

MOVING TOWARD PERFORMANCE-BASED TRANSPORTATION PLANNING IN RURAL AND SMALL METROPOLITAN REGIONS

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About the NADO Research Foundation

Founded in 1988, the NADO Research Foundation is the nonprofit research affiliate of the National Association of Development Organizations (NADO). The NADO Research Foundation identifies, studies, and promotes regional solutions and approaches to improving local prosperity and services through the nationwide network of regional development organizations. The Research Foundation shares best practices, offers professional development training, analyzes the impact of federal policies and programs on regional development organizations, and examines the latest developments and trends in small metropolitan and rural America. Most importantly, the Research Foundation is helping bridge the communications gap among practitioners, researchers, and policymakers. Learn more at www.NADO.org and www.RuralTransportation.org.

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Introduction

Performance measurement ties the vision and direction set in a strategic planning process to decisionmaking efforts, such as planning for the transportation network. Analyzing data over time can show how program implementation is affecting performance. Performance-based transportation planning and programming examines information about the transportation network and sets up a framework for developing goals and prioritizing projects according to meeting the needs of system users. State departments of transportation (DOTs) have increasingly encouraged or required their regional partners to include performance measures in their regional plans, and regions have formalized their planning and programming processes to include more formal project selection processes.

Why measure performance? Rural transportation networks may not have ready access federal, state, or local funding resources for making major transportation improvements that would result in a significant change in performance. Transportation funding in many places, rural and urban, continues to be limited, and states and local governments are seeking feasible ways to raise new funds. Performance measurement takes time to conduct and requires data about the transportation system, but it can demonstrate to the public, public officials, and legislators what they are getting for their investments, how a new funding source could affect transportation outcomes, and what the impacts of what the impacts of lack of investment could be. Finding performance information may require requesting data from partners or sharing data with them. This can open up new lines of communication, dialogues about goals and strategies, and shape the way that information is shared in the future, even outside of the specific dataset requested. Over time, measurement can show whether a new investment strategy has been successful, or expose assumptions about the transportation system, travel patterns, or the effects of investment that are holding back progress.

This report draws on research and training efforts conducted by the NADO Research Foundation from 2010 – 2014 and with support and guidance from the Federal Highway Administration. Throughout this period, the NADO Research Foundation collected planning documents from rural, regional transportation planning organizations, held interviews and conversations about planning and performance measurement with regional planning professionals and their state partners, and conducted training and outreach on performance measurement where discussion in the sessions also informed the research effort.

The research found that many organizations are adopting measures and considering performance measurement carefully. The efforts of state DOTs and state legislatures to increase performance culture play a significant role in determining the extent to which regional agencies are moving toward performance measurement. In many cases, a strategic planning framework is already well entrenched in RTPOs' planning processes and could be adapted to include systematic performance measurement.

Some of the strategies to move toward performance-based planning used by RTPOs, MPOs, and state DOTs that participated in the research include working with partners on data, analysis, selecting measures, and creating measurement frameworks; communicating the information that resonates with the audience; using data to drive decisionmaking; making use of funding scenarios and plan alternatives to understand the performance implications of potential future investment decisions; and more.

Name Game: Agencies Involved in Regional Planning

In about 30 states, the state department of transportation contracts with regional agencies to conduct nonmetropolitan transportation planning activities in support of statewide planning. In some states, this practice was established in response to state statute, while in others, the process was established over time to help states meet increased federal requirements such as for public involvement and outreach to local officials. In many instances, these regional organizations are referred to as rural planning organizations or regional transportation planning organizations (RPOs or RTPOs), or other similar names. RTPOs are often housed in a parent agency that conducts other regional functions, such as a regional planning commission, council of governments, or regional economic development district. However, other organizational models also exist, such as a regional or county transportation commission, a county planning office that staffs an RTPO program on behalf of one or more counties, a metropolitan planning organization (MPO) completing rural planning tasks for its surrounding rural area, or a state DOT's district or regional office staffing the RTPO.

For the first time in federal statute, Moving Ahead for Progress in the 21st Century (MAP-21), the national surface transportation authorization passed in 2012, established a common definition for and list of required tasks for RTPOs. RTPOs established before MAP-21's passage often already complete many or all of the planning elements required in statute and generally conform to the law's requirement for institutional structure. Over time, these existing agencies may go through a process within their states to become formally designated as RTPOs according to the federal definition, and new organizations in other states might also become RTPOs. However, some states and organizations might choose to continue operating in a less formal practice of one or two-year contracts with no formal designation, to support a work program that contains some, but not all, of the required elements in MAP-21.

Regional transportation planning in nonmetropolitan areas usually includes tasks similar to work that metropolitan planning organizations complete, along with technical assistance to local governments on topics that rural localities may be less likely to have in-house expertise.

Rural, regional transportation planning organizations often complete public involvement and local official outreach, long-range planning, short-range transportation improvement programs or unranked lists of high priority projects, technical assistance to local governments on transportation issues, grant applications, and other tasks in support of statewide transportation planning and local transportation objectives.

