Chapter VI 2045 Goals & Performance Measures

In this chapter, the reader will find:

- **Background** on formation of the D-MPO's Goals and Performance Measures
- An understanding of those 2045 Goals, Performance Measures, and the Project Evaluation Tool
- **Clarity** on how goals and measures guided project selection

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2045 Goals and Performance Measures

The Federal Code calls for performance-based processes in the MPO transportation planning process. To evaluate transportation improvements in the LRTP, clear goals and performance measures were needed. In the 2045 process, D-MPO adopted a new set of performance measures, resulting from a thorough review of local, state, and federal transportation frameworks. Specifically, the 2045 performance measures arose from:

- Guidance from the Federal Code
- State funding criteria
- · Statewide plans and identified needs
- Regional transportation goals
- MPO Transportation Targets
- Local Policy Documents

This chapter summarizes federal, state, regional, and local transportation frameworks that resulted in the 2045 goals and performance measures. This chapter also describes the project evaluation tool developed for this LRTP update to measure and rank projects in the Danville MPO region.

Federal Framework

The MPO receives money for its transportation improvement projects primarily through state and federal transportation funding programs. In 2012, the FHWA's Federal Surface Transportation Program established a performance and outcome-based approach under a law entitled "Moving Ahead for Progress in the 21st Century Act"—also known as "MAP 21." One of the key requirements set forth by MAP 21 was that MPOs must incorporate performance goals, measures, and targets into their process of identifying and selecting proposed transportation improvements in their LRTPs. The law established a list of national performance goals to guide this process, which included

10 FEDERAL PLANNING FACTORS

The metropolitan transportation planning process shall be continuous, cooperative, and comprehensive, and provide for consideration and implementation of projects, strategies, and services that will address the following factors:

<u>Economic</u>: Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency

<u>Safety</u>: Increase the safety of the transportation system for motorized and non-motorized users

<u>Infrastructure Repair</u>: Increase the security of the transportation system for motorized and non-motorized users

<u>Congestion Reduction</u>: Increase accessibility and mobility of people and freight

<u>Environmental Projection</u>: Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns

<u>Connectivity</u>: Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight

Efficiency: Promote efficient system management and operation

<u>Maintenance</u>: Emphasize the preservation of the existing transportation system

<u>Resiliency</u>: Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation

Tourism: Enhance travel and tourism

§ 450.306 Scope of the metropolitan transportation planning process



economic development, safety, infrastructure repair, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. In 2015, Congress passed the FAST Act, "Fixing America's Surface Transportation Act," which added two new planning factors: resilience and tourism.

State Framework

EPR, p.c. evaluated statewide funding processes and identified needs from Virginia's multimodal transportation plan, VTrans (**Figure 56**). Virginia's Commonwealth Transportation Board (CTB) is responsible for funding transportation projects in the Commonwealth. In response, the 2045 LRTP consists of performance measures (project evaluation methods) that are consistent with the CTB's decision-making process. This approach is intended to improve the success of D-MPO's funding applications.

Figure 56 Considerations for Virginia's statewide funding processes.



SMART SCALE

On the state level, federal transportation funding is combined with state revenue sources to create Virginia's Commonwealth Transportation Fund. Some of the money in the Commonwealth Transportation Fund is distributed proportionally among the commonwealth's MPOs to support general maintenance and infrastructure rehabilitation. Funding for new or enhanced infrastructure, however, is discretionary and is awarded to MPOs on a project-by-project basis through a program known as SMART SCALE. MPOs can nominate projects for SMART SCALE funding if they are considered to hold regional or statewide significance. Nominated projects are evaluated using a standardized and objective scoring system that considers each project's impact on safety, congestion mitigation, accessibility, environmental quality, and economic management. The resulting score is used to rank each project against other proposed projects around the state and ultimately determines which projects will receive funding.

