



PlanWorks Case Study

Performance-Based Metropolitan Transportation Plan and Transportation Improvement Program Pima Association of Governments



This case study is an excellent example of broad collaboration in a performance-based planning approach for developing the long-range transportation plan. Although the Pima Association of Governments did not use PlanWorks, the PlanWorks Stakeholder Collaboration and Performance Measures Applications will be very useful in helping other agencies collaborating for a similar purpose.

Executive Summary

Pima Association of Governments (PAG) is the MPO representing the Tucson, Arizona region of approximately one million residents. The 2045 Regional Mobility and Accessibility Plan (2045 RMAP), adopted on May 26, 2016, is PAG's first performance-based metropolitan transportation plan in response to Federal performance requirements under MAP-21 and the FAST Act. The 2045 RMAP was developed through a cooperative process involving representatives from PAG's nine member agencies (including Arizona DOT), the business community, higher education, stakeholder organizations and other community representatives. Public input was also critical to developing the plan, with engagement occurring across all phases of the plan's development.

During the development of 2045 RMAP, a range of transportation issues were considered along with their ties to regional economic, environmental, demographic, and fiscal concerns. The 2045 RMAP clearly identifies regional goals to address these issues and includes more than 40 performance measures and targets that analyze performance outcomes for the transportation system. Using this performance-based framework, the plan includes more than 220 projects.

This case study highlights PAG's effective interagency coordination and public involvement practices to select the 2045 RMAP performance measures and targets and the application of these criteria through subsequent phases of the long-range transportation planning, corridor planning and programming processes.

Agency's Challenge

From 1975 to 2005, as a result of steady in-migration, the population of the Tucson region doubled to an estimated one million

Project Snapshot

PAG collaborated with the public, regional stakeholders, and partners in developing the 2045 RMAP as indicated below.

- Extensive and innovative public involvement techniques established public priorities through each of the plan's four major phases.
- A 30-member task force representing many different stakeholder interests played a key role in the development of the performance metric and targets.
- PAG leveraged an earlier land use visioning effort and partnered with another MPO to develop an online scenario planning tool to select the region's preferred alternative.
- PAG is currently developing a data portal and automated report creation tool to support its performance-based programming goals.

residents. However, Arizona was hit particularly hard in the housing crash and subsequent economic downturn of the late-2000s, which saw population growth rates in the state slow considerably. Given these changes, demographic forecasts presume slower growth for the Tucson region.

Further, travel patterns are shifting. The number of residents aged 65 or older are expected to double within the 2045 RMAP's 30-year planning horizon. Access to necessary goods and services will pose a challenge for this aging population assuming the region's existing development and travel patterns prevail. Additionally, younger residents of the region, including a significant number of local college and university students, are demonstrating preferences for alternatives to private vehicle travel, and both the region and the nation as a whole witnessed decline in the number of miles travelled by private vehicles in the years preceding the plan. Factors believed to contribute to this decline, such as growth in e-commerce and telecommuting, suggest vehicle miles travelled will continue to grow at a slower pace than has historically been the case.

Like many other MPOs, PAG faces funding shortfalls from declining Highway Trust Fund and State motor fuel tax revenues. Additionally, a ½ cent excise tax passed to fund the 2006 voter-approved Regional Transportation Authority plan continues to underperform expectations. These funding deficits are reflected in a deteriorating state of repair on the region's roadways, with an estimated 37 percent of the network rated in poor condition.

With an increasingly uncertain future for traditional sources of transportation funding, the Tucson region continues to explore alternative revenue streams to close funding gaps and ensure the continued good order of its transportation system.

2045 RMAP Planning Process

2045 RMAP builds upon goals and concepts identified in earlier planning efforts. However, PAG took additional steps in the plan's scoping stage to ensure 2045 RMAP aligned with the performance-based and outcome-based approach mandated by MAP-21 and reaffirmed with the FAST Act. These mandates seek to ensure State and regional investments further national transportation goals such as improved efficiency

Decision Guide Connections

This case study illustrates several of the Long-Range Transportation Planning key decisions and some from other phases.

