Chapter 5: Performance Measurement and Transportation Planning

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Overview

One of the key elements of the Moving Ahead for Progress in the 21st Century Act (MAP-21) is that it established a performance-based program. As part of this Act, seven national performance goals were developed for Federal highway programs. In the near future, states and their localities will be responsible for setting targets that aid in accomplishing these national goals. Performance measures will then be developed to track how these targets are being met at the local level. Localities will soon be required to implement these performance measures to demonstrate that transportation projects and improvements included in long range transportation plans and short-range transportation improvement plans (TIP) meet targets set by the region. [1]

Given that this structure will soon be common practice, the MPO employed a similar approach and developed a set of performance measures to evaluate projects considered for inclusion in its Long Range Transportation Plan. Results from the analysis of each scenario were used to determine which scenarios and associated projects were helping to accomplish the region's goals. This process has allowed staff and the MPO committees to search for alternative projects, or project combinations that will best align with the region's vision for the future.

Performance Measures

Performance measures provide a quantitative value for potential transportation improvements. This allows future investment scenarios to be evaluated objectively and compared against one another in order to determine which projects will generate the greatest benefit for the region. The use of performance measurement systems is becoming standard in transportation planning. In keeping with this trend, the MPO developed a series of performance measures to assist in determining which capacity-building improvements would be most beneficial for the Charlottesville-Albemarle region. These measures were developed from Federal Highway Administration (FHWA) resources,[2] public comment, and input from the MPO's Citizen's Transportation Advisory Committee (CTAC) and the Technical Committee.

While many suggestions for performance measures were made, MPO staff was limited by data availability and time constraints for assessment. Given these limitations, MPO staff, with help from project partners, was able to develop sixteen performance measures. These performance measures were used to assess various project scenarios in a process that is discussed in more detail in Chapter 7.

The performance measures are divided into four general categories: Mobility, Economy, Environment, and Community. (Refer to Table 5-1).

- **Mobility** measures assess how each scenario affects the regional transportation system. For example: does the scenario relieve congestion?
- **Economic** measures consider how each scenario affects the region's economic potential. For example: does the scenario provide better access to jobs?
- **Environmental** measures consider how scenarios will affect the environment. For example: will the scenario adversely affect wildlife areas, riparian buffers, and wetlands?
- **Community** measures consider how each scenario will affect the community. For example: how accessible is transit for the region's population?

[1] http://www.fhwa.dot.gov/map21/summaryinfo.cfm
[2] http://shrp2webtool.camsys.com/

Performance Measures (Table 5-1)

Measure	Description
Mobility	
Congestion	The total percentage of roads that will have a level of service E or F in 2040.
Delay	The total daily hours of delay that congestion will cause in the year 2040.
Mode Share	The percentage of trips across the four main travel modes, automotive, transit, bike and walk for 2040.
Vehicle Mobility	The total system-wide vehicle miles traveled for 2040.
Vehicle Crashes	The total system-wide crashes per year for 2040.
Bicycle Connectivity	The total percentage of bikable roads in the urban area.
Economy	
Access to Jobs	The average travel time to work.
Transit Accessibility	The percentage of population and the percentage of employed individuals within the MPO with access to transit.
Environment	
Habitat	The aggregate impact of projects on natural resources and habitats within 500 foot buffer of project.
Air Quality	The percent change in air quality gases and particulates in tons per year.
Water Quality	The percent change in the amount of stormwater pollutants in tons per year.
Flood Plain	The total acreage of flood plain within a 500 foot buffer of the projects.
Historical/Archeological Sites	The total number of historic or archeological sites within a 500 foot buffer of these projects.
Community	
Land Use	The total number of land parcels within a 500 foot buffer of the potential projects by usage: residential, comm./ind., parks, educ./religious/charitable, and agricultural/undeveloped.
Environmental Justice and Title VI: Transit Access	The total percentage of Environmental Justice or Title VI groups with access to transit: minorities, 65 and older, limited-English speaking, and household income of less than $25,000.
Environmental Justice and Title VI: Impacts	The total percentage of Environmental Justice or Title VI groups potentially impacted due to projects: minorities, 65 and older, limited-English speaking, and household income of less than $25,000.

