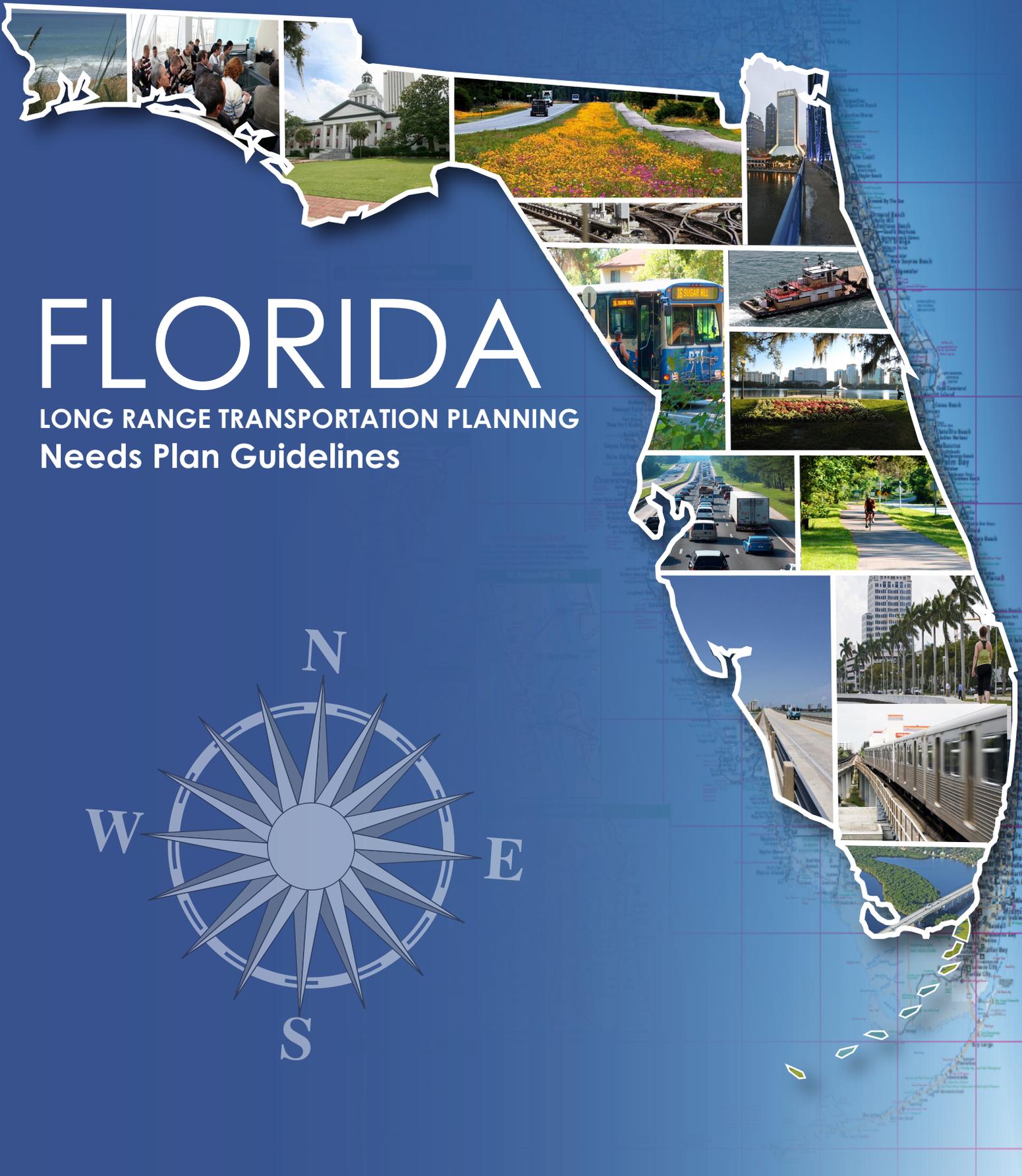
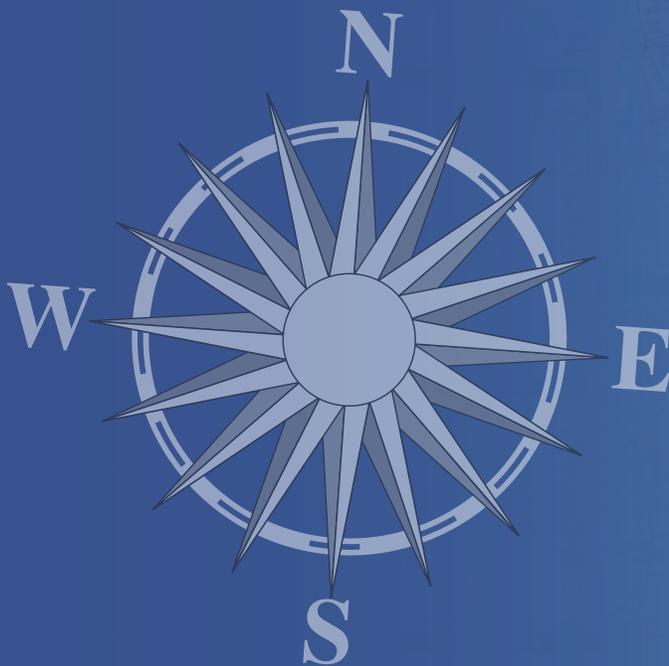


# FLORIDA

## LONG RANGE TRANSPORTATION PLANNING Needs Plan Guidelines



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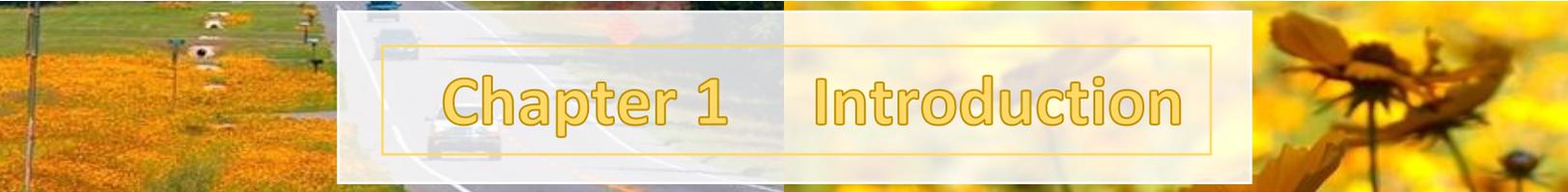
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# Chapter 1 Introduction

The Long Range Transportation planning process is one that is complex and incorporates countless factors during development and implementation. It has continuously developed since 1962, when the Federal-Aid Highway Act was passed. The Act required that all metropolitan statistical areas create and update plans based on a planning process that is “continuing, cooperative, and comprehensive” (3-C)<sup>1</sup>. This process is governed by Title 23 United States Code (USC) Section 134, Title 49 USC Section 5303, and is codified in Title 23 Code of Federal Regulations (CFR) Part 450. In 1973, another Federal-Aid Highway Act was passed, which required the creation of Metropolitan Planning Organizations (MPOs) in urban areas with populations greater than 50,000. It also required MPOs to create a minimum 20-year Long Range Transportation Plan (LRTP), and outlined the requirements for the LRTP in Title 23 USC Section 134(i), Title 49 USC Section 5303(i), and Title 23 CFR Part 450.322.

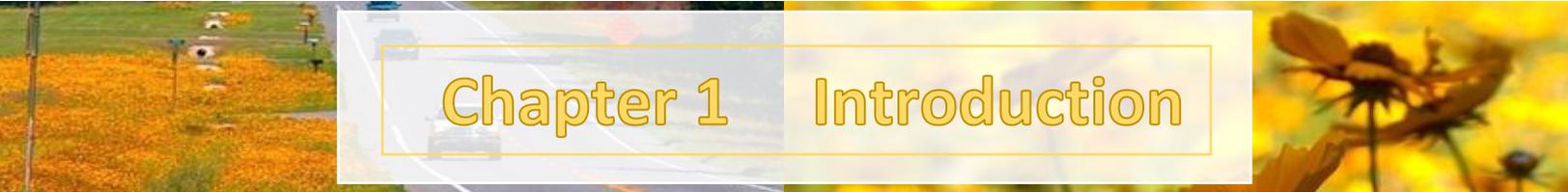
## Purpose

The purpose of the Long Range Transportation Plan (LRTP) is to assess the current state of transportation planning in a particular region and determine which transportation options best serve the needs and expectations of that region in the future. The planning process for an LRTP often includes an analysis of existing and future conditions, the creation of goals and objectives, identification of needed transportation investments, a forecast of future revenues, and the identification of cost-feasible transportation improvements that can be implemented over the life of the LRTP. Existing and future conditions and needed transportation investments are often assessed through the use of travel demand models and technical analysis that is incorporated into the plan through the development of a Needs Plan. A Needs Plan (also known as a Needs Assessment) is a component of the LRTP that takes into account current and future transportation needs without consideration of financial constraints. The terms “Needs Plan” and “Needs Assessment” will be used interchangeably within this document. While not required by Federal regulation, a Needs Plan or Needs Assessment can aid in inventorying a region’s transportation needs to prioritize which projects should be funded to achieve a more efficient and interconnected transportation system. Because a Needs Plan is not required, there are no specific guidelines to aid in the development and analysis of needs. Therefore, this report was created as a means to aid in the development of needs planning by examining 10 LRTPs throughout the state of Florida, as well as 10 best practice examples from different MPOs throughout the country. The Florida MPOs were selected based on their forecasted needs, while the best practice examples were selected based on evaluation of the needs components within the LRTPs in comparison to various criteria identified within Chapters 2 and 4 in this document.