VTrans

The CTB updates its multimodal transportation plan, VTrans, every four years. VTrans lays out the overarching Vision and Goals for transportation in the Commonwealth, identifies transportation investment priorities, and provides direction on implementation strategies and programs to the CTB and to transportation agencies such as Virginia Department of Transportation (VDOT) and Virginia Department of Rail and Public Transportation (DRPT), as well as regional Metropolitan Planning Organizations (MPOs). During the 2045 LRTP update, the CTB was also in the midst of a VTrans update. D-MPO considered preliminary direction from the VTrans process but had to rely on the current version of that document through the planning process.



SMART SCALE PLANNING FACTORS

The following are planning factors and associated performance measures used to score proposed transportation improvements through Virginia's SMART SCALE evaluation process.

Safety Planning Factor

- Equivalent property damage only (EPDO) of Fatal and Injury Crashes (70% of score)
- EPDO Rate of Fatal and Injury Crashes (30% of score)

Congestion Mitigation Planning Factor

- Person throughput (50% of score)
- Person Hours of Delay (50% of score)

Accessibility Planning Factor

- Access to jobs (60% of score)
- Access to jobs for disadvantaged persons (20% of score)
- Access to multimodal choices (20% of score)

Environmental Quality Planning Factors

- Air quality and environmental effect (100% of score)
- Impact to natural and cultural resources (point deductions)

Economic Development

- Project support for economic development (60% of score)
- Intermodal access and efficiency (20% of score)
- Travel time reliability (20% of score)

Regional Framework

D-MPO also considered policy statements and goals from regional plans, to create consistency between the LRTP and those other approved documents. For example, the West Piedmont Regional Bicycle Plan aims to "provide safe routes for travel via bicycle... [and]... Increase length and number or bike paths." Danville Transit's Transit Development Plan (TDP) sets a goal to "facilitate safe, reliable, convenient and economical operations that support economic development... [and]... provide reliable fixed route and demand responsive service that is safe and convenient which facilitates cost effective transportation access." The region's Coordinated Human Services Mobility Plan (CHSP) increases "the mobility and access to transportation for seniors and those with disabilities." D-MPO's 2040 LRTP set a goal to "provide citizens in the urbanized areas of Danville and Pittsylvania with enhanced mobility to support a more prosperous economy and a better quality of life."

Local Framework

EPR, p.c. also affirmed that 2045 goals and performance measures were consistent with local goals and policies. Danville's 2030 Comprehensive Plan set several applicable policy statements, including:

- **Transportation**: Ensure that the location, character, and capacity of the City's existing and future transportation facilities (including thoroughfares, arterial highways, local streets, parking facilities, and the airport) are compatible with the Future Land Use Plan, are supportive of sustainable growth, and enhance the City's livability and economic vitality.
- **Corridors & Gateways**: Enhance the major transportation corridors and entrance gateways into the City in order to instill a sense of pride among residents, create a good impression to occasional and regular travelers through the City, and communicate clearly that Danville is a desirable place to live, work, and play.



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- **Historic and Cultural Resources**: Promote historic and cultural resources by preventing deterioration, promoting rehabilitation and reuse, and promoting heritage tourism in the City.
- Economic Development: Support and promote the City's existing economic base while actively recruiting other economic development opportunities in the areas of basic industry; advanced manufacturing; technology; sustainable/ green energy, automotive, and aerospace research, development, and production; and tourism in order to strengthen and expand the economy.

The Pittsylvania County Comprehensive Plan contains a transportation chapter that sets three goal areas. Under each goal are objectives and strategies. D-MPO's consultants analyzed these goals to affirm consistency with the 2045 process, as well.

- **Goal 1**: To develop and maintain a safe and efficient transportation system.
 - » *Objective 1-1*: To establish and maintain a level of service of "C" or better for all secondary and primary highway intersections in the County.
- **Goal 2**: To encourage a balanced efficient transportation system.
 - » *Objective 2-1*: Promote transit and van pool ridership in Pittsylvania County.
 - » *Objective 2-2*: Develop a minimum of ten miles of bike lanes or off-road bike paths within the County within the next ten years.
 - » *Objective 2-3*: Support all rail opportunities within the County.
- Goal 3: Plan for the County's future highway needs.
 - » *Objective 3-1*: Identify and protect new highway corridors needed to serve the long term needs of the County.