Mobility measures

Six mobility measures were used to assess each scenario:

1. Congestion
2. Delay
3. Mode Share
4. Vehicle Mobility
5. Vehicle Crashes
6. Bicycle Connectivity

» *Congestion*

The MPO's travel demand model uses forecasted demographic data to estimate the number of vehicles expected on each road in 2040. One of the many variables it calculates is the percentage of the road's capacity that will be used in the future. Congestion is expected on road segments where 85% or more of the available capacity is projected to be used during the day. The cumulative distance of road segments using 85% or more of their available capacity is then divided by the cumulative distance of road segments in the model's entire network to determine the percentage of roads that are expected to be congested. As we add scenarios with projects that provide additional capacity to the 2040 network model, the congestion on those roadways improves. The congestion measure calculates the change in the percentage of roads that are expected to be congested between the base and other scenarios. It provides a quantitative measure for determining whether congestion will be alleviated if certain projects are added in the future. This measure cannot, however, specify improvement by degree of congestion.

» Delay

The travel demand model provides both free-flow and congested speeds for each road segment in the network. These speeds are used to calculate how long it takes to travel a link both with and without congestion, i.e. changes in the degree of congestion on a road. The free flow time subtracted from the congested time equals excess traveling time due to congestion. This measure is significant in that the Congestion measure will only indicate a change if the congestion is completely alleviated by a given scenario. If the volume on a road exceeds the capacity by 120% in the 2040 Base and then improves to using only 95% of the capacity when a project is added, it is still considered congested and will not show an improvement within the Congestion measure. However, it will take less time to travel that road with the given scenario than it would without. This is considered an improvement to the total hours of delay. Essentially, this measure provides a finer measurement for detecting changes in the level of congestion.

» Mode Share

The travel demand model estimates the number of trips made by car, transit, bicycle, and walking daily in 2040. This measure is significant in that it indicates how the addition of specific projects will affect the mode of transportation people will likely use to reach their destination.

» Vehicle Mobility

The travel demand model estimates the daily total of vehicle miles traveled (VMT) for the MPO in 2040. As projects are added to the network that results in faster or more direct routes to destinations, there is a reduction in the total VMT.

» Vehicle Crashes

Vehicle crashes are estimated based on the daily vehicle miles traveled (VMT). Staff received data on the total number of crashes from 2006 through 2011 from VDOT. The average number of crashes per vehicle miles traveled was then calculated. This value was used to estimate the number of crashes expected in 2040 based on each scenario's VMT.

» Bicycle Connectivity

Bicycle connectivity was calculated based on a previous analysis conducted by the MPO during the transportation deficiencies assessment. MPO staff assessed network bicycle connectivity by determining the main barriers to regional bike connectivity. These barriers included everything from high-volume, high-speed roads to river and streams. Using these barriers, MPO staff was able to develop zones of bikeability: areas that one could bike within, but could not easily leave via bike. Staff used existing facilities, bike lanes, and multi-use paths to find connections between these zones, in some cases merging them. This process resulted in eight adjacent zones of bikeability, with the largest, or core, zone centering over the northern part of Charlottesville and bordering Albemarle. As new projects were considered, the overall size of the core zone either stayed the same or expanded due to improvements included in each project. The overall distance of the network was assessed. The distance of the largest contiguous bikeable area was divided by the total distance of all bikeable areas to determine the percentage of the area that is contiguous. This analysis was conducted using ArcGIS mapping software and used 2010 conditions as the base year for assessment.

Economic Measures

Two economic measures were used to assess each scenario:

1. Access to Jobs
2. Transit Accessibility

» Access to Jobs

Access to jobs was calculated using the travel demand model. Six residential neighborhoods were selected as origins, and six employment centers were selected as destinations. The model calculated the travel time during rush hour from each origin to each destination in 2040, and the average of all thirty-six values was calculated, resulting in an average travel time to work for the region.