In addition, this document examines the impact of Sector Plans on the LRTP planning process. It examines Sector Plans that impact the MPOs selected for analysis. By examining the state of LRTP needs

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<sup>1</sup> The 3-C planning process is currently referenced in Title 23 USC Section 134(c)(3), Title 49 USC Section 5303(c)(3), and Title 23 CFR Parts 450.300(a) and 450.306(a).



# Chapter 1 Introduction

assessments of several Florida MPOs and examining best practice examples from LRTPs throughout the country, in addition to Sector Plans, the Florida Department of Transportation aims to provide guidance to aid MPOs in the future development of LRTP Needs Plans. The Department also aims to assist MPOs in evaluating costs as part of the assessment, and to reduce shortfall amounts.

## Background

As reported in a succession of reviews of MPO LRTPs performed by the USF Center for Urban Transportation Research (CUTR), a 1997 review reported a cumulative shortfall of \$22.3 billion for all of Florida's MPOs, which increased to a 2013 estimate of \$126.4 billion. After converting estimates to constant 2009 dollars, this translates to a 300 percent increase in the estimated funding shortfall of Florida's MPOs.

A number of contributing factors for this growth have been suggested. On the revenue side, the impact of the prolonged national recession has dampened the growth in motor fuel taxes. This has been exacerbated by: more fuel efficient vehicles which consume less fuel, higher prices of fuel, and demographic shifts that have slowed the growth in vehicle miles of travel (VMT). On the cost side, there have been changes in the way MPOs summarize and report their needs within their respective LRTPs, with some including operating and maintenance costs in their most recent update when they had not previously done so. An additional consideration is the addition of major transit capital projects within the MPO LRTP Needs Plans.

As reported in a 2013 CUTR Report, titled "Review of MPO Long Range Transportation Plans and Estimate of Statewide 2035 Metropolitan Area Financial Shortfall," larger funding shortfalls are typically (but not always) reported by MPOs in larger urbanized areas, such as MetroPlan Orlando (\$29.8 billion), the Miami-Dade MPO (\$18.8 billion), and the Hillsborough County MPO (\$11.6 billion). Surprisingly, some of the less populated MPOs have large estimated funding shortfalls as well; for example the Florida-Alabama TPO (nearly \$7 billion) and the Okaloosa-Walton TPO (\$6.2 billion) have shortfalls that are greater than Pinellas and Broward. However, it is important to note that the Florida-Alabama TPO and the Okaloosa-Walton TPO are both staffed by the West Florida Regional Planning Council, and the needs planning process is similar in both plans, which may contribute to the similarity in their large funding shortfalls. Therefore, only the Florida-Alabama TPO was selected as part of this review. The methodology for the selection of Florida LRTP Needs Plans for review in this report is further explained in Chapter 3.

It is important to recognize that the Florida Metropolitan Planning Advisory Council (MPOAC) has suggested criteria for developing "Needs" that are realistic, which recognizes that some facilities are constrained or otherwise have environmental or community impacts that make it impractical for them to be expanded. The MPOAC's guidance suggests that these types of projects should not be included in the definition of an area's needs, which includes a comprehensive description of the region's needed transportation projects, regardless of cost.

## Methodology

Incorporation of a Needs Plan into a Long Range Transportation Plan is important because it aids in shaping the future of the transportation system within a region. The Needs Plan review examined plans from around the country, including LRTPs from Florida. The evaluation process included five key steps:

1. Selection of Florida LRTP Needs Plans Based on Funding Shortfalls,
2. Initial Review of National LRTP Needs Plans selected from the “LRTP Citizen-Friendly Best Practices” report and plans selected through additional research,
3. Development of Criteria to Review LRTP Needs Plans,
4. Selection of National LRTP Needs Plans, and
5. Review and evaluation of Florida and Selected National LRTP Needs Plans.

First, Florida LRTP Needs Plans were selected based on the funding shortfalls reported in the 2013 CUTR Report. Next, an initial review was conducted of National LRTP Needs Plans selected from the “LRTP Citizen-Friendly Best Practices” report and plans selected through additional research. Following a review of over twenty non-Florida LRTPs and ten Florida LRTPs, five key elements were identified as important components in the development of a Needs Plan. These elements furthered the direction of the LRTP, improved the comprehensiveness of the assessment, and aided in the project prioritization process. The key elements were distilled into five (5) criteria that were used to assess both the Florida and non-Florida LRTP Needs Plans. The criteria include: (1) definition of need, (2) descriptiveness, (3) technical documentation, (4) cost, and (5) quality. The twenty non-Florida LRTPs were evaluated using the five criteria; ten were selected as best practice examples, with two representing each one of the five criteria. The goal was to include LRTP Needs Plans that rate high on all five criteria. However, some LRTPs scored well on a few of the criteria components, while not as well on others. As a result, best practices are being recognized for each individual criterion—not as complete LRTPs. **Figure 1-1** depicts the final set of Florida and non-Florida LRTPs selected for review.

The Florida MPO LRTPs were also assessed using the five criteria identified. Some plans scored better in some categories than in others, but it must be noted that the majority of the MPOs are currently in the process of completing their 2040 updates of the LRTPs, and these recommended elements may already be incorporated into their plans. When completing the review of the Florida LRTPs, it was thus more important to focus on what types of projects were contributing to the overall shortfall amounts. Shortfalls were assessed by dollar and percentage amounts (in relation to each plan’s adopted list of cost feasible projects), and those with the largest funding shortfalls were chosen for review. A more detailed description of the LRTP selection methodology can be found in Chapter 3.

# Chapter 1 Introduction



Figure 1-1



# Chapter 2 Evaluation Criteria

This report uses five key criteria to evaluate LRTPs. Each criterion contains several sub-criteria that are used to further define components examined within the plans. Each component is rated on a scale from one to four, one being the component is not included within the plan to four being that the component is extensively incorporated within the plan. The five criteria used for plan evaluation include: (1) definition of need, (2) descriptiveness, (3) technical documentation, (4) cost, and (5) quality. These five criteria elements will be further explored throughout this section. **Table 2-1** shows the summarized criteria and associated subcategories.

## Definition of Need

The “Definition of Need” criterion includes two components: the ability of a Needs Plan to clearly define its needs, and the degree to which the plan is able to define needs by mode. Florida’s MPOs collectively agreed that the LRTPs will document unmet needs. To do so, it is important to define what a need consists of at the MPO level. Many plans have identified projects that are “needed,” but have not developed a methodology as to what constitutes its needs. Defining needs by mode allows for better analysis as to whether these needs are being met. It also aids in pinpointing whether projects listed in the plan will address future transportation demand.

## Descriptiveness

The “Descriptiveness” criterion includes three components: the extent to which a Needs Plan includes a methodology to assess needs, how it assesses existing needs, and how it incorporates proposed actions to address needs. The degree to which the plan addresses needs varies depending on the MPO size, funding availability, and many other factors. However, when addressing needs, it is important to identify a methodology for evaluating needs to ensure continuity between plan updates, and to ensure key factors are taken into consideration. It is also important to incorporate existing conditions to evaluate the current status of the transportation system. After existing conditions have been evaluated, it is important to incorporate and address proposed actions or strategies to improve the transportation system in the future. This ensures that the plan has a direction and identifies a vision.

## Technical Methodology

The “Technical Methodology” criterion includes two components: the extent to how multiple methodological tools are integrated into the Needs Plan, and the extent to which modal analysis tools are employed as well. This element of the plan was evaluated based on the degree of incorporation within the plan, and the degree of descriptiveness of model utilization. Utilization of modeling techniques aids in the analysis of various factors that impact the transportation system in a region. It is therefore important to incorporate some form of technical evaluation when assessing projects for the LRTP.



## Chapter 2 Evaluation Criteria

### Cost

The “Cost” criterion includes three components: the extent to how a Needs Plan incorporates a cost assessment by mode, whether it incorporates available revenues, and whether it incorporates funded and unfunded projects. While federal law requires LRTPs to be cost constrained (e.g., the Cost Feasible Plan), LRTPs are not required to include a needs analysis (e.g., a Needs Plan). While a Needs Cost Assessment is not required, it is strongly encouraged. Incorporation of a Needs Cost Assessment allows for a realistic calculation of needs costs. These costs then feed into the Cost Feasible Plan, through the utilization of a project prioritization process which is also recommended. Through a calculation of available revenues, the project prioritization process can account for funding availability. Inclusion of funded and unfunded projects allows for an MPO to calculate what percentage of transportation needs are being met, and what percentage constitute a shortfall amount. Therefore, it can track how well the region is meeting its transportation needs well into the future.

### Quality

The “Quality” criterion includes three components: the quality of a Needs Plan project evaluation process; the quality of the linkage between the LRTPs vision, goals, objectives and project evaluation criteria; and the quality of the integration of any applicable Sector Plans. Incorporation of a project prioritization process is not required by Florida regulations, however it is strongly recommended. Project prioritization allows an MPO to ensure projects that are most needed by the region are addressed first, via an analysis that can incorporate plan goals and objectives, which is also recommended. Incorporating plan goals and objectives within the analysis ensures continuity, and ensures that projects selected will push the main goals of the plan forward into the future.