- LRP-1. A stakeholder task force was convened and a public engagement plan created to guide the development of the RTP.
- LRP-2. Surveys and workshops were conducted to incorporate the public's priorities.
- LRP-3. The task force developed 47 performance measures and targets.
- LRP-5. Fiscal constraint was forecast from five funding sources.
- LRP-6. Over 95 implementation strategies were developed for regional jurisdictions to realize the plan's concept.
- LRP-7. Using public and stakeholder input, PAG developed four funding alternatives.
- LRP-10. Following a public comment period, 2045 RMAP was presented to the region's three decision making bodies for review and approval.
- PRO-4. PAG is developing a tool that will allow them to apply the performance framework developed in 2045 RMAP to regional programming activities.
- COR-5. The programming tool will be used to score corridor projects for TIP prioritization.

of the surface transportation system and reduced project delivery delays. In addition to meeting the performance and outcome-based requirements of recently enacted federal transportation authorities, the plan is required to comply with, include, or otherwise address ten factors outlined in the federal regulation governing the scope of the metropolitan transportation planning process (23 CFR 450.306). Many of these factors align with the national goals set forth in the performance-based planning requirements of MAP-21 and the FAST Act.

To ensure a wide diversity of perspectives were

represented in the development of 2045 RMAP, PAG convened a 30-member task force including individuals representing Arizona DOT, bicyclists and pedestrians, business and economic development, environmental interests, freight, neighborhoods, Pima County Health Department, the Pascua Yaqui Tribe, persons with disabilities, private development, Pima County, seniors, the Tohano O’odham Nation, towns and municipalities within PAG’s planning jurisdiction, transit, Tucson Electric Power, and University of Arizona. With task force input, PAG developed a plan to incorporate public involvement and outreach through each of 2045 RMAP’s four major phases (Figure 1):

1. Goal setting and priority identification.
2. Development of alternatives.
3. Project evaluation.
4. Selection, review and approval of the final RMAP project list.

PAG’s planning documents, including those produced during the 2045 RMAP planning phase, are reviewed and approved by three committees composed of government representatives from each of PAG’s nine member agencies. The Transportation Planning Committee (TPC), whose membership is made up of appointees from the DOT or public works directors of each member jurisdiction, serves as PAG’s technical committee and as the primary representatives of local jurisdictions. The Management Committee, which is composed of city and town managers or their equivalents from each jurisdiction, serves as PAG’s policy advisory committee. Additionally, the Regional Council, which is made up of the chief elected officials from each jurisdiction, serves as PAG’s governing board, setting policy direction for the agency. PAG made an effort to meet with each of the three decision-making committees on a regular basis throughout the 2045 RMAP planning process as new information or recommendations became available in order to ensure their familiarity with each of the plan’s major elements.