Originating neighborhoods include:

1. Pantops
2. Fry's Spring
3. Martha Jefferson
4. Forest Lakes
5. Crozet
6. Mill Creek

Employment center destinations include:

1. Downtown
2. Fontaine Research Park
3. Hollymead
4. Stonefield/US 29
5. State Farm/Martha Jefferson Hospital
6. UVa Medical Center

» *Transit Accessibility*

Transit accessibility was calculated using 2040 forecasted population and employment data from the MPO's Travel Demand Model. The analysis determines the total population living within one-quarter mile of a bus stop and the total employment within one-quarter mile of a bus stop. MPO staff calculated distances using existing bus stop data for Charlottesville Area Transit, as it was impossible to forecast future locations of bus stops.

» *Environment*

Five environment measures were used to assess each scenario:

1. Habitat
2. Air Quality
3. Water Quality
4. Flood Plain
5. Historical/Archeological Sites

» *Habitat*

Potential habitat impacts associated with Long Range Transportation Plan projects were calculated using the TJPDC's Eco-Logical Regional Ecological Framework (REF) tool. The REF tool is a GIS-based tool that identifies regionally important habitats and species. The tool relies on a Regional Ecological Framework map that was developed from nine input datasets representing ecological significance at the regional scale. The tool provides a numerical system for calculating a project's potential impact on the region's environmental resources. The tool's functionality is driven by a base map that represents habitat value and density in the form of a numeric score. Scores range from a low of 2 to a high of 52. Each potential project was scored by overlapping it with the REF tool in GIS. In the case of the LRTP, suggested projects were mapped in GIS surrounded by a five-hundred foot buffer to represent the potential impact area of a project.

» *Air Quality*

Air quality was calculated using the Environmental Protection Agency's (EPA's) Office of Transportation and Air Quality (OTAQ) Motor Vehicle Emission Simulator (MOVES)[1]. MOVES uses VMT data from the model, along with vehicle-specific data from the Department of Motor Vehicles (DMV) and the Virginia Department of Environmental Quality (DEQ), to estimate vehicle emissions. Emissions are measured in total tons of pollutants expected to be produced. This measure used forecasted data for 2040 conditions as the base year for assessment.

» *Water Quality*

Potential impacts on water quality were calculated by estimating the additional amount of impervious surface new roads would add to existing impervious surface area. This was calculated by determining the total acreage of new roadways based on the proposed roadway type and number of lanes, and then adding that acreage to the existing impervious surface acreage. MPO staff then identified average runoff totals for a variety of common pollutants associated with roadways, and applied these numbers to average rainfall totals using the industry standard Simple Method for calculating urban stormwater loads[2]. The Simple Method estimates pollutant loads for chemicals in stormwater as a product of annual stormwater runoff volumes, and is expressed in pounds. Note: this model does not account for stormwater control or BMP removal efficacies associated with stormwater management facilities that would be installed with a new project.

[1] http://www.epa.gov/otaq/models/moves/

[2] Schueler, Tom, 1987. Controlling urban runoff: a practical manual for planning and designing urban BMPs. Metropolitan Washington Council of Governments. Washington, DC.

» Flood Plain

Potential Impacts to flood plains were determined by calculating the total acreage of 100-year flood plains that might be impacted by new transportation projects. Acreage was calculated by estimating roadway widths based on type and number of lanes. Lengths and widths of new road segments were added into GIS, which allowed MPO staff to calculate the area of new projects that fell in the 100-year flood plain. The new acreage was then compared with a 2010 base of existing roadways. This comparison allowed for the calculation of a percent increase or decrease of flood plain impacts. 100-year flood plain data was sourced from Albemarle County and the City of Charlottesville. Flood plain data is maintained by FEMA and is available online at http://www.floodsmart.gov.

» Historical/Archeological Sites

Impacts to historical and archeological sites were based on a tally of the total number of sites within five hundred feet of the MPO's roadways in each scenario. This analysis was conducted using ArcGIS mapping software and using data from the Virginia Department of Historic Resources. Sites accounted for included both existing and destroyed historical sites, and general areas of archeological sites. This measure used 2010 conditions as the base year for assessment.