# Chapter 2 Evaluation Criteria

Table 2-1: Evaluation Criteria

Score		1	2	3	4
Definition of a Need	Mentions and defines needs	Needs not mentioned or defined	Needs mentioned, but not expanded on/defined	Needs mentioned, with a small section dedicated to definition	Needs mentioned, defined, and skillfully integrated into the plan
	Defines needs by mode	Needs not defined by mode	Needs somewhat defined by mode	Needs defined by mode	Needs clearly and skillfully defined by mode within the plan
Descriptiveness	Includes methodology of assessing needs	Methodology is not included	Methodology is somewhat included, but not clear	Methodology is included/briefly described in clear detail	Methodology is extensively explained, and well integrated into the plan
	Includes assessment of existing conditions	Assessment is not included	Assessment is somewhat included, but not clear	Assessment is included/briefly described in clear detail	Existing conditions are extensively explained, and well integrated into the plan
	Incorporates proposed actions to address needs	Proposed actions are not included	Proposed actions are somewhat included, but not clear	Proposed actions are included/briefly described in clear detail	Proposed actions are extensively explained, and well integrated into the plan
Technical Methodology	Travel Demand	Travel demand forecasts not included	Model included but methodology not explained	Model included/briefly explained	Model clearly included and extensively explained in the plan
	Other Modal Methods	Other modal methods not included	Modal method included but methodology not explained	Modal method included/briefly explained	Modal method clearly included and extensively explained in the plan
Cost	Incorporates Needs Cost Assessment (by mode)	Assessment is not included	Assessment is somewhat included, but not clear	Assessment is included/briefly described in clear detail	Costs are extensively explained, and well integrated into the plan
	Incorporates available revenues	Available revenues are not included	Available revenues are somewhat included, but not clear	Available revenues are included/briefly described in clear detail	Available revenues are extensively explained, and well integrated into the plan
	Incorporates funded and unfunded projects	Funded and unfunded projects are not included	Funded and unfunded projects are somewhat included, but not clear	Funded and unfunded projects are included/briefly described in clear detail	Funded and unfunded projects are extensively explained, and well integrated into the plan
Quality	Quality of Project evaluation process	There was no apparent project evaluation process or the process was not effective	Project evaluation process was somewhat/minimally effective	Project evaluation process was effective	Project evaluation process was very effective in nature and process
	Quality of Linkage between plan goals and project evaluation criteria	No project evaluation criteria and/or no apparent linkage between goals and project evaluation criteria	Project evaluation and plan goals are somewhat/minimally linked	Project evaluation and plan goals are linked	The plan shows a direct and clear linkage between plan goals and project evaluation criteria
	Quality of Sector Plan incorporation (if applicable)	No incorporation of sector plan into LRTP	Sector Plan Projects and LRTP are somewhat/minimally linked	A small section mentions the Sector Plan within the LRTP and the LRTP within the Sector Plan	The Sector Plan and the LRTP are extensively interlinked and integrated thoroughly

# Chapter 3 Selection of LRTP Needs Plans

## Florida LRTPs

Long Range Transportation Plans (LRTPs) are meant to provide a vision and direction for the future of the transportation system in a region. These plans are developed by the region's Metropolitan Planning Organization (MPO). As of June 2014, in Florida there are 26 MPOs around the state, and each MPO's LRTP was considered for possible inclusion. The review began with an examination of the funding shortfalls of Florida's MPOs, which is defined as the gap in funding between an MPO's Needs and Cost Feasible Plans as identified in the 2013 report by the University of South Florida Center for Urban Transportation Research (CUTR) titled "Review of MPO Long Range Transportation Plans and Estimate of Statewide 2035 Metropolitan Area Financial Shortfall." This research was used to help identify which LRTPs should be reviewed in greater detail as part of this effort.

The 2013 CUTR report estimated the statewide funding shortfall for Florida's metropolitan areas at \$126.4 billion. Adjusting for inflation, this represents a 300 percent increase in the statewide estimate since CUTR first analyzed the shortfall in 1997. The highest funding shortfalls, in absolute dollar amounts, occur mainly in the larger, more populated cities, with shortfalls of \$29.8 billion for MetroPlan Orlando, \$18.8 billion for the Miami-Dade Urbanized Area MPO, and \$11.6 billion for the Hillsborough County MPO. Although still relatively large, lesser shortfall amounts were documented for the North Florida TPO at \$6.6 billion, the Broward MPO at \$5.2 billion, and \$4.2 billion for the Pinellas County MPO.

While looking at MPOs that have high funding shortfalls (by dollar amount) does accurately represent those LRTPs that have the greatest difference between their Needs and Cost Feasible Plans, these MPOs also tend to be located in the larger urban areas. In order to encompass a wider set of MPOs, an additional review category was utilized—LRTPs that have large funding shortfalls based on the percentage difference between their Needs and Cost Feasible Plans. This widened the review process to include MPOs in some of the smaller regions such as Pensacola, Tallahassee, Gainesville, as well as Hernando and Polk counties. These two review categories helped narrow down the list of LRTPs.

**Tables 3-1 and 3-2** show the MPOs that have the largest funding shortfalls by both dollar and percentage amounts. These tables helped narrow the selection process so five LRTPs could be selected from each list—for a total of ten LRTPs.

# Chapter 3 Selection of LRTP Needs Plans

Table 3-1: Highest LRTP Shortfall<sup>1</sup> by Dollar

Rank	MPO	Shortfall (millions)
1	<b>MetroPlan Orlando</b>	\$29,848.2
2	<b>Miami-Dade Urbanized Area MPO</b>	\$18,728.6
3	<b>Hillsborough County MPO</b>	\$11,635.4
4	Florida-Alabama TPO	\$6,948.8
5	<b>North Florida TPO</b>	\$6,641.6
6	Polk TPO	\$6,607.7
7	<b>Pasco County MPO</b>	\$6,374.9
8	Okaloosa-Walton TPO	\$6,253.5
9	Broward MPO	\$5,243.0
10	Pinellas County MPO	\$4,269.6

Note: bold text denotes MPO's that were selected for review

Table 3-2: Highest LRTP Shortfall<sup>2</sup> by Percentage

Rank	MPO	Shortfall (percent)
1	Okaloosa-Walton TPO	97.1%
2	<b>Florida-Alabama TPO</b>	<b>95.4%</b>
3	<b>Capital Region TPA</b>	<b>89.7%</b>
4	Bay County TPO	87.8%
5	<b>Gainesville MTPO</b>	<b>87.0%</b>
6	<b>Hernando County MPO</b>	<b>75.6%</b>
6	<b>Polk TPO</b>	<b>75.6%</b>
8	MetroPlan Orlando	70.6%
9	Sarasota/Manatee MPO	64.4%
10	Ocala/Marion County TPO	63.3%

Note: bold text denotes MPO's that were selected for review

<sup>1</sup> Shortfall is defined as the absolute value of funding between the MPOs Needs and Cost Feasible Plans as identified in CUTR's 2013 review of Florida MPO LRTPs.

<sup>2</sup> Shortfall is defined as the percentage of funding between the MPOs Needs and Cost Feasible Plans as identified in CUTR's 2013 review of Florida MPO LRTPs.

## Chapter 3 Selection of LRTP Needs Plans

Based on these tables five LRTPs were selected from each list. From **Table 3-1** the following MPOs were selected to have their LRTPs reviewed: MetroPlan Orlando, Miami-Dade Urbanized Area MPO, Hillsborough County MPO, North Florida TPO, and Pasco County MPO. From **Table 3-2** the following MPO's were selected to have their LRTPs reviewed: Florida-Alabama TPO, Capital Region TPA, Gainesville MTPO, Hernando County MPO, and Polk TPO. **Figure 3-1** shows the location of all ten MPO planning areas that were selected for review.

It should be noted that the MPOs selected for review were not always the MPOs that had the highest shortfalls. For example, when examining MPO shortfalls by dollar amount, the Florida-Alabama TPO was not selected in this category since it also ranked high in the percentage category. However, the Florida-Alabama TPO was selected for review under the percentage category. Likewise, the Polk TPO was not selected under the dollar amount category, but was selected under the percentage category.

When examining the list of MPO shortfalls by percentage, the Okaloosa-Walton TPO, the Florida-Alabama TPO, and the Bay County TPO ranked among the top five. Since these TPOs are each staffed by the WFRPC and therefore each of the plans were prepared by the WFRPC, and because they are relatively close geographically, only one was selected for review. The Florida-Alabama TPO was selected since it was the largest of the three TPOs. The Hernando County MPO and the Polk TPO were also selected under the percentage category.

Chapter 4 contains a review of these identified plans. It includes information related to the plan itself, a shortfall analysis, and a brief description of its criteria assessment. It is important to stress that while the criteria have been used to review these plans, the review may already be out of date since these MPOs have already started their 2040 plan updates.