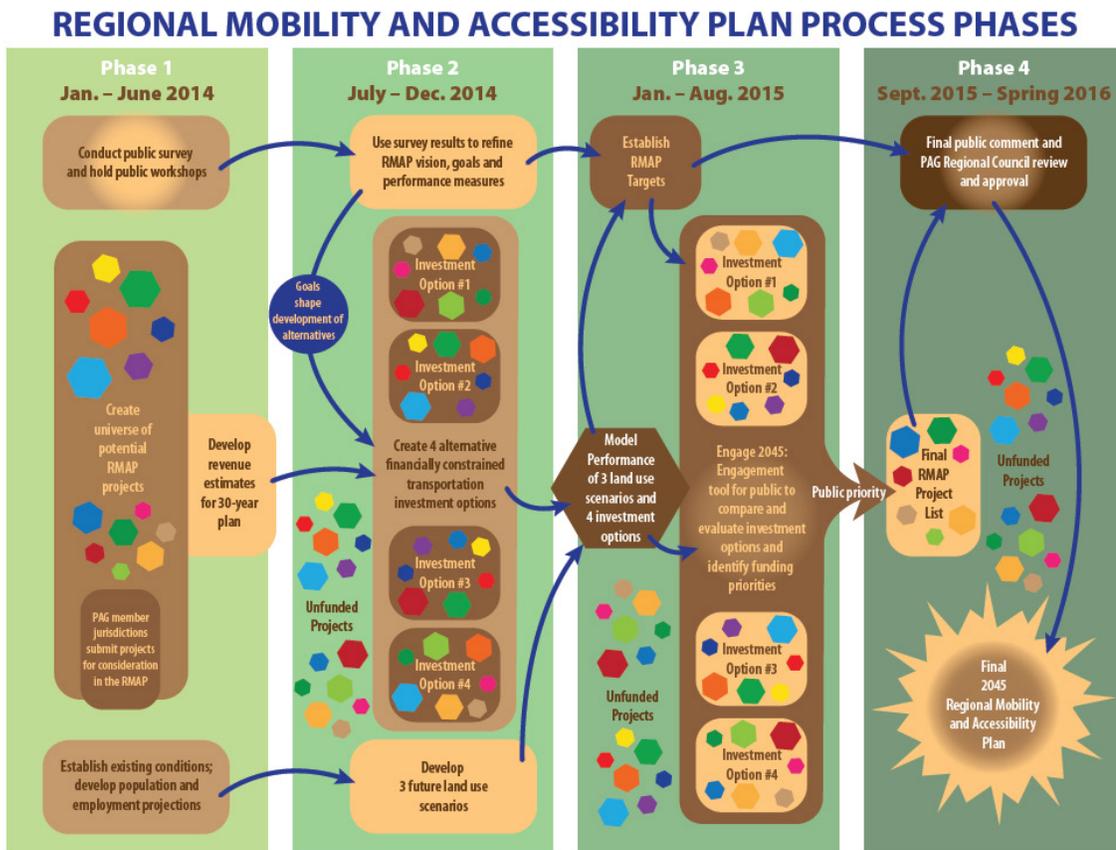


Figure 1

Source: PAG

Figure 1: Public involvement was integral to each of 2045 RMAP’s four major phases.

Visioning and Goal Setting

To establish the region’s transportation goals and priorities at the onset of the 2045 RMAP process, PAG conducted an online survey and a series of interactive workshop sessions with the community, both of which were available in English and Spanish. These public engagement activities provided input from over 1,100 residents of the Tucson region. Task force members also reached out to members of their respective communities and encouraged these individuals to participate in the development of 2045 RMAP’s regional goals and visions. In addition to sharing their own viewpoints, task force members played a further role in the shaping of regional priorities by advocating for these community perspectives in meetings held during each of the key decision phases of plan development.

The input received from the public engagement activities and meetings with the task force members was crucial in shaping the 2045 RMAP Vision, Goals, and Strategies document, which identifies an overall vision, planning process goals, 7 system-level goals, and a series of strategies to address the region’s transportation opportunities and challenges. This document was used to guide the subsequent phases of the plan’s development.

The dominant themes that emerged from the public surveys and workshops conducted during the visioning and goal setting steps of the 2045 RMAP planning process included a need to prioritize improvements of roadway conditions and cross-town mobility and to enhance popular transit corridors. Given forecast changes to regional population composition, as well as recent changes in travel preferences and behaviors, considerable need for paratransit and bicycle/ pedestrian improvements were also identified.

Developing Performance Measures and Targets

Using themes and ideas received through the public engagement process, PAG worked closely with the task force through each phase of 2045 RMAP including operationalizing the region’s goals and objectives through the development of performance measures, benchmarks and plan targets. Ultimately, 47 performance measures and targets were developed for 2045 RMAP. By providing clearly defined end goals and metrics for measuring their achievement, this

approach bolsters the region’s transportation decision-making by strengthening the relationship between long-range planning efforts and short-term project implementation outcomes. 2045 RMAP is the first of the region’s long-range transportation plans to take this performance based approach to project selection and implementation.