Regional planning and development organizations (often abbreviated as RDOs) can be the lead planning agency for an RTPO, but in states with no regional nonmetropolitan planning, they may be involved in other planning, economic development, and human service activities on a regional basis. Their responsibilities may include economic development planning or business retention and recruitment, technical assistance to local governments on planning, cooperative purchasing, public administration, assistance with public works, community development, or human services grants, and other tasks supporting local governments and communities. States that do not have RTPOs may still have regional agencies interested in taking an active role in public or local official outreach, in suggesting potential transportation projects that support economic development goals and are a shared priority for member

jurisdictions, in collecting data, or providing administrative support for local transportation organizations such as a short line railroad or a corridor alliance. The performance of the transportation network is central to fulfilling the goals of each of these non-transportation planning functions, so these organizations may wish to become active in transportation performance management, even if not performance-based planning and programming. This report suggests roles for engaging in state and local transportation performance efforts even when regional planning is not occurring.

What Is Performance Measurement?

Transportation performance measurement connects strategic vision to desired outcomes, such as increased safety and mobility. It tells planners, decisionmakers, and the public about existing conditions of their transportation system and how their transportation goals are faring over time, and it can help to determine whether funds are adequate and whether policy decisions about types of transportation improvements can improve particular goal areas. Performance measurement is often thought of as a discreet and highly technical process, but it can be integrated into existing strategic planning processes. Although federal legislation creates a national transportation performance management framework, states, regions, and localities have increasingly adopted aspects of performance measurement as funds have become limited and the public has increased its scrutiny of how government works.

The 2012 surface transportation law Moving Ahead for Progress in the 21st Century (MAP-21) established a new process for measuring transportation performance and connecting it to planning. The legislation set asset management and safety as required performance areas for transit, as well as seven goal areas in the highway program: safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. The U.S. Department of Transportation began a rulemaking process after the law's passage to define measures for some of those goal areas, including pavement and bridge condition for the Interstate and National Highway System, safety, congestion and air quality, and freight movement.

Performance Measurement, Performance Management, and Policy Direction

Performance measurement and management are terms that are often used together. Performance measurement uses data on particular indicators to tell the story of how the transportation network is meeting strategic goals. The term performance management emphasizes how information from performance measurement can be used to direct investments and guide policies to manage the transportation network over time.

RTPOs may not be setting major transportation policy or raising revenues, but they still play a role in policy, and as a result have a role in integrating performance into transportation network management. When an RTPO identifies and recommends projects, corridors, or issues to its state DOT partners for funding or consideration, it is setting its own policy that those types of investments are important. Within an RTPO, this might mean focusing on particular types of projects, such as those that enhance safety or preserve the existing network, or on specific geographic areas, for instance, corridors that connect people to economic hubs and to essential services.

MAP-21 does not require rural regions to take any steps regarding performance measurement themselves. Rather, state DOTs and metropolitan planning organizations (MPOs) must set numeric targets to for those measures. States and MPOs are also required to develop plans that set a strategic direction for the agency and reports assessing system performance. The U.S. Department of Transportation, in turn, will deliver performance reports to Congress.

Even without specific, legislated tasks, rural areas and RTPOs might find it useful to use the federal legislation as a guide to move toward a performance measurement process themselves. Some may be asked to assist the state DOT with performance measurement, much as they do with other planning tasks in support of statewide planning such as public and local official engagement. Such supporting roles might include assisting with local official or stakeholder outreach that a state might engage in regarding target setting. RTPOs might decide to consider some of the same measures in their planning processes, where the measures make sense, so that their plans and priority projects are viewed in the same context as the state's own performance process, and locally supported projects can demonstrate how they contribute to the state's performance effort.

Strategies for Performance Measurement

Every state is approaching its own performance measurement process differently, and states are still waiting to implement new federal requirements before creating new structures with their regional partners. However, states are increasingly encouraging or requiring RTPOs, MPOs, and other partners to consider performance information in their planning activities.

Data-driven Prioritization: North Carolina

North Carolina has gone through a transformation in the way that projects are considered for inclusion in the STIP since 2009. The statewide strategic prioritization process initially was developed in response to an executive order of the governor and has continued to evolve based on lessons learned, models from other states, and statutory language. This data-driven process assigns a priority score to projects of all modes based on several performance measures, including benefit-cost, congestion, economic competitiveness, safety, freight, multimodal, pavement condition, lane width, and shoulder width. There are three pots of funding that projects may be assigned to: Statewide Mobility, Regional Impact, and Division Needs. For Statewide Mobility funding, each projects' score is based entirely on performance information, while for Regional Impact, the score is derived 70 percent from quantitative criteria and 30 percent local input, and Division Needs are scored at 50 percent local input and 50 percent quantitative data. The local input comes from the North Carolina DOT (NCDOT) Division, as well as the MPOs and RPOs served.

NCDOT makes data available to the MPOs and RPOs for their use in planning. The data include information about safety, pavement condition, congestion, and travel time. With the RPOs' staffing typically limited to one person with transportation as a main responsibility, RPOs often cannot fully use all the data available or to develop their own measures using data other than what NCDOT provides. In the 2014 round of prioritization, the regional planning entities were required to develop a

Selecting Measures

Selecting measures to use in a performance-based planning and programming takes consideration of several factors. Connecting the measures to the vision, goals, and objectives ensures that investment strategies are linked to the overall vision for the region. Identifying some measures that have some performance data already available and complement performance efforts at the state level can be beneficial for rural and small metro regions.

ranking process to determine their own prioritization, which made up the local input scores used in the state's prioritization. "In the first round, most of the regions used information that was easily on hand," says Patrick Flanagan, planning director for the Eastern Carolina Council. According to Flanagan, many of the measures that were easy to develop relate to project delivery, such as corridor continuity, whether a project appeared in a LRTP, whether it is a priority for local stakeholders, and how far along in planning and permitting process a project is. "Now, we have collected everyone's methodology, and we are looking for common criteria as well as unique criteria developed in just one region that could apply to everyone in the state." This information is being used as the state prepares for the fourth round of prioritization. For each round of prioritizing projects, NCDOT has used a work group made up of local partners such as MPOs and RPOs from the whole state, advocacy groups representing local and regional governments, and internal NCDOT staff from various offices and modes, and FHWA in an advisory capacity. Together, these partners have addressed evolution in criteria and weighting to implement prioritization statewide as part of the factors for selecting projects to include in the STIP.