# Chapter 3 Selection of LRTP Needs Plans

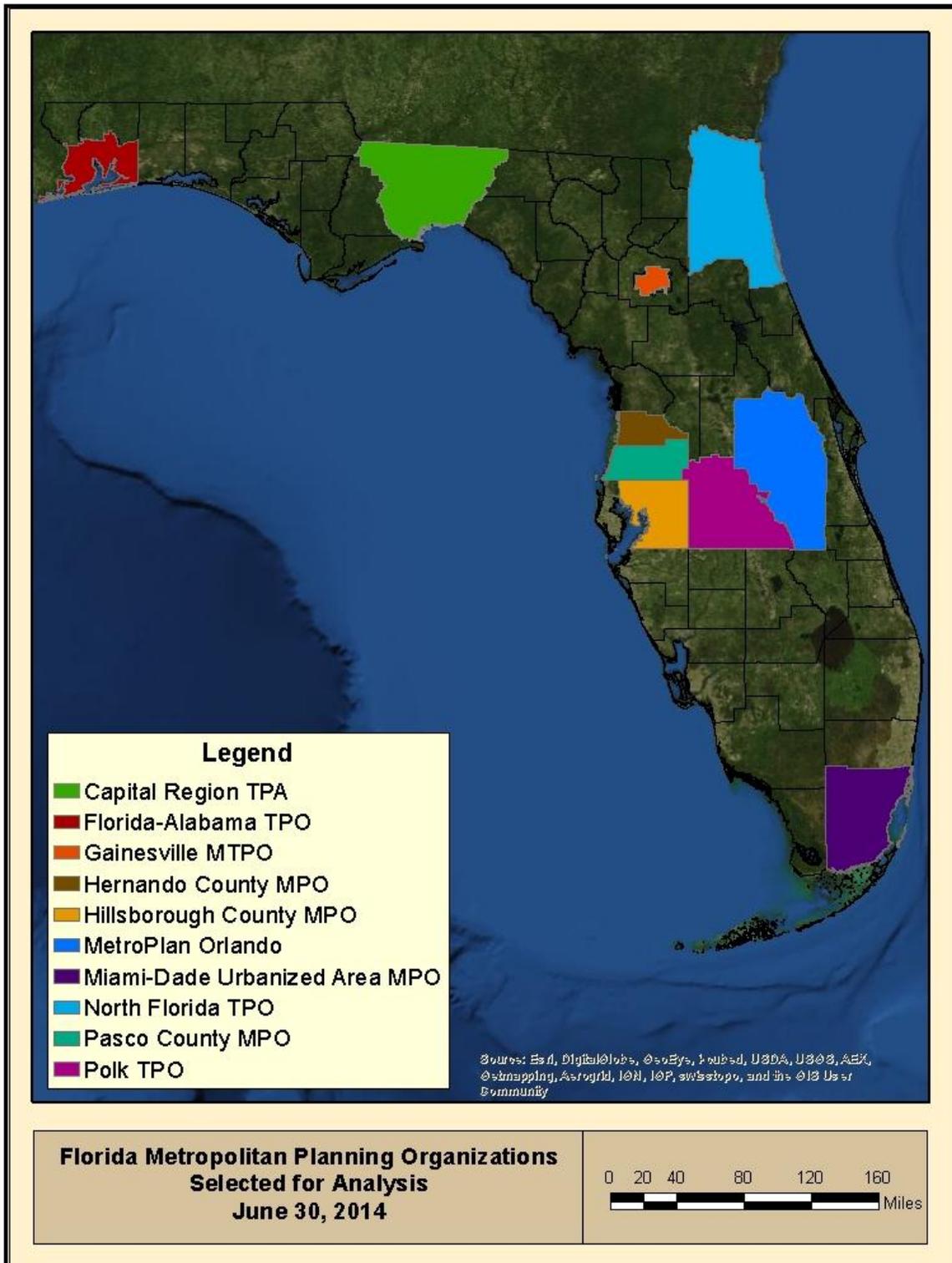


Figure 3-1

## National (Non-Florida) LRTPs

The Long Range Transportation Plan (LRTP) Needs Assessment is not a required element of the plan; however, it has been noted that it plays a key role in project identification and selection. There are countless ways in which MPOs have addressed needs in the past, and several techniques used are effective in nature and process. When examining national LRTPs for inclusion in this review, research was conducted to gather plans from around the country to review. Plans were selected from the “Long Range Transportation Plan Citizen-Friendly Best Practices” report, in addition to others gathered from various MPOs around the country.

Approximately twenty LRTPs were initially reviewed for consideration. Of the twenty LRTPs, those with Needs Assessments that exemplified the five criteria were selected. While it would be ideal to select plans that best exemplified all five criteria, a total of 10 plans were selected that best represented each of the five criteria. Therefore, two best practice examples have been identified for each criterion. In the National LRTP Best Practice Section in Chapter 5, each criterion component is identified, followed by the two plans that best represent it. A detailed description of the plan is included in the context of how the plan best illustrates the identified criterion. The selected plans, by criterion, include:

### 1. Definition of Needs

- a. Boston Region MPO: Paths to a Sustainable Region, the Long Range Transportation Plan
- b. Fredericksburg Area MPO: 2040 Long Range Transportation Plan

### 2. Descriptiveness

- a. Baltimore Regional Transportation Board: Plan it 2035
- b. Fresno Council of Governments: 2014 Regional Transportation Plan and Sustainable Communities Strategy

### 3. Technical Methodology

- a. Dover/Kent County MPO: Regional Transportation Plan
- b. New York Metropolitan Transportation Council: Plan 2040: A Shared Vision for Sustainable Growth

### 4. Cost

- a. Delaware Valley Regional Planning Commission: Connections 2040, Plan for Greater Philadelphia
- b. Metropolitan Transportation Commission (MTC): Change in Motion: Transportation 2035

### 5. Quality

- a. Atlanta Regional Commission: Plan 2040 Regional Transportation Plan
- b. Puget Sound Regional Council: Transportation 2040

# Chapter 4 Review of Florida Needs Plans

In Florida, MPO Long Range Transportation Plans (LRTPs) often contain a Needs Plan and a Cost Feasible Plan. The Needs Plan contains projects that the MPO has identified as most “needed” in the region in regards to furthering the transportation system and meeting future demand, without regard to cost. The Cost Feasible Plan takes into account available revenues, and includes projects that the region has selected from the Needs Plan via a project prioritization process. The prioritization process is used to select projects that are of highest need within the region, so that available funding can be used for those projects. Unfortunately, since cost is usually not taken into account when identifying needs projects, MPOs often list countless projects or very costly projects in their Needs Plan without the ability to fund them in the Cost Feasible Plan. This can lead to the development of Needs Plans that have high funding shortfalls. In this section, MPOs that had high funding shortfalls (either by dollar or percentage), are reviewed and scored in an attempt to determine the key contributing factors to their funding shortfalls.

Each plan was also reviewed and scored using the five criteria identified as important components in the development of a Needs Plan:

1. Definition of Need
2. Descriptiveness
3. Technical documentation
4. Cost
5. Quality

Some plans have stronger elements of the Needs Plan than others, and it is important to note that many of the MPOs are currently in the process of updating their plans. Therefore, this review may be somewhat dated by the time of this report’s publication. However, these reviews can be used as an example for Florida MPOs to consider as they update their plans. The plans in this section have been identified in terms of which criteria components they best represent.

# Chapter 4 Review of Florida Needs Plans

## Funding Shortfalls by Dollar

### MetroPlan Orlando

The MetroPlan Orlando 2030 LRTP was developed with a focus on the community's desire to incorporate smart growth strategies into the development of a balanced transportation system. The link between transportation and land use is emphasized throughout the plan. Two plans were developed, one using a trend land use scenario and another using an alternative land use scenario. The goal was to develop an accurate land use forecast to simulate the effects of lower vehicle miles of travel and reduced urban sprawl. The Needs Plan utilized the travel demand model to calculate system needs. To address future transportation needs, projects were identified to remedy transportation system deficiencies.



### Shortfalls

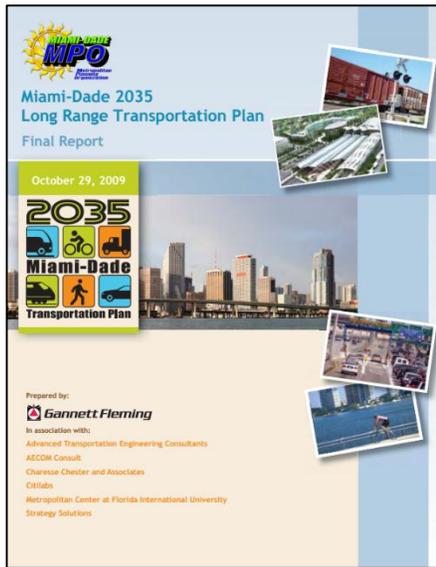
The 2013 CUTR report estimated a funding shortfall of \$29.8 billion for MetroPlan Orlando. The MetroPlan Orlando 2030 LRTP project list includes highway, toll road, transit, and bicycle and pedestrian projects. It includes nine prioritized shared-use path projects, 30 prioritized pedestrian projects, and 30 prioritized bicycle projects. The transit and highway projects were outlined in map form within the plan, and are listed in various project lists in the appendix. The Needs Plan identified approximately 383 highway projects, while the Cost Feasible Plan included approximately 109 highway projects. Therefore, approximately 274 highway needs projects were not included in the Cost Feasible Plan and were shown as unfunded. Approximately 34 toll road projects were also included in the Cost Feasible Plan. Transit projects included the expansion of the SunRail system, construction of a light rail and additional commuter rail systems, and the expansion of the LYNX Bus and Bus Rapid Transit (BRT) systems. Because an extensive list of projects was not included in the Needs Plan, unmet needs could not be fully calculated for transit projects. However, because of the major transit and highway projects in the plan, it was assumed that they could be potentially contributing to the large funding shortfall, as highway projects have proven to contribute largely to the shortfall amounts among the other MPOs.