Notably, most of the 47 performance measures and targets are localized, and go beyond the National Performance Measure provisions identified in MAP-21 and the FAST Act and 23 CFR 490. For example, in Figure 2 the safety and congestion performance measures are the required National Performance Measures and the remainder are local. The reasons for developing additional performance measures were twofold. Firstly, at the time PAG was developing the 2045 RMAP, the Federal rules for establishing performance measures and targets had yet to be released. Therefore, PAG decided to develop a performance-based long-range plan that would be in the spirit of the Federal legislation, even if this meant certain measures were not perfectly aligned with what would later be released through the formal rulemaking process. The intent was for the 2045 RMAP to be consistent with Federal transportation goals in the absence of specific measures. Secondly, PAG developed performance measures that went beyond Federal requirements in order to better reflect the public feedback received during plan development and to better represent conditions affecting the

Goal	Objective	Performance Measure	Current	2020 Benchmark	2045 Plan Target
System Maintenance	Improve the condition of roadways in the Tucson region	Percentage of federal-aid roadways rated in "poor" condition	37% in poor condition	Under 30% in poor condition by 2020	Below 20% poor by 2045
Safety	Reduce total roadway injuries and fatalities	Total 5-year average of roadway fatalities	100	95	Reduce by 25%
Multimodal Choices	Increase the mode share of walking, biking and transit	5-year average walk, bike or transit to work rate (American Community Survey)	6.7%	7.25%	Increase to over 10%
System Performance	Minimize increase in congestion on the arterial and freeway network	Percent of peak hour VMT traveled under Level of Service E or F	1.15%	1.2%	1.8%
Land Use and Transportation	Improve regional access to jobs and other essential services, such as medical, shopping and recreation	Number of regional jobs the average person can reach in 30 minutes by automobile	240,221	Increase by 7%	Increase by 45%
Environmental Stewardship	Reduce per capita annual on-road greenhouse gas emissions	Annual per capita on-road greenhouse gas emissions	3.63 tons per person annually	Reduce by 5%	Reduce by over 30%

Figure 2. Six of the 47 Performance Measures from 2045 RMAP.

traveling public. These measures included more focus on alternative transportation modes as well as considering areas of the network beyond what is required for Federal reporting (this is largely related to the measures that are focused on the National Highway System, which accounts for a relatively modest portion of the transportation network in the PAG region.)

Identifying Transportation Needs and Financial Constraints

To support decision-making, PAG evaluated existing transportation system conditions and developed population and employment forecasts for the plan's horizon. Using this data, PAG analyzed current and projected transportation needs. To ensure adequate funding for the projects included in 2045 RMAP, the financial component of the plan forecasts future revenues from five transportation funding sources, including:

- Federal highway funds
- State funds
- A ½ cent excise tax approved by voters in 2006
- Local funds from sources such as development impact fees
- Federal transit grants and discretionary grants

In order to determine availability of revenues for potential transportation investments, PAG calculated total anticipated revenues then compared this figure to revenues committed to specific projects or purposes such as local jurisdictional responsibilities and funds restricted to certain uses such as bike and pedestrian improvements. The remainder of funds are said to be flexible, with the region free to use these revenues at their discretion.

Creating Policy Strategies to Address Regional Transportation Deficiencies

2045 RMAP includes over 95 implementation strategies. The strategies are action steps that can be taken by regional jurisdictions, by PAG itself, or by the entire community in order to address regional needs and realize the plan's concepts. Sample strategies include:

- Explore new sources of funding such as public and private partnerships, congestion pricing, vehicle miles traveled fees, etc. in order to develop a diversified funding stream that will adequately meet transportation needs in the future.
- Improve the connections between transit facilities and major destinations within and beyond the region to allow for easier travel for non-driving populations.
- Integrate Vision Zero, the policy of reducing and ultimately eliminating all traffic deaths and serious injuries in the transportation system, into all levels of transportation planning.