Community

Three performance measures were used to assess each scenario:

1. Land Use
2. Environmental Justice and Title VI: Transit Access
3. Environmental Justice and Title VI: Impacts

» Land Use

Land use impacts were determined by calculating the total number of parcels within five hundred feet of roadway projects under consideration for inclusion in the long range transportation plan. City and County land assessor records were used for data and to specify land uses. Analysis was conducted using ArcGIS mapping software and used 2010 conditions as the base year for assessment. The following classifications of land use were made:

1. Residential
2. Commercial/Industrial
3. Parks
4. Educational/Religious/Charitable
5. Agriculture or undeveloped

» Environmental Justice and Title VI: Transit Access

Environmental Justice and Title VI transit access impacts were determined by calculating the Title VI populations living within one-quarter mile of existing Charlottesville Area Transit bus stops. The data for these populations was obtained through the American Community Survey. This measure was assessed using ArcGIS mapping software and used 2010 conditions as the base year for this assessment. The populations considered include:

1. Minority
2. 65 years of age and older
3. Limited English-speaking
4. Total households
5. Household income less than $25,000

» Environmental Justice and Title VI: Impacts

Environmental Justice and Title VI impacts were determined by calculating the Title VI populations living near sites where new projects have been proposed. MPO staff calculated the total population of Title VI groups that live in a 500-foot buffer of projects under consideration for inclusion in the Long Range Transportation Plan. The data for these populations was obtained through the American Community survey. This measure was assessed using ArcGIS mapping software and used 2010 conditions as the base year for this assessment. The populations considered include:

1. Minority
2. 65 years of age and older
3. Limited English-speaking
4. Total households
5. Household income less than $25,000

Process

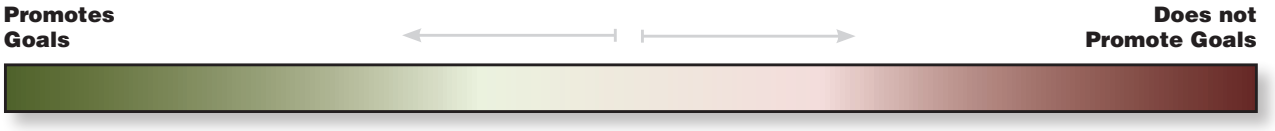
The performance measurement analysis is structured as a comparison between the 2040 base, or "no-build, future-year scenario," and scenarios with proposed projects. The 2040 Base Scenario was analyzed first, and the results from this analysis were used as a control. Comparing the other scenarios against the 2040 Base allowed MPO staff to determine whether the proposed scenarios worked toward, or away, from achieving the goals outlined in Chapter 4. Each proposed scenario was then evaluated based on the sixteen performance measures. Results from the analyses were documented in a table and presented to the MPO committees and the public to aid in their decision-making process. Table 5-2 shows an example of the analysis results table comparing the 2040 Base data to results from Scenario 1A. Results that moved toward achieving the region's goals are highlighted in shades of green, while results that moved away from the region's goals are highlighted in shades of red. Figure 5-1 further explains how to interpret the analysis results table; the darker the shade, the greater the move toward or away from the goals.

Key for Interpreting the Analysis Results Table (Figure 5-1)

Green indicates that the scenario's measure promotes the goal, while red indicates that it does not, and grey shows minimal change (< 1%). Darker shades of red or green indicate greater impact of the scenario on that performance measure.

COLOR KEY				
Measure Shows Trend Toward Goals	1% to 5%	5.1% to 10%	10.1% to 20%	More than 20%
Measure Show Trend Away from Goals	-1% to-5%	-5.1% to -10%	-10.1% to -20%	Less than -20%
No Trend Shown	.99% to-.99%			

Positive values indicate the scenario fosters LRTP goals.
Negative values indicate the scenario does not foster goals.



Relationship to the Vision, Goals and Objectives

The intent of the performance measures is to evaluate the degree to which each scenario accomplishes the region's vision, goals, and objectives outlined in Chapter 4. As such, the measures were intended to relate to both the Eight Planning Factors and the Regional Mobility Goals. Table 5-3 illustrates the relationship between the performance measures and the Eight Planning Factors. Table 5-4 illustrates the relationship between the performance measures and the Regional Mobility Goals. Due to limited availability of data, some of the goals could not be measured. For example, the Freight section of Goal 1: A Multimodal Transportation Network, does not have any measures with which to be compared due to a lack of regionally specific data. Other goals, such as Goal 3: Funding, were not quantifiable; however funding is addressed during the fiscal-constraint process, described more fully in Chapter 9.