### Criteria Highlights

The MetroPlan Orlando 2030 LRTP included a Needs Plan that clearly defined needs by mode. The methodology was extensively explained, with a focus on travel demand and other modal methods that were used as part of the analysis. A brief assessment of existing conditions is included, along with the incorporation of available revenues. The plan used a multi-modal technique that utilized a hypothetical analysis that examined roadway travel conditions if only committed projects were completed. In this way, it took into account both transit and highway needs as part of the assessment.

# Chapter 4 Review of Florida Needs Plans

## Miami-Dade Urbanized Area MPO



The Miami-Dade 2035 LRTP was developed beginning in the early part of 2008 and serves as an update to the 2030 LRTP. The primary purpose of the plan is to provide the community with a way of fostering their transportation vision for the next 26 years. It provides a framework for investment in transportation infrastructure to address needs for the future. The needs assessment section of the plan included identifying needed system improvements, projected costs of those improvements, and a fiscal assessment of needed improvements. The financial viability of needed improvements was calculated based on available information from reports and the work programs from transportation agencies. Once needs were assessed, a Cost Feasible Plan was created.

### Shortfalls

The 2013 CUTR report estimated a funding shortfall of \$18.7 billion for the Miami-Dade Urbanized Area MPO. The Miami-Dade 2035 LRTP projected a total cost of needed improvements of approximately \$40.2 billion. Unfunded highway needs equate to about 36 percent of the total shortfall, unfunded transit capital needs equate to about 30 percent, and transit operations and maintenance needs equate to about 34 percent of the total shortfall. Based on these calculations, highway needs account for the largest percentage of unfunded needs; however, they are all roughly equal. But the slightly larger highway percentage is likely due to the large number of highway projects. According to the plan, projected revenue is approximately \$19.5 billion. The projected revenue covers about 50 percent of the area's needed costs. Therefore, half the projects included in the Needs Plan will not be funded in the Cost Feasible Plan.

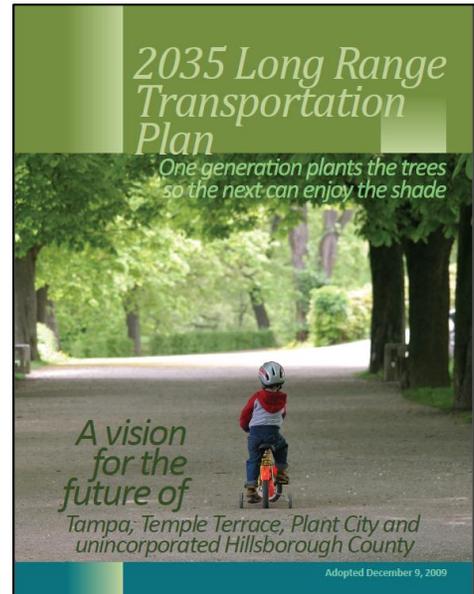
### Criteria Highlights

The Miami-Dade 2035 LRTP has incorporated and defined needs by mode in a comprehensive fashion within the plan. Needed system improvements were identified, followed by estimated costs of those needed improvements, and the methodology for analysis was descriptive in terms of the overall process of plan development, not just the methodology of the Needs Plan itself. Needs costs are clearly defined, and available revenues are included. This information was used to calculate the unfunded shortfall amount, which were well defined in the plan.

# Chapter 4 Review of Florida Needs Plans

## Hillsborough County MPO

The Hillsborough County 2035 LRTP was updated to reflect new planning principles and constantly changing conditions. The Needs Plan for the 2035 LRTP analyzes the existing transportation network to identify changes and improvements to address the needs of the region through the year 2035. In this plan, the Needs Plan is broken down into modes. As supporting documentation, the MPO also prepared “Transit Needs Assessment Segment Summaries” in addition to the plan. Each corridor segment is examined for all modes in the technical documents, and described by mode. The technical documents offer an examination of existing conditions, transit patterns, safety and security issues, strategies, and cost estimates. The methodology for the analysis of these segments is brief within the plan, but is more explicitly detailed within its technical reports.



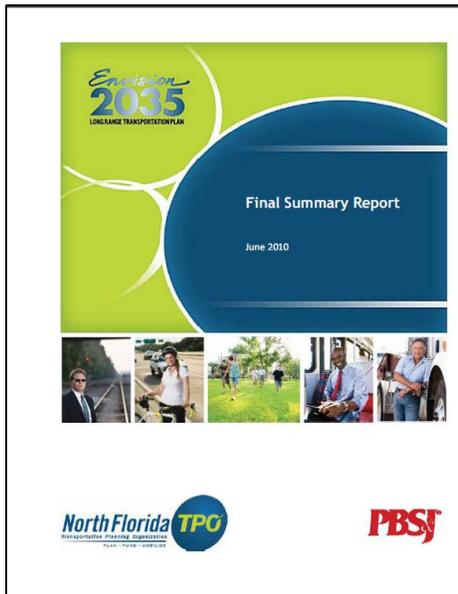
## Shortfalls

The 2013 CUTR report estimated a funding shortfall of \$11.6 billion for the Hillsborough County MPO. The Hillsborough County MPO 2035 LRTP unfunded highway needs projects constitute approximately 75 percent of the shortfall, rail needs projects constitute approximately 24 percent, transit needs projects constitute approximately 0.6 percent, pedestrian needs projects constitute approximately 0.4 percent, and bicycle and trail needs projects constitute approximately 0.39 percent. The rail needs project list includes both short-distance and long-distance rail, but excludes high-speed rail. The LRTP identifies nine potential short-distance and long-distance rail corridors throughout the county which contribute to the funding shortfall, as these nine projects constitute approximately 24 percent of the shortfall. As mentioned earlier, the highway needs constitute a majority, or 75 percent, of the LRTP’s funding shortfall. This is likely due to the sheer number of highway projects included in the project needs list, not necessarily the cost of any specific project in particular.

## Criteria Highlights

The Hillsborough County 2035 LRTP examines needs in terms of road segments throughout the county. Needs are defined by mode, and the methodology is included and briefly described within the plan. Existing conditions are extensively explored, and proposed actions are included. Different project evaluation techniques were used for each mode. For the roadway network, quantitative testing was conducted on improvement alternatives. For the transit system, transit improvements were explored as recommended by transit service providers and implementers. Bicycle and pedestrian needs were assessed using latent demand and level-of-service techniques. The project evaluation process was thus fairly intricate and descriptive, which worked well for the MPO.

# Chapter 4 Review of Florida Needs Plans



## North Florida TPO

The North Florida TPO Envision 2035 LRTP was developed to provide a vision to address the future transportation needs of the region. The LRTP consists of two primary plans - the Needs Plan and the Cost Feasible Plan. The Needs Plan was developed without financial constraints, which was used as a stepping-stone towards the development of the financially constrained long range plan. The Needs Plan was also developed through extensive coordination with local government programs, projects, and widespread public outreach. A list of constrained corridors was developed, in addition to an existing-plus-committed (E+C) network, which identified 2035 mobility deficiencies and mobility alternatives.

### Shortfalls

The 2013 CUTR report estimated a funding shortfall of \$6.6 billion for the North Florida TPO. The North Florida TPO Envision 2035 LRTP Needs Plan identifies 148 highway projects, 14 transit projects, and one water-taxi project. While the plan only includes total cost information for the projects that were included in the Cost Feasible Plan, it is important to note that the large number of unfunded highway projects could potentially contribute to the large funding shortfall for the North Florida TPO. There is an apparent trend showing that highway projects constitute the largest percentage of shortfalls among the other MPOs. This is likely due to the large number of highway projects included in the project lists.

### Criteria Highlights

The North Florida TPO Envision 2035 LRTP Needs Plan defines needs by mode briefly within the plan. The methodology for the assessment is extensively explained and well integrated. The travel demand model is included and briefly explained, and several modal methods were used during the analysis, providing a comprehensive examination of the state of the transportation system. Development of the E+C network allowed for strategic prioritization of projects to meet future demand.

# Chapter 4 Review of Florida Needs Plans

## Pasco County MPO

The Pasco County 2035 LRTP provides a vision to achieve the community's transportation goals from now to the year 2035. The Needs Plan project list is comprehensive, and projects were identified for inclusion in several ways, including utilization of the travel demand model in addition to seeking public input. A project evaluation process was utilized to ensure projects that were most needed in the region were funded. A cost assessment was briefly discussed, and funded as well as unfunded projects were discussed.



## Shortfalls

The 2013 CUTR report estimated a funding shortfall of \$6.4 billion for the Pasco County MPO. The Pasco County 2035 LRTP unfunded highway needs constitute approximately 86 percent of its funding shortfall. Funded highway projects equate to approximately \$2.9 billion, with total unfunded project needs of approximately \$6.4 billion. This is more than twice what available revenues will support. In addition to highway project needs, transit needs constitute approximately 7 percent of its funding shortfall, with rail needs at approximately 7 percent as well. The LRTP identifies one potential short-distance light rail project along the CR 581 corridor from the Hillsborough County Line to SR 54. While this does not constitute a majority of its funding shortfall, it is still important to note that this one particular project is approximately \$502.8 million. However, unfunded highway project needs constitute the majority of its funding shortfall.