In addition to the funding strategies highlighted above, PAG's Economic Vitality Committee developed a white paper to identify means to close the region's transportation funding gaps.

Developing Regional Growth and Investment Scenarios

2045 RMAP anticipates that the Tucson region will add approximately half a million new residents within the plan's 30-year horizon. The distribution of this growth will be an important determinant of future transportation demand. Based on current forecasts, the City of Tucson is expected to grow 40 percent within the next three decades, with unincorporated areas of Pima County expected to grow at similar rates; the neighboring towns of Marana and Sahuarita are expected to more than double in population.

Using the recession and housing market slowdown as an opportunity to explore how the region wanted to grow, a nonprofit called Imagine Greater Tucson led a community visioning process that asked residents about their opinions on future land development patterns, the economy, and environmental protection. PAG provided funding and technical resources to assist with this effort. Over 6700 residents of the region participated in visioning workshops and online surveys hosted by this group. This visioning process resulted in a preferred land use scenario where infill and densification would be the focus of development and greenfield developments would be minimized. Because land use policy decisions are locally determined, and their outcomes fairly well predicted, PAG incorporated these future land use scenarios into an analytical

2045 RMAP Investment Options				
CONTINUE REGIONAL FUNDING	OPTION 1 Maintain our current approach to funding.	OPTION 2 Invest more to repair and maintain roads.	OPTION 3 Invest more in bike, pedestrian, and transit infrastructure.	OPTION 4 Invest more in higher-speed cross-town corridors.
ROAD REPAIR AND MAINTENANCE	\$2 billion Funding level likely leads to further deterioration of roadways.	\$3.6 billion Funding level brings most major roads up to good condition.	\$3 billion Significant improvement in road conditions.	\$3 billion Significant improvement in road conditions.
ROADWAY EXPANSION	\$5.7 billion Adds substantial capacity and new roads. Largest expansion of road network of the 4 options.	\$4.3 billion Adds moderate capacity and some new roads, but fewer new lane miles than Option 1.	\$3.7 billion Fewest new roadway lane miles of 4 options.	\$5.5 billion Focuses on adding capacity and reducing travel times on major cross-town corridors.
BIKE AND PEDESTRIAN IMPROVEMENTS	\$450 million Funding adequate to address about 1/2 of identified bike and pedestrian needs.	\$450 million Funding adequate to address about 1/2 of identified bike and pedestrian needs.	\$800 million Funding meets most identified needs.	\$365 million Funding adequate to improve bike and pedestrian conditions in the most critical locations.
TRANSIT OPERATIONS AND UPGRADES	\$4.3 billion Adds rapid bus service on 5 routes, includes 2 streetcar extensions, and commits \$150 million to improve existing bus services.	\$4.1 billion Adds rapid bus service on 5 routes, includes 1 streetcar extension, and commits \$150 million to improve existing bus services.	\$4.9 billion Adds rapid bus service on 5 routes, includes 2 streetcar extensions, 1 light rail project, and commits \$200 million to improve existing bus services.	\$3.6 billion Adds rapid bus service on 4 routes.

Figure 3. RMAP Investment Alternatives.

framework to compare the performance of 2045 RMAP’s transportation investment alternatives.

In addition to the preferred regional growth scenario that emerged from the Imagine Greater Tucson community visioning process, PAG considered two additional growth scenarios. The “business as usual” or trend scenario was based on prevailing development patterns where urban sprawl dominates. A third scenario was based upon PAG’s interpretation of the comprehensive plans for jurisdictions, which included mixed infill as well as outward growth, representing a midpoint between the other two scenarios. Together, these three scenarios represented a continuum of possible development outcomes given forecast population growth.