Outside of the specific performance measurement process occurring in the state, North Carolina's 14 MPOs and RPOs serving the eastern portion of the state have formed the Eastern North Carolina MPO/RPO Coalition in order to advance shared interests, issues, and policies and address collective transportation needs. This group identified key economic assets shared across the 14 metro and rural regions: military, agriculture, health care, tourism, and education. This coalition became the forum for selecting shared project scoring criteria for Regional Impact and Division Needs projects, which was agreed upon by the NCDOT Division Engineer and all RPOs and MPOs within the DOT division. Rather than using a set of default weights for criteria, the eastern MPOs and RPOs and NCDOT were able to come up with unique formulas for prioritizing criteria that make up the local input portion of the project scores.

Takeaway: Use existing data where possible to get started in measuring performance.

Takeaway: Although different regions may have some different characteristics they want to measure, it can be worthwhile to partner with neighboring regions to identify community assets, economic ties, and transportation facilities and measures of high strategic importance that may be held in common, and use those to inform the performance-based planning and programming process.

For more information, visit www.ncdot.gov/performance/reform/prioritization and eccog.org.

CONSENSUS-BASED PROJECT DECISIONS AT THE FRENCH BROAD RIVER MPO

In order to ensure that project decisions go through a consensus-based approach, are consistent across plans, and represent the best possible decisionmaking, the French Broad River MPO completed a process to map projects from a variety of plans with different data sets over the last few years. The goal of the project mapping effort was to improve the project prioritization process for developing the region's TIP, as project sponsors suggested new projects even though other projects that had emerged from a consensus-based planning process did not progress. As the region continues its next plan update cycle that began in 2014, there will be an inventory of projects to draw from that appear in other strategic plans as well as information about projects that had been divided into phases to be delivered in segments, but never finished.

Paul Black, director of the French Broad River Metropolitan Planning Organization (a program of the Land-of-Sky Regional Council), recalls:

*When we first looked at the goals in our long-range plan and sat down with a subcommittee of our MPO to determine what kind of performance metrics would use to achieve the goals, we only had a couple of ideas. As a result, we decided to reverse engineer the process of picking criteria. The committee members intuitively know what projects are important to the region, so we had to deconstruct **why** a project is important, for instance its crash rate or its impact on congestion. When we tried to match up our long-range plan goals to the projects we were moving forward, we realized there was a disconnect: the region's number one goal is system preservation, but the long-range plan emphasizes improvements because the North Carolina DOT Division's generally handles preservation.*

Takeaway: Avoid starting from scratch by using information about the importance of projects already agreed upon by leaders and the public.

Takeaway: Existing plans and state and local policies (such as North Carolina's Complete Streets policy) provide ideas for selecting measures that connect to requirements or to regional priority issues.

For more information, visit www.fbrmpo.org.

Unified Regional Visions and Plans: Iowa

The Iowa DOT had embarked on its own initiative to identify and report on performance measures just before MAP-21 was enacted, with a new statewide plan adopted in 2012. Rather than continue to implement its own new set of measures to report to the Iowa Transportation Commission, the Iowa DOT is focusing its efforts on towards adopting the performance measure framework laid out in MAP-21 to also use in state-level reporting. The state anticipates that a cooperative target-setting process involving the MPOs and RTPOs will probably emerge following the finalization of federal regulations regarding performance measurement.

At the regional level, many of the Regional Planning Affiliations (Iowa's RTPOs) are housed in multijurisdictional organizations that also complete other community and economic development plans and programs. A handful of organizations across the state chose to combine their last long-range transportation plan updates with their regional economic development plan, known as the Comprehensive Economic Development Strategy or CEDS. The CEDS is a document required by the U.S. Department of Commerce's Economic Development Administration for its planning grantees. The Iowa Department of Transportation encouraged, but did not require, its RTPO partners to consider including performance measures in the last round of plan updates.

For the Southeast Iowa Regional Planning Commission, combining transportation with community and economic development plans made sense to streamline planning processes for one plan as opposed to two plans and to avoid planning fatigue by the public and local leaders. It also to more closely linked the desired outcomes of the planning process with decision making processes. The performance measures in the 2012 long-range plan were developed by the Comprehensive Economic Development Strategy Committee, and the region also utilized guidance from Iowa DOT on preliminary performance measures developed. The adopted performance measures align with specific strategies and action items developed in the plan. Since completed the long range transportation plan update, a priority action for the region has been determining the baseline levels for identified measures and the availability of performance data. As the process evolves in the future, the RTPO plans to have its CEDS Strategy Committee meet each year to evaluate the data and assess the process, the progress toward goals, and policy decisions that may be needed to meet performance goals.