## Criteria Highlights

The Pasco County 2035 LRTP briefly defines its needs by mode. Proposed actions to address needs were included and briefly described in clear detail within the plan, using the travel demand model to predict future system demand. A base E+C transportation network was developed, demand models were reviewed and deficient roadways were identified using socioeconomic land use data. The needs assessment also incorporated a cost assessment that discussed available revenues as well as funded and unfunded projects.

# Chapter 4 Review of Florida Needs Plans

## Funding Shortfalls by Percentage



### Florida-Alabama TPO

The 2035 Florida-Alabama TPO LRTP outlines the goals and objectives that form a framework to address the community's future transportation system needs. For the needs section of the plan, projects were reviewed through an extensive public involvement process along with feedback from the TPO's advisory committees to assess various roadway and transit projects, including ferry service from Pensacola to Santa Rosa Island, along with non-motorized projects from the Bicycle/Pedestrian Master Plan, Intelligent Transportation System (ITS) projects from the Regional ITS Master Plan and freight projects from the Freight Master Plan. The TPO's Needs Plan strived to create a multi-modal plan where roadway projects and high capacity transit projects supported each other, in addition to the inclusion of bicycle/pedestrian,

ITS and freight projects all being supportive of the TPO's mobility goals.

### Shortfalls

The 2013 CUTR report estimated a funding shortfall of needs relative to available revenues at 95.4 percent for the Florida-Alabama TPO. This means that only 4.6 percent of the region's transportation needs are able to be met with available funding. The adopted Needs Plan contained 84 roadway capacity projects, 10 transit projects, 11 ITS projects, and 309 bicycle and pedestrian projects. The Cost Feasible Plan only included 36 roadway, transit, bicycle and pedestrian projects costing just over \$552 million (in year of expenditure (YOE) dollars). The list of projects in Needs Plan did not include estimated costs, but a few projects that could have impacted the costs in the Needs Plan include a toll bridge over Pensacola Bay, an outer beltway connector, commuter rail, and ferry service.

### Criteria Highlights

The 2035 Florida-Alabama LRTP discusses needs with a small section dedicated to the definition of needs by mode. Proposed actions to address needs were included and briefly described in clear detail. The travel demand model was used in conjunction with a land use model, with an extensively detailed methodology. A cost assessment was included, along with an in-depth discussion on available revenues as well as a list of funded and unfunded projects. Projects are listed by alternative type, and are associated with which scenario they are meant to address.

# Chapter 4 Review of Florida Needs Plans

## Capital Region TPA

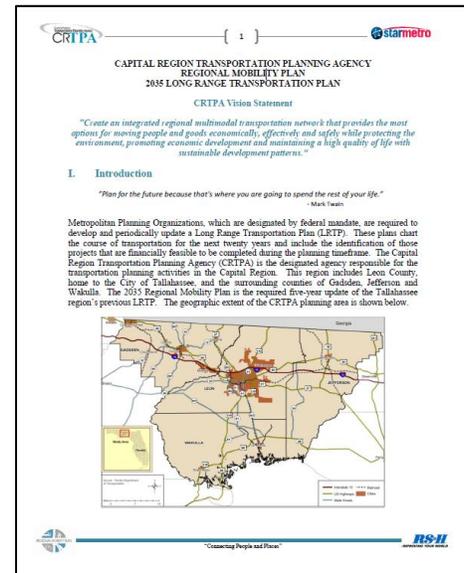
The Capital Region TPA 2035 Regional Mobility Plan is the update of the TPA's previous long range plan, and includes a vision for the future transportation system to meet its needs for the next 20 years. The methodology of the plan included an assessment of all travel modes for the movement of people and freight. It also took into account the integrated relationship between transportation and land use through the utilization of scenario planning and corridor planning. Three scenarios were developed, a "Business as Usual" scenario, a "Quality Growth" scenario, and a "Quality Growth Plus" scenario.

### Shortfalls

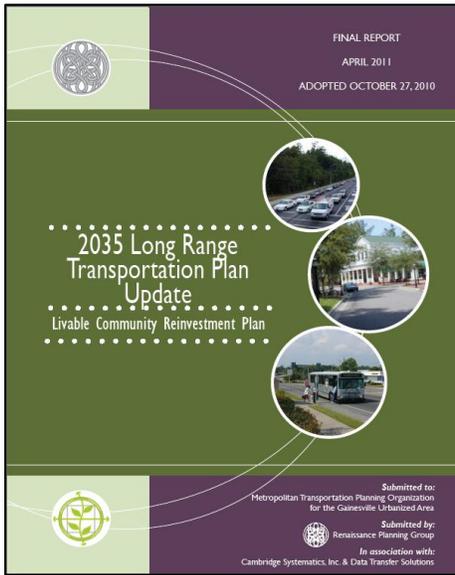
The 2013 CUTR report estimated a funding shortfall of needs relative to available revenues at 89.7 percent for the Capital Region TPA. The Capital Region TPA Regional Mobility Plan 2035 L RTP Needs Plan originally listed over 500 projects. These projects were reviewed for connectivity to the regional transportation system. Many of the projects identified were strictly local and were not included in the final needs project list. Once the final needs project list was identified, it included over 280 projects, with the Cost Feasible Plan having over 150 projects. Therefore, there are roughly 130 projects that are unfunded, and contribute to its large funding shortfall percentage. Most of its projects are sidewalks, bike lanes, and lane widening roadway projects, which constitute the majority of the TPA's funding shortfall. Cost estimates were only included for projects listed in the Cost Feasible Plan, with estimated costs split into 4-year increments, showing when each project will be funded.

### Criteria Highlights

The Capital Region TPA 2035 Regional Mobility Plan Needs Plan briefly defines needs by mode, and the methodology used for analysis is extensively detailed and well integrated into the overall plan. The travel demand model was utilized for analysis, along with other modal methods through scenario planning and corridor planning to estimate future growth. The project evaluation process for the plan was effective. Strategies were developed during the project assessment phase that were used to analyze projects. These strategies were directly linked to the goals and objectives of the plan, and from those strategies, quantifiable point-based criteria were developed to evaluate each of the projects. The results of the assessment formulated the basis for its Cost Feasible Plan.



# Chapter 4 Review of Florida Needs Plans



## Gainesville MTPO

The Gainesville Urbanized Area Year 2035 LRTP outlines a series of multimodal transportation strategies and investments to increase the area's economic growth to increase the connectivity between people and places. The plan includes two main components, the Needs Plan and the Cost Feasible Plan. The purpose of the Needs Plan is to identify the ways in which the MTPO will move toward addressing its transportation needs over the next 25 years. The methodology included extensive public outreach and participation, as well as travel demand modeling.

### Shortfalls

The 2013 CUTR report estimated a funding shortfall of needs relative to available revenues at 87 percent for the Gainesville MTPO. The Gainesville MTPO did not report needs costs in the Needs Plan, however the total needs estimate was reported in the Cost Feasible Plan. The total estimated cost for projects is \$981.5 million, divided between the various modes with roadway needs of \$372.3 million and transit needs of \$609.2 million. Bicycle and pedestrian needs were not assessed. Bicycle and pedestrian projects were only taken into account in the Cost Feasible Plan. The costs accrued to \$12.9 million for bicycle and pedestrian projects within the Cost Feasible Plan. When attempting to calculate unfunded needs, transit and roadway projects were combined within the Cost Feasible Plan, and were thus difficult to delineate. Because bicycle and pedestrian needs were not assessed in the Needs Plan unmet needs could not be determined. However, based on the provided needs costs, transit needs constituted the majority of the funding shortfall. Transit projects included bus rapid transit (BRT) and streetcar projects, as well as express bus route projects and park-n-ride lots.

### Criteria Highlights

The Gainesville Urbanized Area Year 2035 LRTP incorporated a needs assessment that was skillfully integrated into the plan and defined needs by mode. The methodology of the assessment was extensively detailed and comprehensive, as it included an analysis of existing conditions and proposed actions. The travel demand model was utilized for this analysis, and the methodology of the modeling process was also described in the assessment. Three alternative scenarios were drafted and the model was used to compare results using its E+C network. Following the comparison, a hybrid fourth scenario was developed that served as the basis for the recommended Needs Plan and the project evaluation process, which was strategic and effective.

# Chapter 4 Review of Florida Needs Plans

## Hernando County MPO

The Hernando County MPO 2035 Cost Affordable LRTP identified and prioritized transportation projects for its area over the next 26 years. This plan included 13 sections, including a Policy Constrained Needs Plan. This section identified improvements needed to make the system as efficient as possible through 2035. The Needs Plan was not financially constrained, but is policy constrained, to adhere to the policies that apply to it. The methodology for the Needs Plan included a determination of highway needs where cost was not considered, followed by an assessment of transit needs. Multiple model runs were conducted to assess its needs.