Example of the Analysis Results Table (Table 5-2)

Performance Measurement	Base		Scenario 1A	
Mobility	Value	Unit of Measure	Value	% Change
Congestion (% of roads at LOS E or F)	14.1%	% of Roads	12.6%	10.5%
Congestion (hours of delay per day)	23,181.0	Hours	20,187.0	11.6%
Mode Share (percent of Trips)	759,319	Trips/Day	759,334	0.0%
Auto	88.1%	Percent of Trips	88.1%	0.1%
Transit	2.5%	Percent of Trips	2.5%	0.1%
Bike	2.7%	Percent of Trips	2.7%	0.2%
Walk	6.7%	Percent of Trips	6.8%	0.9%
Vehicle Mobility (vehicle miles traveled)	6,228,031.0	Miles/Day	6,145,450.8	0.6%
Vehicle Crashes (crashes per year)	2,865.0	Crashes/Year	2,827.0	1.3%
Bicycle Connectivity (% in largest connected area)	68.2%	% of largest area	73.4%	5.2%
Economy	Value	Unit of Measure	Value	% Change
Access to Jobs (average travel time to work)	10.6	Minutes	10.3	2.8%
Transit Accessibility (total population within ¼ mile of transit stop) (2040)	67,185	People	67,185	0.0%
Transit Accessibility (total employment within ¼ mile of transit stop) (2040)	52,633	People	52,633	0.0%
Environment	Value	Unit of Measure	Value	% Change
Habitat	1,775.5	Eco Logical Score/Mile	1,786.9	-0.6%
Air Quality (tons per year)	13,321.0	Tons/Year	13,211.0	0.8%
Water Quality (% change in stormwater/water pollutants) (tons per year)	1,079.1	Tons/Year	1,168.3	-8.3%
Flood Plain (acres of 100 year flood plain affected)	99.1	Acres	120.2	-21.3%
Historical (designated historic sites within 500 ft of projects)	1,141	# of Sites	1,171	-2.6%
Archeological (designated archeological sites within 500 ft of projects)	264	# of Sites	299	-13.3%
Community	Value	Unit of Measure	Value	% Change
Land Uses Affected (# of parcels within 500 ft of projects)	35,061	Parcels	35,895	-2.4%
Residential	32,411	Parcels	33,055	-2.0%
Commercial/Industrial	1,267	Parcels	1,400	-10.5%
Parks	42	Parcels	45	-7.1%
Educational/Religious/Charitable	343	Parcels	359	-4.7%
Agriculture or undeveloped	998	Parcels	1,036	-3.8%
Environmental Justice and Title VI Populations with Transit Access (2010), within ¼ mile of transit stops	Value	Unit of Measure	Value	% Change
Total Minority with transit access	18,996	People	18,996	0.0%
Total 65 and over with transit access	5,135	People	5,135	0.0%
Total Limited English-Speaking with transit access	8,428	People	8,428	0.0%
Total Households with transit access	20,877	People	20,877	0.0%
Total Household Income > $25K with transit access	6,564	People	6,564	0.0%
Environmental Justice and Title VI Populations potential impacts due to projects (2010)	Value	Unit of Measure	Value	% Change
Total Minority impacted	28,812	People	29,071	0.9%
Total 65 and over impacted	10,658	People	11,033	3.5%
Total Limited English-Speaking impacted	13,427	People	13,867	3.3%
Total Households impacted	37,119	People	38,134	2.7%
Total Household Income Less than $25,000 impacted	9,287	People	9,511	2.4%

Relationship of the Performance Measures to the Eight Planning Factors (Table 5-3)