Funding is a challenge for rural areas in Iowa as in many other places across the country. The RTPOs in Iowa receive an allocation of federal Surface Transportation Program and Transportation Alternatives Program funds to program local projects. However, the amount of funding is generally not enough to result in major changes to the transportation network, and is typically used for a few maintenance projects each cycle. Significant change in transportation network performance would likely be difficult to detect given current funding levels. Even so, the state sees a move toward measuring performance as a way of quantifying shortfalls and communicating the effects of underfunding transportation, with impacts on mobility and the economy emerging from deferred maintenance and a shortage of investment.

Takeaway: Combining transportation planning efforts with other issue areas can create efficiencies and improved public input. A unified regional vision guides investment and policies in all the areas covered in a plan, leading to performance measures and projects that are supportive of overarching plan goals. This also leverages planning funds by allowing agencies to collect and analyze background data,

such as socioeconomic data, once rather than multiple times for plans that may be on slightly different cycles, and to gather public input for multiple topics at one time.

Takeaway: Consider communicating the measures and a process for evaluating and evolving performance measurement from the very start. Rather than increasing the complexity for the Iowa Transportation Commission and others using performance data by having multiple sets of measures for audiences to examine, the state is initially focusing on meeting and reporting on the federally required measures.

For more information, visit www.iowadot.gov and www.seirpc.com.

Analyzing Measures and Investment Scenarios: California

States such as California have suggested that their regional partners to include performance measures in long-range plan updates. Up until now, the process was not very prescriptive. As a result, the measures included in the regions' plans looked fairly different and have often included output measures that track completion of plan elements and planning process, rather than focusing on characteristics of the system.

Going forward, California may formalize the types of measures that the RTPOs should be including in their long-range plans. In 2015, the California Department of Transportation, or Caltrans, will review all of the long-range plans completed by the MPOs and RTPOs (called Regional Transportation Planning Agencies, or RTPAs, within California) in the state to review particular characteristics of the plans. This will include an inventory of the measures that the plans contain, which models of assessing performance are used, and the purpose of the measures. This information will be used as the agency updates its long-range plan guidance for all the metropolitan and rural regional organizations in the state.

In 2014, the Nevada County Transportation Commission, one of the California's 26 rural Regional Transportation Planning Agencies, completed a study on performance measurement for pavement condition in the state's rural counties. Funded by Caltrans, the report analyzed pavement needs and funding scenarios, evaluated the outcomes of various funding levels, and recommended use of the Pavement Condition Index (PCI) as a measure common to all rural transportation agencies in California, not only in Nevada County. The report found that many agencies had historically used PCI and had standard data collection and analysis capabilities, so the data for that measure already exist. Compared to other ways of measuring pavement, PCI seemed most appropriate for the pavement surface types often found on roads in rural areas, such as chip seal.

In the course of the study, each RTPA was asked to set a numeric target for average PCI for their roads in 20 years. On a scale of 0 (failed pavement) to 100 (excellent condition), the agencies set targets ranging from 50 to 80, with an average target across the state of 68. The current average score for rural roads is 58, so many regions will need to find ways to improve their pavement condition in order to meet their targets.

The report also analyzed expected revenues and the ability to meet the RTPAs' pavement condition targets. Three funding scenarios were analyzed for their effects on local road pavement performance compared to meeting management standards across the state:

- impacts of continuing at the current funding level with a focus on preventive maintenance (expected \$6.7 billion shortfall in the form of deferred maintenance, and PCI decreases to 42)
- impacts of continuing at the current level with a focus on treating the worst assets first (expected \$8.1 billion-worth of deferred maintenance, and PCI decreases to 42)
- funding on the order of \$9.8 billion would be needed to meet the targets set by the RTPAs for pavement condition on local roads

This kind of information helps to plan for strategic investment in rural places. In California, 5.6 percent of the population resides in rural areas, and 14.2 percent of maintained lane miles are in rural places. However, the counties can only access 9.4 percent of available funding for pavement. The funding scenario analysis provides another information point to help the RTPAs make decisions, given the limited funding available. Although condition will be just one metric that RTPAs might use to rank projects in their programming process, knowing that preventive maintenance projects could help to save on the total amount of funds needed over time will be helpful in prioritizing. Scenario analysis that presents the magnitude of the funding gap to reach pavement condition targets can also shape the localities' efforts to raise local transportation funds, such as through local sales taxes or impact fees that are in use in some counties in California.

Dan Landon, executive director of the Nevada County Transportation Commission, sums up performance measurement trends in Nevada County, across California, and in many other rural and small metro places:

Performance measures justify the use of scarce resources—we need to show that we are selecting the best projects. In the past, we focused on safety, level of service, community input, and common sense. Now, there's an emphasis on meeting federal and state requirements and guidelines, and rural agencies will probably need to step up and show in their submittals for the STIP how projects will be consistent with meeting statewide targets. In the future, performance measurement will guide cost effective expenditure of public funds on infrastructure that achieves, state, regional, and community goals.

Going forward, Caltrans is likely to adopt the condition measure required to be reported on certain roads that will be developed through U.S. DOT rulemaking. The state's regional partners might consider adopting the same measure to achieve statewide consistency in reporting, monitoring, and evaluation of investment policies over time.

Takeaway: The transportation context in rural and metropolitan regions might lead them to identify different measures, such as pavement condition metrics that allow for different pavement types, or different targets, based on the available funding to focus on a particular performance effort.

