onlinepubs.trb.org/onlinepubs/shrp2/SHRP2_S2-C16-RR-1.pdf

RPAT Performance Metrics (as provided by Mr. Pihl):

Direct Travel Impacts
- Daily VMT
- Daily Vehicle Trips
- Daily Transit Trips
- Peak Travel Speeds by Facility Type
- Vehicle Hours of Travel
- Vehicle Hours of Delay

Community Impacts
- Public Health Impacts and Costs
- Equity Impacts

Environment and Energy Impacts
- Fuel Consumption
- Greenhouse Gas Emissions
- Criteria Emissions

Financial and Economic Impacts
- Regional Highway Infrastructure Costs
- Regional Transit Infrastructure and Operating Costs
- Annual Traveler Cost

Land Market and Location Impacts
- Regional Accessibility

F. Acronyms

COG	Council of Governments
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GIS	Geographic Information Systems
HUD	U.S. Department of Housing and Economic Development
JLUS	Joint Land Use Studies
LRTP	Long-Range Transportation Plan
MPO	Metropolitan Planning Organization
RPAT	Rapid Policy Assessment Tool
RTP	Regional Transportation Plan
SHRP2	Second Strategic Highway Research Program
TAZ	Traffic Analysis Zone
TOD	Transit-Oriented Development
TPCB	Transportation Planning Capacity Building
USDOT	U.S. Department of Transportation