Using the public and stakeholder input gathered in preceding phases of the long-range planning process, PAG then applied the fiscal constraint to develop four transportation investment alternatives. Each of the four options focused on a different set of goals and performance outcomes using identical revenue constraints. These options were developed by shifting the flexible funding sources to emphasize a particular element of the transportation system. Further, PAG considered two alternate funding constraint scenarios.

One of these assumed that the 1/2-cent regional transportation excise tax would be extended by voters beyond its current sunset in 2026, while the other assumed the tax would not be extended.

Next, PAG staff performed a series of travel demand model runs to compare performance outcomes across the different growth scenarios, transportation investment scenarios, and funding scenarios. Altogether, a total of 28 model runs were performed including an analysis of current conditions given forecast growth. This effort allowed PAG to forecast performance outcomes resulting from different combinations of regional growth, funding and investment alternatives.

Engaging the Public to Establish Investment Priorities

For the second public input phase, PAG developed an online public engagement tool called Engage 2045. The inspiration for Engage 2045 was Delaware Valley Regional Planning Commission’s (DVRPC) Choices and Voices visioning tool. Choices and Voices was used during the Greater Philadelphia region’s long-range transportation planning process to allow residents of that region to select their preferred combinations of regional growth scenario, transportation investment alternatives, and funding levels and to understand the performance outcomes of these combinations.

During the scoping stage of the 2045 RMAP process, PAG staff identified DVRPC’s scenario planning tool and contacted DVRPC directly. DVRPC staff supported PAG in their effort to develop a similar online scenario planning tool for 2045 RMAP by sharing their code and concepts.

By incorporating the outputs of PAG’s 28 travel demand model runs, the Engage 2045 tool created a simplified exercise that replicated the 2045 RMAP decision making process and provided a performance comparison for different combinations of growth, funding and investment alternatives. Engage 2045 forced users to consider the trade-offs inherent in transportation decision-making in a fiscally constrained environment, mirroring the broader planning process. Engage 2045 prompted participants to input basic demographic and travel behavior info before taking them through an additional five-steps that allowed users to explore how growth impacts transportation and envision how the nature and magnitude of transportation investments affects key performance

outcomes in each of the growth scenarios. Figure 4 illustrates how Engage 2045 is used to demonstrate decision making tradeoffs (in this case, how a multimodal investment scenario results in outcomes like improved transit ridership and decreased VMT per capita at the expense of pavement condition and travel time).

The Engage 2045 tool was online for six weeks during which time over 1900 people participated, sharing their preferred development and investment alternatives. Themes that emerged from this second phase of public engagement included preferences for system maintenance and preservation; availability of multimodal choices; and relatively modest capacity expansions to meet future mobility needs. The input received through the scenario process resulted in a hybrid of the investment options that was closest to Investment Option 2 (see Figure 3) in terms of funding priorities, with additional recommended funding increases for transit as well as bicycle and pedestrian infrastructure. This input directly informed 2045 RMAP's investment priorities. Because of input from participants, funding was allocated largely between maintenance, bicycle and pedestrian improvements, and public transit.

Establishing Air Quality Conformity

Before 2000, the Tucson region was designated a nonattainment area for the carbon monoxide (CO) health standard under the Federal Clean Air Act Amendments of 1990. However, approval of the Tucson Air Planning Area's Carbon Monoxide Limited Maintenance Plan (CO LMP) in 2000 and again in 2010 removed the conformity requirements. Modeling of regional CO emissions continues for comparative purposes and continued determination of air quality attainment. The modeling results from the PAG 2045 build scenario demonstrate that CO levels are projected to decrease over the plan's 30-year horizon despite expected increases in the total number of vehicle miles travelled (VMT). This is largely attributed to stricter federal tail pipe emission standards, fleet turnover, and improvements in fuel efficiency.