Takeaway: Analyzing funding scenarios is a useful tool for understanding the impacts of investment decisions and documenting the need for resources.

Takeaway: Caltrans is seeking to build momentum by analyzing the performance efforts already underway and adding more guidance and consistency, an initiative that is likely to allow for continuity of effective planning practice while adding more performance elements.

For more information, visit the Caltrans website at www.dot.ca.gov/hq/tpp/offices/orip and Nevada County Transportation Commission at www.nctc.ca.gov.

Amador County Transportation Commission: Performance Measurement and Regional Transportation Plan Development

Another region in California, the Amador County Transportation Commission (ACTC) adopted a comprehensive update of its Regional Transportation Plan (RTP) in 2015, after an exhaustive process of engaging with stakeholders, fellow agency staff members, and commission leadership to define desired outcomes and related performance measures for use in the transportation planning and programming process. The RTP development process involved discussing measurement at three levels: using “big picture” evaluation criteria to evaluate plan-level alternatives, measures to evaluate project priorities for the programming process, and metrics to choose among build-alternatives for final project design. The initial step was to select a plan alternative, which set the overarching vision for the RTP. The alternatives offered broad regional approaches, from doing nothing to expanding highways, emphasizing rehabilitation and maintenance, or improving circulation. These four plan alternatives were scored according to seven criteria:

1. optimize community connectivity
2. reduce congestion and improve mobility
3. enhance safety
4. preserve or enhance community character and the environment
5. ensure feasible funding plan and implementation
6. provide opportunity for positive socioeconomic growth and development
7. preserve the existing system

Each of these criteria was used to assign specific scores for each alternative to help decisionmakers connect RTP’s desired outcomes to investment scenario embodied by each plan alternative and pick one that could best achieve the desired outcomes they agreed to. After assessing the high, medium, or low impact that each plan alternative had on each of these criteria, the “Multimodal Circulation Improvement Program” alternative was selected as the plan alternative would best achieve the RTP’s desired outcomes and meet all of the region’s future transportation needs. This alternative incorporates all relevant modes of transportation through a diverse mix of strategically prioritized regional roadway improvements and alternative strategies designed to meet the region’s various transportation needs to the greatest extent possible, given environmental, right of way, community-acceptance, and funding constraints.

The next step was to prioritize specific projects, using the same seven criteria that were used in selecting the plan alternative, although the metrics used in ranking were tied to project-level data, rather than the larger scale descriptive criteria used in the plan-level decision. The process was highly technical, with ACTC staff analyzing how projects fared in the most technical categories, such as examining results of the traffic model and alternative modes for the congestion and mobility score. Some criteria were more straightforward, such as safety data coming from the California Highway Patrol’s Statewide Integrated Traffic Records System (known in the state as SWITRS). Other criteria were open to more debate, such as the impact on socioeconomic growth and development, which received a high, medium,

or low score based on information about business exposure and land use. Using the seven criteria and a score on the deliverability of each project, a list of Tier I projects for the Capital Improvement Program were selected, for which full funding may be available within the 20-year time horizon of the plan. Additional projects were also prioritized into Tier IIA, partial funding committed but full funding not available within 20 years, and Tier IIB, no funding committed. Including the additional projects without committed funding allows local governments to identify priorities for preserving right-of-way to minimize cost and improve deliverability when funds do become available. This also establishes a set of alternatives with an estimated cost that demonstrates the funding gap to achieve all the proposed projects consistent with the goals, objectives, and strategies of the RTP.

An extensive amount of education was critical to ACTC's RTP update process. Over a period of five years, the commission conducted over 20 stakeholder advisory committee meetings, 12 commission workshops, and countless one-on-one caucuses with those involved. The outcome was the selection of a plan alternative and assignment of project priorities in a way that involved all relevant parties and balance numerous competing interests within the limited amount of funds reasonably available over 20 years. Further, an important objective in the plan's Action Element was to continue developing the commission's performance measures, analysis tools, and data sets into the future. Now that the RTP has been adopted, the commission will complete countywide safety "hot spot" mapping and develop a predictive safety analysis tool to quantify the anticipated benefit of planned safety improvements and determine an efficient way to measure the cost/benefit or return on investment for their planned improvements. These first two efforts are aimed at improving the measurement process and the data and tools used in evaluating the measures before the next RTP update, to continue evolving and enhancing the process and the usefulness and defensibility of the plan alternative and projects selected. Between continued education and formalization of a data-driven process and reliable analytical tools, ACTC hopes to increase the level of political acceptance of the plan and prioritization results.

Takeaway: Establishing performance measures requires a significant investment in staff time and technical resources in order to education and the involvement of stakeholders, agency staff members, and elected leaders to build consensus on the process and achieve acceptance of the results. For ACTC, this was a very intensive effort that was difficult for a small rural planning agency to accomplish while also trying to carry out its other administrative, planning, funding, and project delivery functions. Adopting a larger scale effort to address performance measurement across a state or the nation would require careful consideration of the staffing capacities, technical capabilities, and funding constraints that the agencies operate within.

Takeaway: Connecting performance measures with the programming of transportation funding causes this technical process to have real implications for participants. If done right, this can result in helping to reduce the degree to which funding decisions are politicized, by tying them to transparent and measurable outcomes.

For more information, visit <http://www.actc-amador.org>.