VTRANS NEEDS IN THE DANVILLE MPO AREA (i)

Regional Needs:

- US 29 Corridor Reliability
- Expand Modal Choices
- US 58 Corridor Reliability
- Walkable/Bikeable Places
- Western Pittsylvania Network Connectivity
- Southern Danville Freight and Interstate Network
 Connectivity

Safety Needs:

PSI Locations

UDA Needs:

- City of Danville
- Pittsylvania County UDA

CEDS REGIONAL VISION

As a region, we envision a diverse, business-friendly environment to encourage new and expanding businesses; to promote an entrepreneurial ecosystem; to ensure a well-educated, highly skilled workforce; and to provide an all- encompassing infrastructure to facilitate development including transportation, water and sewer services, utilities, and state-of-the-art telecommunications. We advocate regional collaboration to create significant partnerships building upon regional strengths and opportunities. We treasure our natural resources and cultural heritage and welcome a robust tourism market to share these precious assets. We support vibrant communities and an enhanced quality of life. We serve to highlight the positive attributes of the region, defining our image as an extraordinary place to live, learn, work, play, invest, and do business.



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2045 Goals

Considering these frameworks, D-MPO adopted a set of five regional goals with 15 associated performance measures used to evaluate LRTP projects. The D-MPO Policy Board also set weights on these goals and performance measures that formed a project evaluation tool described in the next section. D-MPO's official 2045 goals include the following:

- **Economy**: Retain and increase business and employment opportunities.
- **Safety**: Provide a safe and secure transportation system.
- **Mobility and Accessibility**: Provide a transportation system that facilitates the efficient movement of people and goods.
- **Community and Nature**: Improve quality of life and protect the environment.
- **Operational Efficiency**: Preserve the existing transportation system and promote efficient system management.

Project Scoring Sheets and Performance Measures

Using the five 2045 goals, D-MPO's consultants developed a project evaluation tool to assign scores to the regions' proposed improvement projects. This tool shares a basic structure and approach as the state's SMART SCALE evaluation program and allows the region to gain a greater sense of how well its projects will score relative to other proposed projects in the region. The prioritization process also served as an incubation period for projects, identifying ways to enhance transportation improvements that are important to the region and its localities.

The 2045 LRTP project evaluation tool considers 15 standardized and objective performance measurements related to each proposed project. Performance measurements supported D-MPO's five goals. The tool allowed leaders and specialists from the Danville region to adjust the relative importance or weight of each transportation goal

HOW EXACTLY DO THESE POLICIES, GOALS AND MEASURES COME TOGETHER?

D-MPO's consultants cross-reference the various goals, factors, policies, and funding processes through a series of matrices. Staff created a set of tables to identify themes, then created a matrix that compared the draft 2045 goals and performance measures with federal, state, regional, and local frameworks (policies, goals, etc.). Refer to Appendix J to find the matrix comparisons.

area so that the final rankings can more closely reflect the region's priorities. A description of each goal, as well as a description of the performance measures used within each, is provided below.

Economy: Weighting and Performance Measures

Among the five goal categories, regional leaders decided that the goal of "Economy" should be the most important consideration. 35% of a project's score was determined by its impact on the region's economy. This evaluation included three performance measures: placemaking, surrounding employment density, and freight volume.

Placemaking

The "Placemaking" performance measure considered whether the project proposal includes streetscaping or corridor beautification features. This measure favored projects that improve the aesthetic beauty of the region, which economic development studies suggest is an important consideration for many white-collar industries and their employees when deciding where to locate and invest. Scoring was determined as follows:

- **High**: Includes specific streetscape improvement plans
- **Medium**: Includes features like sidewalks, medians, or roundabouts that could potentially include streetscaping elements
- Low: Does not include streetscape elements or improvements



Surrounding Employment Density

The "Surrounding Employment Density" performance measure considered the density of jobs in the area surrounding the project corridor or intersection. This measure favored projects that directly serve areas that support a high concentration of jobs such as downtown districts and business parks. Data for this measurement was provided by the US Census' 2017 Employment Data. Scoring was determined as follows:

- **High**: Surrounding employment density of more than 4 jobs per acre
- Medium: Surrounding employment density of 1-4 jobs per acre
- Low: Surrounding employment density of less than 1 job per acre

Freight

The "Freight" performance measure considered the volume of heavy trucks using the corridor or intersection, measured as a percentage of total traffic. This measure favored projects that improve the operations of major freight corridors that support the fast and reliable movement of goods and resources in and out of the region. Data for this measurement was provided by VDOT's 2017 SPS data. Scoring was determined as follows:

- **High**: Improves traffic operations on a road with more than 5% truck volume
- **Medium**: Improves traffic operations on a road with 2% to 4.99% truck volume
- **Low**: Improves traffic operations on a road with less than 2% truck volume, or does not improve traffic operations

Safety: Weighting and Performance Measures

The second highest weighted goal category in the evaluation tool was "Safety." 30% of a project's score was determined by its impact on transportation safety. This evaluation included two performance measures: Fatal and Injury Crash Rate, and PSI locations.

Figure 57 Example of the Project Evaluation Tool data entry with the 15 performance measures

Project Number		41 Category			Project List			
Jurisdiction	Route Name		Route	From		То		Length (mi)
City of Danville	City of Danville Riverside Dr		58 Bus	Bus Westover Dr (Rt 51)		Mount Cross Rd (Rt 750)		0.38
Proposed Improvement		Access Management				Est. Cost \$15,94		44,400
Project Benefit Score		83.5	83.5 Project Benefit-Cost Rating		0	Project Rea	adiness Rating	0
			Benefit Scor	e Calculation				
			Goal: Mobility a	and Accessibility				
Performance Measure		Result			Rating	Points	Weight	Score
Existing Congestion		0.38			Low	33.3	20%	6.7
Future Congestio	on	0.4			Low	33.3	20%	6.7
Existing Traffic	/olume	914			High	100	20%	20.0
Future Traffic Vo	olume	924			High	100	20%	20.0
Alternative Tran	sportation Facilities	Two or more facilities			High	100	20%	20.0
					Total Mo	bility and Acc	essibility Score	73.3
			Goal:	Safety				
Performance Me	easure	Result			Rating	Points	Weight	Score
Fatal and Injury	Crash Rate		1.42		Medium	66.7	50%	33.4
PSI Locations		Тор	20 PSI location	present	High	100	50%	50.0
				Total Safety Score				83.4
			Goal: E	conomy				
Performance Me	easure	Result			Rating	Points	Weight	Score
Placemaking		May accommodate placemaking			Medium	66.7	33%	22.2
Surrounding Em	ployment Density	5.29			High	100	33%	33.3
Freight Volume (%)	6			High	100	33%	33.3
						Total	Economy Score	88.8
			Goal: Commun	ity and Nature				
Performance Me	easure	Besult			Rating	Points	Weight	Score
Social Resources		No impact			High	100	50%	50.0
Environmental Resources		Some impact			Medium	66.7	50%	33.4
		Те				ommunity an	d Nature Score	83.4
			Carly Or card					
Dorformanco M	22000	Result			Pating	Deinte	Woight	Feara
Right-of-Way Sufficiency		Requires po POW			High	100	33%	32 2
Plan Coordination		One plan			Marilium	100	3370	33.3
Distribution of Benefits		Significant regional basefit		henefits	High	100.7	220/	22.2
Discribution of t	Jenenus				Hign Total	Operational	3370	33.3 89.0
					TOtal	Operational	Linciency Score	00.9
	Vision Theme		Points	Weight	Score			
Mobility					ibility	73.3	20%	14.7
		Safety Economy Community and N Operational Effici		Safety		83.4	30%	25.0
	Total Benefit			Economy		88.8	35%	31.1
				Community and Nati	ure	83.4	10%	8.3
				Operational Efficien	су	88.9	5%	4.4
						Total Projec	t Benefit Score	83.5
					Readine			
	Benefit Score		83.5			NEPA Screening		
Benefit-	Estimated Cost	\$15,944,400 24629			ss Calculati	Right of Way Acquisition		
Cost	Estimated Users					Ongoing Project		
Calculation	Benefit-Cost Score		129.03		on	Readiness Score		0
	Benefit-Cost Rating				VII	Readiness Ra	ating	