While the Tucson area has attained acceptable CO levels, recent changes to the US EPA's ozone standards have put the region within one percentage point of the nonattainment threshold for that pollutant. Given this,

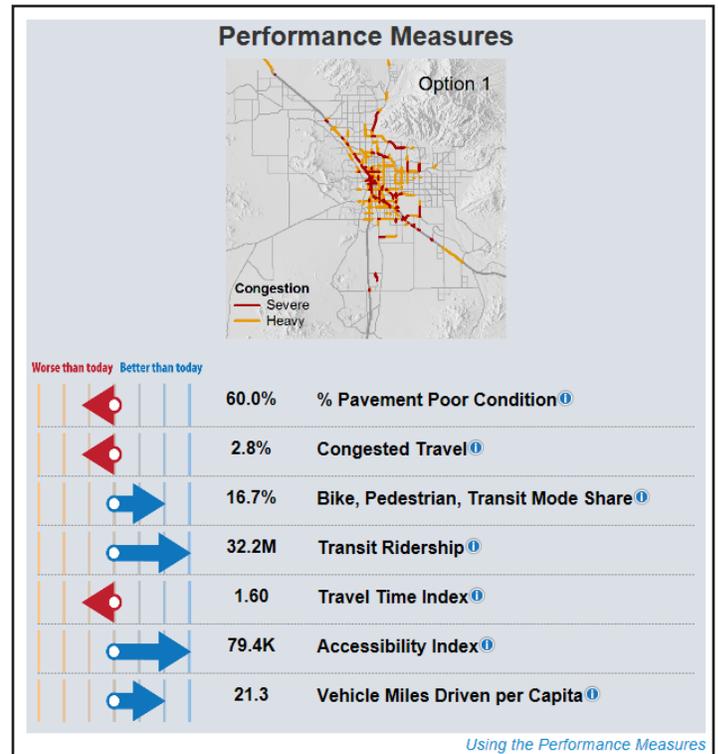


Figure 4. Engage 2045 demonstrates the transportation system performance tradeoffs inherent in fiscally constrained investment scenarios.

the region's commitment to VMT reduction programs as well as its promotion of alternative transportation and clean fuels will remain important components to ensuring healthy air quality in the Tucson area. 2045 RMAP links the region's air quality conformity goals back to specific strategies, performance measure and targets using its performance management framework. For example, 2045 RMAP encourages the planning area's member jurisdictions to support the expansion of alternative fuel vehicles to reduce regional on-road emissions and sets regional performance measures and targets such as the reduction of weekday metric tons of CO emissions by 12 percent by 2020 and 70 percent by 2045. Additionally, the incorporation of forecast land use changes from the growth scenarios allowed PAG to evaluate air quality impacts of the investment alternatives.

Adopting the Preferred Plan Scenarios and Approval of 2045 RMAP

The Engage 2045 process led to the identification of funding priorities, objectives and targets, and a final list of 2045 RMAP projects and programs. Using this performance-based framework, the plan includes

more than 220 projects in the following categories: multimodal roadway capacity improvements; system maintenance and modernization; transit; bicycle/pedestrian; regional programs (e.g., alternative energy and alternative fuel vehicle infrastructure, incident management); and local funding priorities. The use of Engage 2045 also allowed PAG to identify a range of reasonably expected outcomes for the transportation system in 2045 – this was very valuable for PAG staff and the task force in helping to select specific long-range targets.

Engage 2045 has had a life after its use as a tool to aid the 2045 RMAP planning process. With minor modifications, PAG continues to use this online resource as an educational tool to communicate the links between growth and the transportation system, as well as illustrate the necessary tradeoffs of transportation investment decision-making in a fiscally constrained environment. It has also proven valuable in the agency's travel demand management efforts. DVRPC later featured the Engage 2045 tool in a webinar about how their efforts could be used in other communities as an innovative approach to public engagement.