2040 LRTP: Eight Planning Factors & Performance Measures Relationship Matrix

- Eight Planning Factors -

	Congestion: The total percentage of roads that will have a level of service E or F in 2040.	**Delay:** The total daily hours of delay that congestion will cause in the year 2040.	**Mode-Share:** The percentage of trips across the four main travel modes, automotive, transit, bike and walk for 2040.	**Vehicle Mobility:** The total system-wide vehicle miles traveled for 2040.	**Vehicle Crashes:** The total system-wide crashes per year for 2040.	**Bicycle Connectivity:** The total percentage of bikable roads in the urban area.	**Access to Jobs:** The average travel time to work.	**Transit Accessibility:** The percentage of the population/employed within the MPO, with access to transit.	**Eco Logical (habitat):** A project score based on a local model that identifies and weights regionally significant habitats.	**Air Quality:** The percent change in air quality gases and particulates in tons per year.	**Water Quality:** The percent change in the amount of stormwater pollutants in tons per year.	**Flood Plain:** The total acreage of flood plain within a 500 foot buffer of the projects.	**Historical/Archeological sites:** The total number of historic or archeological sites within a 500 foot buffer of these projects.	**Land Use:** The total number of land parcels within a 500 foot buffer of the potential projects by usage.	**Env. Justice and Title VI (Transit Access):** The total percentage of Env. Justice or Title VI groups with transit access.	**Env. Justice and Title VI (Impacts):** The total percentage of Env. Justice or Title VI groups impacted due to projects.
1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficieny.	✓	✓		✓			✓	✓						✓	✓	
2. Increase the safety of the transportation system for motorized and nonmotorized users.				✓	✓					✓		✓				
3. Increase the security of the transportation network for motoroized and nonmotorized users.					✓											
4. Increase the accessibility and mobility of people and for freight.	✓	✓	✓	✓		✓	✓	✓						✓	✓	✓
5. Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
6. Enhance integration and connectivity of the transportation system, across and between modes, for people and freight.			✓	✓		✓	✓	✓							✓	✓
7. Promote effcient system management and operation.	✓	✓	✓	✓		✓	✓	✓		✓						
8. Emphasize the preservation of the existing transportation system.				✓												

- Performance Measures -

Conclusion

The MPO's use of sixteen performance measures for the development of the 2040 Long Range Transportation Plan was a first for our region. It was important to both MPO staff and MPO stakeholders that the performance measures in the Long Range Transportation Plan represented a wide variety of transportation issues, ranging from the congestion related to environmental impacts. All of the elements are reviewed when a transportation project is considered for implementation. Therefore, there is a need to thoroughly consider these issues early on in the long range transportation planning process.

Relationship of the Performance Measures to the Regional Mobility Goals (Table 5-4)