Fatal and Injury Crash Rate

The "Fatal and Injury Crash Rate" performance measure considered the rate of traffic accidents in the project corridor or intersection that resulted in fatalities or serious injuries during the past 5 years, as measured by accidents per 1 million vehicle miles traveled (VMT). This measure favored projects that improve the safety of corridors and intersections that experience a high frequency of life-threatening accidents. Data for this measurement was provided by the VDOT's Crash Analysis Tool. Scoring was determined as follows:

- High: Over 3.86 fatal and serious injury crashes per 1 million VMT
- **Medium**: 0.81 to 3.85 fatal and serious injury crashes per 1 million VMT
- Low: 0 to 0.81 fatal and serious injury crashes per 1 million VMT

PSI Locations

The "PSI Locations" performance measure considered whether the project addressed a PSI (Potential for Safety Improvement) location, as identified and ranked by the state of Virginia. This measure favored projects that improve the safety of corridors and intersections that have been identified by the state as priority locations for safety improvements. Data for this measurement was provided by the VDOT's PSI list for the years 2014-2018. Scoring was determined as follows:

- High: Includes a Top 20 PSI location
- Medium: Includes a PSI location not ranked in the Top 20
- Low: Does not include a PSI location

Mobility and Accessibility: Weighting and Performance Measures

The next highest weighted goal category in the evaluation tool was "Mobility and Accessibility." 20% of a project's score was determined by its impact on user mobility and accessibility in the region. This evaluation included five performance measures: Existing Congestion, Future Congestion, Existing Traffic Volume, Future Traffic Volume, and Alternative Transportation Facilities.

HOW DID THE MPO DETERMINE WEIGHTING OF THE GOALS AND PERFORMANCE MEASURES?

DMPO's consultants identified a weighting of goals and performance measures that is based on Virginia's scoring methodology for funding transportation projects. See the section titled "SMART SCALE" on page 90. Since the 2045 process served a secondary benefit of refining projects for the state's funding processes, the MPO saw a need for consistency between regional and state scoring. The MPO Policy Board held two meetings to discuss goals and performance measures. Consultants also presented the goals at a community event in November 2019, to confirm how projects should be scored.

Existing Congestion

The "Existing Congestion" performance measure considered existing peak-hour congestion levels for the project corridor or intersection, as measured by a volume-to-capacity (V/C) ratio. This measure favored projects that increase the traffic capacity of locations in the transportation network that currently experience high levels of congestion. Data for this measurement was provided by the 2017 VDOT SPS dataset. Scoring was determined as follows:

- **High**: V/C is greater than 1.1 and the project increases road capacity
- **Medium**: V/C is between 0.8 and 1.09, and the project increases road capacity
- Low: V/C is less than 0.8, or the project does not increase road capacity

Future Congestion

The "Future Congestion" performance measure considered the peakhour congestion levels that are projected for the project corridor or intersection in 2045, as measured by a volume-to-capacity (V/C) ratio. This measure favored projects that increase the traffic capacity of locations in the transportation network that are expected to experience congestion in the future. Future traffic projections were calculated using both the overall growth of the region, as well as anticipated



developments that are expected to generate large amounts of traffic. Data for this measurement was provided by the 2017 VDOT SPS dataset. Scoring was determined as follows:

- **High**: Projected V/C is greater than 1.1 and the project increases road capacity
- **Medium**: Projected V/C is between 0.8 and 1.09, and the project increases road capacity
- Low: Projected V/C is less than 0.8, or the project does not increase road capacity

Existing Traffic Volume

The "Existing Traffic Volume" performance measure considered the existing volume of traffic that uses the project corridor or location, as measured by Weighted Traffic Flow (calculated as the average number of vehicles per lane, per hour). This measure favored projects that improve corridors that currently feature high volumes of traffic. Data for this measurement was provided by the 2017 VDOT SPS database. Scoring was determined as follows:

- High: Weighted Traffic Flow is greater than 300 vehicles
- **Medium**: Weighted Traffic Flow is between 150 and 299 vehicles
- Low: Weighted Traffic Flow less than 150 vehicles

Future Traffic Volume

The "Future Traffic Volume" performance measure considered the volume of traffic that is projected to use the project corridor or location in 2045, as measured by Weighted Traffic Flow (calculated as the average number of vehicles per lane, per hour). This measure favored projects that improve corridors that are expected to handle high volumes of traffic in the future. Future traffic projections were calculated using both the overall growth of the region, as well as anticipated developments that are expected to generate large amounts of traffic. Data for this measurement was provided by the 2017 VDOT SPS database. Scoring was determined as follows:

- **High**: Projected Weighted Traffic Flow is greater than 300 vehicles
- **Medium**: Projected Weighted Traffic Flow is between 150 and 299 vehicles
- Low: Projected Weighted Traffic Flow less than 150 vehicles

Alternative Transportation Facilities

The "Alternative Transportation Facilities" performance measure considered the estimated number of non-automotive modes (transit, bicycle, or pedestrian) that would be served by the proposed improvements. This measure favored projects that expand the region's transportation options and increase the mobility of those who do not have access to an automobile. Scoring was determined as follows:

- **High**: Includes facilities for two or more alternative modes of Transportation
- **Medium**: Includes facilities for one alternative mode of transportation
- Low: Does not include facilities for alternative modes of transportation

Community and Nature: Weighting and Performance Measures

The next highest weighted goal category in the evaluation tool was "Community and Nature." 10% of a project's score was determined by its impact on the region's social and environmental resources. This evaluation included two performance measures: Social Resources and Environmental Resources.



Social Resources

The "Social Resources" performance measure considered the project's impact on cultural and historic sites that have been identified by localities. This measure favored projects that do not negatively affect the region's important civic structures or sites. Data for this measurement included the location of National Register of Historic Places properties, schools, churches, libraries, and local points of interest. Scoring was determined as follows:

- **High**: Little or no potential impact on sensitive historic and cultural resources
- **Medium**: Moderate potential impact on sensitive historic and cultural resources
- Low: Major potential impact on sensitive historic and cultural resources

Environmental Resources

The "Environmental Resources" performance measure considered the project's impact on important environmental features in the region. This measure favored projects that do not disrupt environmental resources that provide aesthetic, ecological, recreational, and functional benefits to the region. Data for this measurement included the location of wetlands, rivers, streams, parks, and Virginia Outdoor Foundation easements. Scoring was determined as follows:

- **High**: Little or no potential impact on sensitive environmental resources
- **Medium**: Moderate potential impact on sensitive environmental resources
- Low: Major potential impact on sensitive environmental resources

Efficiency: Weighting and Performance Measures

The final goal category used in the evaluation tool was "Efficiency." 5% of a project's score was determined by the efficiency of its use of the region's resources and transportation funding. This evaluation included three performance measures: Right of Way Sufficiency, Plan Coordination, and Distribution of Benefits.

Right of Way Sufficiency

The "Right of Way Sufficiency" performance measure considered the sufficiency of the existing public right of way for accommodating the proposed project facilities. This measure favored projects that require little or no new land easements to be purchased by the state to be completed. Scoring was determined as follows:

- High: Does not require any additional right of way
- Medium: Will require a minor acquisition of additional right of way
- Low: Will require a major acquisition of additional right of way

Plan Coordination

The "Plan Coordination" performance measure considered the number of previously conducted plans that identified the proposed project as a study recommendation. This measure favored projects that have been supported and recommended by planning studies other than the region's LRTP. Data for this measurement was provided by regional and local government agencies. Scoring was determined as follows:

- High: Project is recommended by two or more existing plans
- **Medium**: Project is recommended by one existing plan
- Low: Project is not recommended by other existing plans

Distribution of Benefits

The "Distribution of Benefits" performance measure considered the projected geographic distribution of benefits provided by a project. This measure favored projects that offer significant benefits to multiple jurisdictions in the region. Scoring was determined as follows:

- High: Significant regional benefits
- Medium: Jurisdiction-wide benefits
- Low: Localized benefits