Communicating Impact: Berkshire Metropolitan Planning Organization, Massachusetts

By Doug Plachinski, Senior Transportation Planner

The Berkshire Regional Planning Commission (BRPC) serves a small metropolitan area and surrounding rural communities in western Massachusetts in several planning areas, including transportation planning as a small MPO. Rural and smaller area metropolitan transportation planners have always tried to make meaningful insights from the available data they can access. Two areas at BRPC that are specifically addressed include pavement conditions and crashes.

There are numerous ways to evaluate pavement conditions just as there are many different types and compositions of those pavements. In rural areas without complicated arterial systems the BRPC region has observed four general categories of pavement conditions, regardless of the type of composition:

- New or Perfect Condition, no action required
- Good Condition, routine inexpensive maintenance like crack filling or joint sealing
- Fair Condition, non-structural surface repairs like milling and/or resurfacing
- Poor Condition, requiring base repairs and drainage improvements

Explaining pavement conditions relative to the expense needed to maintain them is more digestible to a broader audience than using a roughness index or even a 100 point condition index. This is particularly true in the BRPC region, comparing roads over a 900-square-mile area of mountains with less than \$20 million dollars of annual repair funding.

Crash reduction through capital investment is also difficult for the smaller region because of the have lower vehicle miles traveled (VMT), a higher rate of pedestrian, bicycle, and motorcycle crashes than the state average, and high project costs with low annual safety funding allocations. BRPC relies on data from the Commonwealth to identify frequent crash areas and analyze local police crash reports to develop crash mitigating countermeasures. Crashes in the Berkshires are typically not caused by substandard roadway geometrics and usually involve distracted or impaired drivers. Crash reduction targets can only be met in region by changing driver behavior; however, BRPC staff continue to monitor and analyze regional crash trends. Projects funded in the regional TIP receive a higher priority if they are in a high crash area. Also important in solving crash problems and locations is a multidisciplinary approach to resolving data driven and perceived problems, with involvement from police, fire, emergency medical services, local public works departments, neighbors, business owners, and elected officials working together to identify and resolve safety problems.

As federal rulemaking implementing performance measurement is finalized, it is likely that small MPOs and rural areas, with limited staffing and resources, will be faced with the challenge coordinating with state-established targets within their Unified Planning Work Programs, Transportation Improvement Programs, and Metropolitan Transportation Plans. Direct, broad conversation without jargon and unneeded complexities will help to meaningfully engage small MPO stakeholders in the spirit of performance-based transportation planning.

Takeaway: Communicate the information that really matters to decisionmakers.

Takeaway: Prioritize projects that implement the strategic goals of the region, such as safety projects in high crash areas.

For more information, visit www.berkshireplanning.org.

Collaborative Planning in Pennsylvania

Since the early 1990s, Pennsylvania has had a highly collaborative transportation planning framework, where the state's MPOs and RPOs work closely together and with Pennsylvania Department of Transportation (PennDOT) headquarters and district staff to complete long-range planning, short-range programming, and special studies. In 2010, PennDOT acquired a statewide license to the prioritization software Decision Lens, and made it available to all of its regional planning partners. This allowed them to select and weight quantitative and qualitative criteria for all projects and for particular funding areas, and the regions also input projects. As RPOs and MPOs analyzed the relative importance of various criteria by weighting them, they could see the impact on project priority. Through this process, the RPO and MPO leadership had the opportunity to envision what a set of policy choices would look like in practice, and to use the end results of prioritization in making resource allocation decisions as they programmed projects in their regional Transportation Improvement Programs, which are integrated into the Statewide Transportation Improvement Program.

In the last round of long-range plan updates, completed in 2012 for the rural regions, PennDOT required the regional planning partners to develop and include performance measures, but left up to the regions what those measures would look like. Most included a mix of metrics regarding the characteristics of the system and measures of plan completeness. For the North Central RPO, an important feature was an implementation plan matrix identifying who was chiefly responsible for implementation of the strategic actions and would be expected to help make progress on a given measure, as well as the approximate timeframe for completion.

Achieving consensus on the performance measurement process can be difficult. Various leaders and stakeholders may have vastly different perspectives and desired outcomes for the transportation system. Once a system has been put into place, participants may not like the overall results of their project ranking process, or they may have particular projects that they want to support or oppose for local reasons.

This might occur because the criteria that were chosen to rate projects, or perhaps the weighting given to the various criteria, do not give high scores to the projects that truly do represent the regional vision and policy goals in the plan. For example, if an important policy goal in an adopted regional plan is to direct investment to particular areas to support economic development, there may not be an easily accessible data point to use in reporting a measure that could be used to program a project. But if economic development is not considered as a key component of a projects' score in the ranking process, even with a qualitative measure, the results of a data-driven process might easily be questioned by stakeholders.

Regions might go through an iterative process of figuring out their criteria over time, as performance measures are adopted or abandoned, redefined or weighted differently, until the outcomes meet the region's needs.

In late 2014, the planning partners across Pennsylvania decided to form a work group to focus on performance measurement in the transportation planning process. The practice of creating work groups on different topics has been helpful in the past, and are utilized extensively to set standards and achieve consistency between partners and PennDOT. Each work group has a membership that includes representatives of rural, small metro, and large metro regions, as well as the state (including transportation modal offices when appropriate) and FHWA division staff. One of the state's most active work groups is to produce financial guidance, which guides the funding assumptions made within each region's transportation planning process. Another shapes the development of the regions' planning work programs (UPWP) by identifying the range of tasks, and expectations for those types of tasks, that regions can complete with their allocated planning budget. The new performance work group will be expected to develop guidance in order to institutionalize performance measurement in the transportation planning process. The guidance developed by the performance measurement work group will be instrumental in future long-range plan updates and in aiding the state to work toward compliance with federal requirements on performance-based planning.