			Congestion	Delay	Mode-Share	Vehicle Mobility	Vehicle Crashes	Bicycle Connectivity	Access to Jobs	Transit Accessibility	Eco Logical (habitat)	Air Quality	Water Quality	Flood Plain	Historical/Archeological sites	Land Use	Env. Justice and Title VI (Transit Access)	Env. Justice and Title VI (Impacts)
1. Goal: A Multimodal Transportation Network	a. System-Wide	i. Plan for a fully-integrated transportation system that allows people to choose from an array of modes to meet mobility needs.			✓			✓		✓							✓	
		ii. Enhance and utilize technology to maximize efficiency and convenience for planning trips and choosing modes.																
		iii. Design a streetscape that is not only useful but enhances the community's local aesthetics; including...																
		iv. Engage the public in options and priorities for transportation development.																
	b. Roads	i. Support improvements to the existing roads for balanced, interconnected multimodal performance and safety.			✓	✓	✓	✓										
		ii. Work with VDOT on flexible roadway designs for a more balanced, multimodal performance.			✓			✓										
		iii. Keep the existing transportation network properly maintained for the safety and convenience of all who use it.																
	c. Transit	i. Develop enhanced bus, bus rapid transit (BRT), or streetcars for fast, frequent, dependable service on major corridors.		✓	✓					✓							✓	
		ii. Establish interregional and intraregional commuter express service from outlying area.			✓					✓							✓	
		iii. Improve regional and interstate passenger rail service.																
		iv. Determine appropriate system improvements for the downtown area and in neighborhoods.			✓	✓			✓	✓								✓
		v. Continue to work toward the establishment of a Regional Transit Authorit .																
	d. Walk	i. Establish a complete and fully connected sidewalk system.			✓													
		ii. Plan and implement safe, accessible crosswalks with pedestrian refuges.			✓													
		i. Establish a pedestrian system that is as ADA accessible as possible.																
	e. Bike	i. Establish on-road bike lanes on urban streets, where possible.			✓			✓										
		ii. Establish off-road multi-purpose trails along major corridors, where possible.			✓			✓										
		iii. Establish secure bike parking in key locations throughout the region.			✓													
		iv. Upgrade and/or calibrate traffic signals to detect and accommodate bikes.						✓										
		v. Determine locations to integrate grade-separated facilities into the existing infrastructure			✓													
		vi. Establish framework to automatically count bikes.																
	f. RideShare/TDM/ITS	i. Consider opportunities and options for dedicated travel lanes for carpool and vanpool participants.	✓	✓	✓	✓						✓						
		ii. Continue to work with employers in the region to establish more incentives to carpool.	✓	✓	✓	✓		✓				✓						
		iii. Improve and increase the region's Park and Ride lots.	✓	✓	✓	✓		✓									✓	
		iv. Coordinate TDM strategies for commutes, special events and other trip types.				✓				✓								
	g. Freight	i. Improve transportation system to facilitate regional freight service.																
		ii. Enhance access for rail and truck freight.																
		iii. Separate freight movements from passenger travel, where possible.																
		iv. Support the on-time delivery need of local and statewide businesses and industr .																
Goals 2. Land Use and Transportation	Land Use & Multimodal Transp.	i. Blend land use and transportation planning to ensure proper place-making.										✓		✓	✓	✓	✓	✓
		ii. Integrate the policies for the City's and the County's respective comprehensive plans with transportation planning at the MPO.												✓	✓	✓		✓
		iii. Focus on jurisdiction transition areas to make sure the land use and infrastructure blend seamlessly.															✓	
		iv. Recognize current and future growth areas and identifying infrastructure need of these areas.															✓	
		v. Plan transportation infrastructure that maintains the neighborhood scale and supports existing and planned densities.															✓	
		vi. Expand modeling and forecasting technology to better coordinate the transportation system with current and land use.																
Goal 3. Funding	Overarching	i. Re-evaluate funding streams to establish a more diverse, cost-effective, and multimodal system.																
		ii. Construct a clearer and more approachable prioritization outline for local level projects.																
		iii. Determine what an adequate and reliably available amount of funding is.																
		iv. Establish funding flexibility in order to meet regional and local priorities.																

Congestion: The total percentage of roads that will have a level of service E or F in 2040

Delay: The total daily hours of delay that congestion will cause in the year 2040

Mode-Share: The percentage of trips across the four main travel modes, automotive, transit, bike and walk for 2040

Vehicle Mobility: The total system-wide vehicle miles traveled for 2040.

Vehicle Crashes: The total system-wide crashes per year for 2040.

Bicycle Connectivity: The total percentage of bikable roads in the urban area.

Access to Jobs: The average travel time to work.

Transit Accessibility: The percentage of the population employed within the MPO, with access to transit.

Eco Logical (habitat): A project score based on a local model that identifies and weights regionally significant habitats.

Air Quality: The percent change in air quality gasses and particulates in tons per year.

Water Quality: The percent change in the amount of stormwater pollutants in tons per year.

Flood Plain: The total acreage of flood plain within a 500 foot buffer of the projects.

Historical/Archeological sites: The total number of historic or archeological sites within a 500 foot buffer of these projects.

Land Use: The total number of land parcels within a 500 foot buffer of the potential projects by usage.

Env. Justice and Title VI (Transit Access): The total percentage of Env. Justice or Title VI groups with transit access.

Env. Justice and Title VI (Impacts): The total percentage of Env. Justice or Title VI groups impacted due to projects.

2040 LRTP:
Mobility Goals & Regional Performance Measures Relationship Matrix

NOTE: Some Regional Mobility Goals, such as our funding goals, focus on components of transporation planning that are not assessed with the performance measures that are currently listed. Many of these goals will be considered in other portions of the LRTP development process, such as fiscal-constraint analysis.