The draft plan with the final RMAP 2045 project list was made available for public comment at four open houses and online. These open houses were well attended and public comments were received and integrated into the process for developing the final plan.

While PAG met with the region's three decision-making committees throughout the planning process, agency staff waited until the end of the planning process to seek approval of the entire 2045 RMAP. The first step in this process was to present the completed plan to the TPC for review and a recommendation of approval. 2045 RMAP was then submitted to PAG's Management Committee with the TPC recommendation of approval. The Management Committee was then given the option to accept and recommend approval to PAG's Executive Director, recommend changes and send back, or vote to not recommend approval. Following Management Committee approval, 2045 RMAP was brought to PAG's Regional Council with the recommendation to approve or not approve from the Executive Director. The Regional Council made the final determination to approve and adopt 2045 RMAP on May 26, 2016.

Linking Performance Based Planning and Programming

PAG is currently developing a data portal and performance report creation tool that will allow them to apply the performance management framework developed in 2045 RMAP to regional programming activities. This approach allows PAG staff to model the outcomes of proposed investments according to performance measures and targets established by 2045 RMAP and to automate the creation of performance reports for each proposed investment. Using this framework, PAG assigns scores to TIP corridor projects based on the degree that they address the region's transportation challenges and goals, including the regional investment priorities established with the Engage 2045 tool. These project scores and performance reports are used as a decision support tool for the TPC as they identify projects for inclusion in the region's 5-year TIP.

Stakeholder Collaboration

During the visioning and goal setting stages of 2045 RMAP, PAG conducted bilingual surveys and workshops to collect input from over 1,100 residents of the region. With this input, PAG developed four investment scenarios and used the Engage 2045 tool to solicit feedback on the alternatives from over 1900 residents, eventually leading to the selection of the preferred investment alternative. PAG continues to use the Engage 2045 tool demonstrate transportation system outcomes of different growth scenarios, and to educate the public on the necessary tradeoffs of allocating fiscally constrained transportation funding.

In addition to engaging the public, PAG convened a 30-member task force representing many diverse stakeholder interests to guide the development of 2045 RMAP's performance management framework and its strategies and priorities, including the identification of alternate funding sources (PAG also engaged its Economic Vitality Committee for this purpose). The task force continues to play an important role in the development of the region's performance-based programming framework. The ongoing participation of the three decision-making committees, comprised of appointees from local jurisdictions' DOTs or public works directors and the chief elected official from each member jurisdiction, ensured that each

jurisdiction's needs and priorities were well represented through all phases of the 2045 RMAP planning process.

Key Outcomes

The 2045 RMAP planning process took roughly two years to complete with several key outcomes.

- PAG incorporated public and stakeholder feedback through each of the four major phases of development, including the development of the plan's performance management framework.
- The use of the Engage 2045 tool was critical in identifying regional investment priorities; shifting funding towards maintenance and other projects that might have otherwise been allocated to capacity expansion.

- In addition to public and stakeholder input, PAG collected feedback from representatives of its nine member agencies during each of the plan's decision phases through in-person and online engagement tools, such as open houses and surveys.

These activities helped to ensure 2045 RMAP process was inclusive, transparent and accountable to residents, stakeholders and decision-makers, and helped to ground the plan in the region's values. The ongoing development of a performance-based programming framework will allow PAG to apply the public and stakeholder priorities and performance metrics developed during 2045 RMAP to funding for project implementation.

For more information

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Resources

- **2045 Regional Mobility and Accessibility Plan** <https://www.pagregion.com/documents/rmap/rmap2045/2045RMAP.pdf>
- **Engage 2045 Scenario Planning Tool** <http://gismaps.pagnet.org/rmapengage/>
- **Connections 2040 Choices & Voices Scenario Planning Tool (Delaware Valley Regional Planning Commission)** <https://www.dvrpc.org/asp/ChoicesAndVoices/>