### Shortfalls

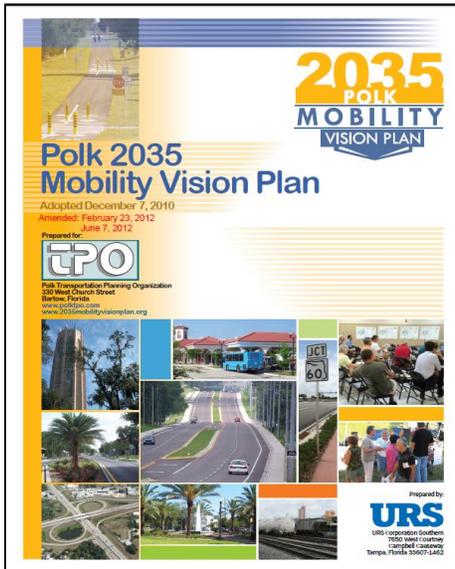
The 2013 CUTR report estimated a funding shortfall of needs relative to available revenues at 75.6 percent for the Hernando County MPO. The Hernando County MPO 2035 Cost Affordable LRTP reported a total needs cost estimate of \$5.47 billion. The Cost Feasible Plan includes a total of \$1.93 billion in project costs based on available revenues. Therefore, there is about \$3.54 billion in unfunded needs that contributed to the MPO's funding shortfall. According to the plan, highway expansion projects constituted approximately 74 percent of the shortfall, and are thus the largest contribution its funding shortfall. This may be potentially due to the expanded highway network that is outlined in the Cost Feasible Plan; which proposes significant capacity improvements throughout the county to meet forecasted demand.

### Criteria Highlights

The Hernando County MPO 2035 Cost Affordable LRTP defined needs by mode. The methodology for the Needs Plan included clear descriptions along with proposed actions. The travel demand model was used for analysis, and several model runs were conducted during the planning process. The plan also includes a cost assessment using available revenues to identify funded and unfunded projects. Costs were distributed by mode, and distribution of revenues by source were discussed as well.



# Chapter 4 Review of Florida Needs Plans



## Polk TPO

The Polk Transportation Planning Organization 2035 Mobility Vision Plan identifies future investments and strategies to improve the transportation system in the County for the next 25 years. The plan has 8 chapters including a Needs Plan. Transportation needs included in the plan came from different sources including projects from other plans and studies, public outreach, and committee input.

## Shortfalls

The 2013 CUTR report estimated a funding shortfall of needs relative to available revenues at 75.6 percent for the Polk TPO. The Polk 2035 Mobility Vision Plan estimated a total needs of

approximately \$9.2 billion. Needs projects include improvements to roads and highways, intersections, transit (bus system and commuter rail operating and capital improvements), and high priority sidewalk, bicycle, and multi-use trail facilities. According to the plan, unfunded transit and highway needs equate to over \$3 billion. Road and highway needs constitute about 62 percent of this amount, transit needs constitute about 35 percent of this amount, and sidewalk, bike, and multi-use trail needs constitute about 3 percent of this amount. Therefore, road and highway projects constitute the largest percentage of the TPO's funding shortfall.

## Criteria Highlights

The Polk Transportation Planning Organization 2035 Mobility Vision Plan defined needs by mode within the plan. The methodology for analysis is explained and an assessment of existing conditions and proposed actions are briefly described in detail. The travel demand model is only model used for its analysis. Cost information is included and briefly described, and available revenues are identified. The project evaluation process was effective, and allowed for the identification of projects included in its Needs Plan.

# Chapter 4 Review of Florida Needs Plans

## Lessons Learned

Review of the Florida Needs Plans allowed for a comprehensive examination of the state of long range transportation planning in Florida. By further exploring the shortfall amounts by dollar and percentage, it is important to note that the sheer number of projects, and/or the expense of certain projects, contributes to higher shortfalls. Because project costs are not required to be assessed when including projects in a Needs Plan, MPOs can include an extremely high number of projects, or a few extremely costly projects that can increase the funding shortfall gap. Therefore, this document recommends the incorporation a Needs Cost Summary Table when evaluating projects for inclusion in the Needs Plan. This allows for costs to be assigned to projects by mode, and allows local jurisdictions to use these costs to prioritize which projects are included in the Needs Plan, and ultimately the Cost Feasible Plan. The Needs Cost Summary Table is further explored in Chapter 7.

# Chapter 5 Review of National Needs Plans

The long range transportation planning process is one that is complex and incorporates countless factors during development and implementation. The Federal-Aid Highway Act required that metropolitan statistical areas create and continually update plans that are based on a planning process that is continuous, cooperative, and comprehensive (3-C). In 1973, another Federal-Aid Highway Act was passed. This bill required the creation of Metropolitan Planning Organizations (MPOs) in urban areas with populations greater than 50,000. It also required MPOs to create a minimum 20-year Long Range Transportation Plan (LRTP). Through the ensuing years, a number of MPOs throughout the United States have developed exemplary LRTPs. Ten such plans will be examined within this section. A number of plans were reviewed based on the criteria discussed in Chapter 2: definition of a need, descriptiveness, technical methodology, cost, and quality. After an initial evaluation of numerous plans was conducted, ten plans were selected, two for each criteria category, that best exemplify Needs Plan development. It should be noted that some of the selected LRTPs came from areas with large urbanized populations. However, it was not the large populations (or planning budgets) that was a determining factor in which MPOs were selected—it was the planning processes related to the criteria that these MPOs employed that prompted their selection.

The organization of this chapter has been divided into five parts, each related to one of the five criteria. Each section begins with a brief summary of the criterion followed by a summary of the two LRTPs that were selected as representative of that criterion.

## Definition of Need

The “Definition of Need” criteria examines how a plan defines transportation needs, and if these needs are clearly defined by mode and integrated into the planning process. Defining a need is an integral component to the planning process, and plays a major role in the way in which projects are identified. The Boston Region MPO defines needs by mode, evaluates existing conditions, and proposes actions to address needs. It identifies the inter-relationships between the various modes and their impact on land use, the environment, and advantaged as well as disadvantaged populations. The Fredericksburg Area MPO examines needs by mode in relation to urban and rural status and transit mode type. It assigns cost to its needs projects, and creates a network to best-address future needs. Through these comprehensive techniques, these MPOs have developed a project evaluation process the best prioritizes projects for inclusion in the plan. These processes take into account various factors that impact and further define what constitutes a “need.”

# Chapter 5 Review of National Needs Plans

## Boston Region MPO: Paths to a Sustainable Region

*Paths to a Sustainable Region* is the Boston, Massachusetts region's LRTP, developed by the Boston Region Metropolitan Planning Organization (MPO). This plan provides a vision for the future of the transportation system in the area. The MPO's primary responsibility is to determine how to allocate federal, state, and local transportation funds for capital improvement projects, planning and corridor studies. The Boston Region MPO consists of 1,458 square miles, encompasses over 101 cities and towns and had a population of over 3,159,512 people in 2010<sup>1</sup>. The region contains over 18 percent of the state's land area and 48 percent of the state's population. With such a large population and limited funds, the MPO views the maintenance of the existing system as its most critical issue.

The Massachusetts Bay Transportation Authority (MBTA) has a backlog of maintenance projects for the region's transit system accruing to over \$4 billion. In addition to the continued maintenance costs, and because the Boston region is considered a major freight portal for the northeast

along with being a large commuter area, it is important that the MPO be able to define and prioritize its needs in the LRTP. This is especially necessary for identifying projects that are most needed in an environment where funding is scarce. As a result, the Boston Region MPO has created a streamlined planning process that not only defines the needs of the region and identifies maintenance priorities, but also identifies projects needed to preserve the system while increasing mobility. For these reasons, *Paths to a Sustainable Region* has been identified as a best practice example.

### Criteria Highlight

*Paths to a Sustainable Region* includes a Needs Assessment that defines needs by mode, incorporates existing conditions and needs associated with system maintenance, examines the ways in which the transportation system is currently being used, and its projected use into the future. The plan also includes needs related to the way in which the transportation system interacts with the environment (both existing and future land use conditions), as well as the transportation needs of its disadvantaged populations.



<sup>1</sup> For each LRTP Best Practice example identified within Chapter 5, this information was taken from the Federal Highway Administration/Federal Transit Administration's Transportation Planning Capacity Building Metropolitan Planning Organization (MPO) Database: <http://www.planning.dot.gov/mpo.asp>.

# Chapter 5 Review of National Needs Plans

The needs component of the plan was developed through a series of stages. The region was divided into radial and circumferential corridors, and the Central Area in order to examine and understand the needs of such a large and complex region. This approach simplified the transportation needs of an area to ease understanding. Corridors were established based on travel patterns, trips and existing transportation infrastructure, which included major highways and rail corridors within the area. The region’s greatest needs were divided into personal travel, freight, and equity considerations.

## Mode Breakdown

- Highway** - the Needs Assessment identifies needs for freeways and arterial roadways in the region. The roadway network in the plan identifies the location and length of the roads, and also identifies the entity responsible for funding its maintenance. In addition to roadways, bridges are also identified, with associated funding sources as well as the percent of bridges that are considered “functionally obsolete” and “structurally deficient.” Mobility needs are also addressed, with corridor bottlenecks identified using a speed index, volume-to-capacity ratios, and the Congestion Management Process developed by the MPO. **Figure 5-1** serves as an example of the many corridor and roadway bottlenecks that were identified. Also, safety needs were identified through an analysis of high crash locations in the MPO region.