Going forward, state and regional partners agree that there are numerous challenges to implementing a performance-based planning process. If needs-based metrics show all funding going to a small number of high-population regions, the result will not be politically acceptable or maintain buy-in to the transportation planning process across the state. The smaller, less populous regions would not be able to improve or maintain their performance and would lead to a further disconnect between planning regions.

Even with new revenues from Pennsylvania's Act 89 adopted in 2013, the state still faces a shortfall to preserve its existing system. Removing structures from service has been a topic of discussion in order to decrease the amount of funding needed and to prioritize the most critical infrastructure. A pilot project in one county has identified redundant bridges. These were local bridges located near other bridges in the system that could carry traffic with minimal impact on mobility or access by emergency medical services. Although the topic is still in its infancy, disinvestment is an important part of the performance measurement conversation in Pennsylvania, and elsewhere.

Takeaway: Creating institutional structures that address consistency, like Pennsylvania's work groups, help to ensure that the state, regional, and local levels agree on basic tasks and end goals for conducting the transportation planning processes and measuring performance.

Takeaway: Regions have different interests and different needs. By focusing on process rather than prescription, Pennsylvania has moved toward performance-based planning and programming in a manner that allows for innovation and meeting regional goals while laying out a statewide framework.

For more information and an example of Pennsylvania's regional planning work programs and deliverables, visit www.ncentral.com/trans.

Working with Partners: Ohio Mid-Eastern Governments Association

The state DOT and other agencies can be an important partner for providing performance data and analysis to regions to benefit their planning studies. The Ohio DOT contracted with five existing regional organizations to establish pilot RTPOs in 2013, and to develop a regional long-range plan and enhancing the dialogue between the state DOT and local partners. Safety emerged as a priority topic for the Ohio Mid-Eastern Governments Association (OMEGA), which serves a ten-county region in eastern Ohio (two of the counties are served by area MPOs, and the other eight are members of the RTPO). OMEGA analyzed crash locations and crash types to identify priority locations and corridors. The results of the analysis are shaping the regional planning and project identification completed by the RTPO, and the highest priorities are shared with ODOT for consideration for future funding.

In the process of analyzing safety performance data, OMEGA's staff were assisted by the neighboring Eastgate Council of Governments, a regional organization that staffs an MPO and the assigned MPO mentor agency for OMEGA in ODOT's RTPO pilot program. OMEGA also utilized data and analysis tools provided by the Ohio DOT, such as its GIS Crash Analysis Tool, Economic Crash Analysis Tool, and the Ohio Local Technical Assistance Program (LTAP).

Since the RTPO is a new one, the region is just completing its first regional plan, and it does not have a formal role in programming projects. However, part of its work conducting technical assistance for local governments can include applying for funds through the safety program and other state funding programs. With a strategic focus on safety hot spots, at-risk areas, and critical corridors such as one used for energy development, paired with the data collection and analysis efforts OMEGA has completed, the region is ready to implement a performance-based planning and programming process for safety.

Takeaway: Tap into the existing data, expertise, and tools developed by the state DOT and other regional agencies in the state. Seeking peer expertise from another regional planning agency, either within the state or through the national network of rural and small metropolitan transportation planners, provides a starting point of information and technical guidance.

Takeaway: Planning staff and RTPO leadership can examine how the planning process compares to a framework for performance measurement. Like OMEGA's work on safety, other regions may have a "performance-ready" framework in place, with data on-hand to guide the development of performance objectives and projects to implement improvements.

For more information, visit www.omegadistrict.us.

Developing a Framework for Prosperity: Michigan

Michigan's Regional Prosperity Initiative aims to align and streamline planning efforts, services, and grant resources in a voluntary process involving multiple partners and stakeholders. Beginning with the Fiscal Year 2014 budget request from Governor Rick Snyder, and included in the budget adopted by the state legislature, the Regional Prosperity Initiative provides competitive grant resources to rural and metropolitan planning regions that collaborate with business, nonprofit representatives, local and regional economic development organizations, workforce boards, adult education providers, and higher

education. The goal is for designated planning regions to develop a shared vision and plan for economic development and related disciplines.

Networks Northwest, one of the state's councils of governments and regional planning and economic development organizations, spearheaded the development of a Regional Prosperity Plan for Northwest Lower Michigan in 2014, called *Framework for Our Future*. It includes several chapters covering diverse topics related to the infrastructure and economy of the region. The transportation chapter is significant for performance measurement because it lays out a framework for local governments to use in the transportation elements of their own local plans and capital improvement programs. The transportation framework introduces performance measurement concepts, including the Pavement Surface Evaluation and Rating (PASER) system that the regional planning agencies use to collect pavement performance data under contract to Michigan DOT as part of the state's asset management program, as well as other metrics such as level of service. Household transportation costs, safety, equity, and transit ridership are a few of the other issues described in the plan in concrete, measurable ways.

The transportation framework contains a useful Local Implementation Checklist with goals and objectives that could be voluntarily included in a local government's master plan, complete with a matrix of strategies and potential actions to implement strategies such as maintaining the existing road network, supporting transit access, and enhancing the efficiency of other modes such as rail, water, and air travel. Networks Northwest also collects data and makes it available to local governments and other stakeholders throughout the region, supporting their ability to select indicators that already exist as maintained data sets, analyze benchmarks, and integrate them into a performance management approach over time.

Takeaway: Even regions that do not have major role in programming projects can find ways to support performance-based and performance-ready planning, such as through existing planning work and technical assistance to local governments. Michigan's regional agencies are not required to complete rural LRTPs or TIPs, but they do work closely with local governments and perform several duties to support Michigan DOT's statewide planning and asset management efforts.

For more information, visit www.networksnorthwest.org/planning/planning-policy/northwest-michigan-regional-prosperity-initiative.

Appendix: Common Performance Measurement Terms

Each state or agency develops its own vocabulary for planning, both the strategic planning process and the planning-related deliverables that RTPOs and others complete within the state. Similarly, performance measurement can occur at various levels, such as determining the direction of a plan and what its vision and goals look like, identifying specific priority projects to apply for or allocate resources for completion, or determining design alternatives for a particular project. Although the level at which performance measurement is utilized and the terminology that is used in a particular region may differ or overlap, some common performance concepts are described below.

Performance-based planning and programming connects a strategic planning effort of defining the desired outcomes for a region's transportation network and travel experience, strategies to achieve outcomes, and the programming, or allocation, of resources. This process of setting strategic direction and allocating resources identifies measures and analyzes performance information about the transportation system.

Vision, goals, and objectives are often elements included in any kind of strategic plan, and they may appear in a long-range transportation plan. A vision statement is typically high-level and is often just one sentence that encapsulates what the region desires in its transportation system, such as a transportation network that provides for the safe, efficient movement of goods and people. A goal describes a condition to be achieved or a broad approach; a plan might include goals that drill down into the themes, like safety or efficiency, that are mentioned in the vision statement. Objectives are specific strategies that lead to achieving a goal, such as reducing highway fatalities and serious injuries or bicyclist fatalities and injuries. Depending on the plan and terminology, the goals and objectives are sometimes combined into statements that include both the desired condition and

A *measure, indicator, or metric* generally refers to the characteristic of the transportation network that is being measured in performance-based planning and programming. They may be determined through a two-pronged approach: what information tells whether the strategies are effective, and what information is available that tells something meaningful about transportation. The traffic fatality number and rate per million vehicle miles traveled are two possible measures for a safety objective that involves reducing fatalities.

In performance-based planning and programming, measures might be quantitative or qualitative, but they should refer to *outcomes* as much as possible. Quantitative data might include level of service or volume-capacity ratio, number or rate of fatalities and serious injuries, while qualitative data might include impact on communities or link to economic development. Some data may not be readily available or easy to start collecting, so agencies might measure an *output*, such as number of projects addressing safety, as a proxy. The output metric does not actually tell whether safety has improved; instead, it assumes that the right kinds of safety improvements were selected to make a dent in preventing deaths and injuries. In performance-based planning, outcome measures work best to tell the story about the results of investment, while in an evaluation of an agency's planning program, output measures can be useful to gauge the level of planning work completed.

Targets assign numeric values to the measures that an agency selects. This could include a target number of fatalities by a certain year, or identifying a percentage decrease to occur over a period of time. Analyzing past trends can be helpful in starting to think about desired targets.

A *performance standard* defines the minimum level of performance for a particular measure. For example, MAP-21 required that the U.S. Secretary of Transportation set a minimum standard for certain measures, such as the condition and performance of the Interstate and National Highway Systems pavement and bridges. A performance standard may also function as a threshold or criterion for accessing funds to direct funding to the places with the highest need or that meet a policy goal.

Monitoring refers to the collection of data related to transportation system performance, and through the process of *evaluation*, agencies determine what the monitoring data mean and whether the region's policy priorities and recommended projects are meeting the vision and goals, or if a change in the region's strategy is needed.

Additional Resources

FHWA. Performance Based Planning and Programming Website.

www.fhwa.dot.gov/planning/performance_based_planning

FHWA. Transportation Performance Management Website. www.fhwa.dot.gov/tpm.

FHWA (2013). Performance-Based Planning and Programming Guidebook.

www.fhwa.dot.gov/planning/performance_based_planning/pbpp_guidebook.

FHWA (2014). Model Long-Range Transportation Plans: A Guide for Incorporating Performance-Based Planning. www.fhwa.dot.gov/planning/performance_based_planning/mlrtp_guidebook.

FHWA (2014). Performance-Based Planning for Small Metropolitan Areas.

www.fhwa.dot.gov/planning/performance_based_planning/small_mpo_report.

FHWA/FTA Transportation Planning Capacity Building Program (2014). Performance-based Planning and Programming in the Context of MAP-21: Peer Exchange Report.

www.planning.dot.gov/Peer/NY/NYMTC_Planning_MAP21_3-6-14.asp.

FHWA (2014). Performance Outcomes Beyond the Mainstream Peer Exchange Summary Report.

www.planning.dot.gov/Peer/Arizona/scottsdale_6-20-14_performance_outcomes.asp.

Guerre, Joe, Kelsey Ahern, and Julie Lorenz (2012). NCHRP 08-36, Task 104: Performance-Based Planning and Programming Pilots. onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP08-36%28104%29_FR.pdf.