**Figure 5-1: Identification of Highway and Transit Deficiencies from the Boston Region MPO LRTP**

CORRIDOR BOTTLENECKS	
CORRIDOR	FREEWAYS
Northeast/Central	Rte. 1 Tobin Bridge (Charlestown)
Northwest/Central	Rte. 2 (Concord, Lincoln, Acton)
North/Central	I-93 between I-95 and Leverett Circle
Southeast/Central	I-93/Southeast Expressway from Massachusetts Ave. to the Braintree Split (Quincy, Boston, Milton)
Southeast	I-93/Rte. 1 from Braintree Split to Rte. 24 (Braintree, Randolph)
Southwest	I-95 northbound from the Dedham St. overpass to the I-95/I-93 split (Canton)
CORRIDOR	ARTERIALS
Southwest/Central	Rte. 1/VFW Pkwy various segments (Dedham, Norwood, Boston)
Northeast/Central	Rte. 1A Oak Island Road to Bell Circle (Revere)
Northeast/Central	Rte. 1A southbound from the rotary to the first Bell Circle signal (Revere)
Southeast	Rte. 3A from the I-93 interchange to Hingham
North	Rte. 3/3A (Burlington, Woburn)
West/Central	Rte. 9, various segments between Southborough and Boston
West	Rte. 16 from Wellesley to Newton
Southwest	Rte. 27/North Main Street in Sharon between Depot Street and Canton Street
Northwest/Central	Rte. 28 from the Assembly Sq. Mall to Highland Ave. (Somerville)
West	Rte. 30 in Framingham between I-90 and Rte. 9

- Transit** - the Needs Assessment identifies needs for the transit system by incorporating the region’s top priority in maintenance and system preservation. The system must first be “brought into a state of good repair,” with changes made to improve system performance and efficiency. Once changes are made to improve the system, it will be maintained and modernized as necessary. Mobility needs have also been addressed for the transit mode, and location examples are discussed in the plan. Filling in system gaps in service to alleviate demand constraints and improve reliability are identified as major priorities in the area.

# Chapter 5 Review of National Needs Plans

- **Freight** - the Needs Assessment identifies needs for the freight system that incorporate the region's complex system of goods and service movement throughout the Greater Boston area. A major issue cited in the plan is the dilemma of where to locate warehousing and distribution facilities. Locations are scarce in the area, and loss of land for these uses can cause shipping costs to increase. The land available is really only accessible by truck, thus there is a need to remedy this issue to increase access by multiple modes. In addition to trucking mobility, the plan addresses needs associated with rail mobility and the policy and infrastructure challenges that come with freight rail transit. Marine mobility and air freight mobility needs are also mentioned, with specific focus on increasing access to ports and airports by the various freight modes. Increasing intermodal access to the highway system and freight rail lines is also an identified need.
- **Bicycle/Pedestrian** – Bicycle and pedestrian needs are also addressed in the Needs Assessment. The plan identifies a need to close gaps between the bike, pedestrian, and transit systems within the transportation network. Projects are discussed in the plan that will aid in reducing these gaps as well as reduce demand on roadways by increasing accessibility to alternative forms of transportation.

As the title of the plan indicates, *Paths to a Sustainable Region* has been developed to increase options for alternative forms of transportation, provide for a healthier environment while improving the regions overall quality of life. In addition to the reducing gaps in the system, the plan also addresses elements like transportation equity needs and takes into account the transportation system's impact on land use. The MPO estimates much of its future growth will be located along transit routes. Keeping this need in mind when developing the plan allows for adequate planning to meet future demands. The plan has identified several major areas of development within the region that will be located within rail transit corridors, and therefore must be taken into account when assessing its needs. Because the MPO has taken into account a variety of factors in the needs assessment, in addition to the needs necessary for each mode individually, it has developed an integrated and extensive plan that will provide for future transportation needs of the Boston region for years to come.

# Chapter 5 Review of National Needs Plans

## Fredericksburg Area MPO: 2040 Long Range Transportation Plan

The *2040 Long Range Transportation Plan* was developed by the Fredericksburg Area Metropolitan Planning Organization (FAMPO), the metropolitan planning organization of the Fredericksburg, Virginia region. The area consists of 698 square miles and had a population of 275,639 people in 2010. The FAMPO's responsibility is to develop the region's vision for future transportation system improvements for the Fredericksburg area. The FAMPO developed a four-tiered framework that included input from various committees and advisory groups that all contributed to the plan. The FAMPO is staffed by the George Washington Regional Commission (GWRC).

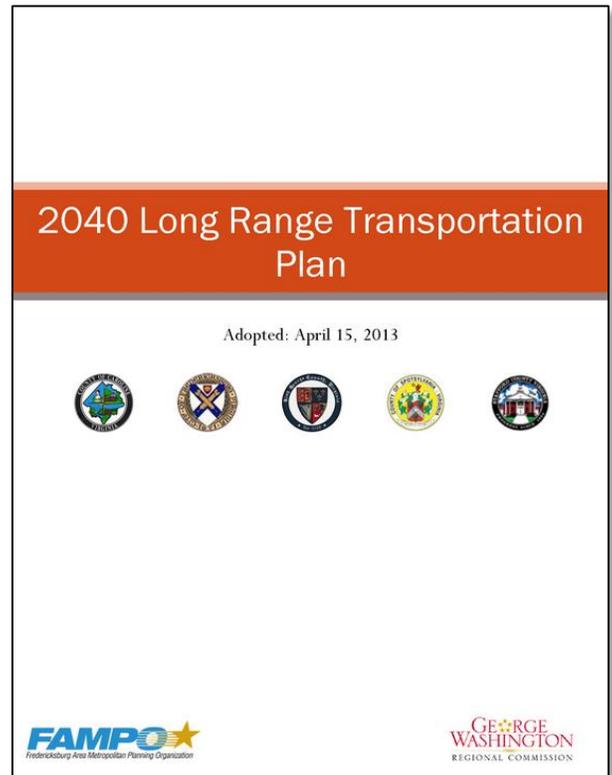
The *2040 Long Range Transportation Plan* was developed through the collaborative effort of the committees, advisory groups and staff from the FAMPO. It includes an analysis of land use impacts on the area's transportation network. It also includes a detailed transit element, and a detailed bicycle and pedestrian plan. Throughout each of these sections, the plan identified needs by mode in great detail, which were well integrated into the plan. The region has a unique policy process that governs plan development, and through this intergovernmental collaboration came the development of an effective long range transportation plan. For these reasons, this plan was selected as a best practice example.

### Criteria Highlight

The *2040 Long Range Transportation Plan* defined its needs by mode, and integrated this analysis into the plan. Highway needs were analyzed and based on urban and rural land use patterns, transit needs were broken down by various types of transit options, bicycle and pedestrian needs were clearly defined, and freight and aviation needs were incorporated as well. Each mode was analyzed in separate plans, but were then integrated within the context of the larger plan, as can be seen in **Figure 5-2**.

### Mode Breakdown

- **Highway** - The highway needs assessment is divided into an analysis of both urban and rural highway needs. Urban projects are defined as projects within the City of Fredericksburg,



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CHAPTER 6 - REGIONAL TRANSPORTATION NEEDS PLAN.	
6.1	INTRODUCTION .....
6.2	REGIONAL HIGHWAY NEEDS .....
6.2.1	Urban Highway Needs .....
6.2.2	Rural Highway Needs .....
6.3	REGIONAL TRANSIT/TDM NEEDS .....
6.3.1	2020 Transit Needs Plan .....
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6.4	REGIONAL BICYCLE AND PEDESTRIAN NEEDS ...
6.5	REGIONAL FREIGHT MOVEMENT NEEDS
6.6	REGIONAL AVIATION NEEDS .....

Spotsylvania, and Stafford counties. There are approximately 200 projects in the urban highway needs category, and they were identified based on: location, Virginia Department of Transportation design guidelines, and identified bicycle and pedestrian system improvement needs. The travel demand model was then used to estimate future congestion levels. A cost estimate was calculated for each project and then the MPO utilized a prioritization methodology to rank projects that would be included in the Cost Feasible Plan. Rural projects were defined as projects within Caroline and King George counties. There were approximately 30 projects in the rural highway needs category, and they were identified and defined through the same analysis conducted for the urban areas. However, it also involved an analysis of each project with a focus on “safety, geometry, structure, and congestion.” Projects were further analyzed based on recommended improvements and planning-level cost estimates.

Figure 5-2: Table of Contents from the FAMPO L RTP

- **Transit** - The transit needs assessment was based largely on the 2008 George Washington Region Transit Policy Plan, which identified six key emphasis areas for transit improvements. Transit projects were identified in terms of short-term and long-term time horizons. Transit projects were defined as those included in Fredericksburg Regional Transit (FRED) bus service, Virginia Railway Express (VRE) service, I-95 corridor and local corridor enhancements, TDM programs, ridesharing programs, and human service transportation improvement programs. Transit services were further segregated into “New Fixed-Route Service,” “Improvements to Existing Routes,” and “New Weekend Service” categories. Costs were also identified for each transit mode for: existing service, expanded service, and for facility improvements.
- **Bicycle and Pedestrian** - The bicycle and pedestrian needs assessment was based on the Bicycle and Pedestrian Plan included in the Appendix that identified projects based on gaps in the network to connect residential neighborhoods to commercial facilities and employment centers. The Needs and Cost Feasible Plans include several projects that improve the sustainable transportation network within the region. These projects incorporate infrastructure components such as complete streets elements and other types of roadway facilities to make the region a safer place for the utilization of multimodal transportation.
- **Freight** - Currently the FAMPO does not have an existing freight program. Therefore, it recommended several potential action items for the development of a freight mobility plan to

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further define its freight needs. These actions include: identifying freight needs and deficiencies; conducting a comprehensive freight study; developing freight specific goals, objectives and policies; gathering input from transportation system stakeholders, including the private sector freight community; and developing language to expand current policies based on input from stakeholders.

- **Aviation** - The aviation needs assessment largely focused on the state of the Stafford Regional Airport, mainly because it serves as a reliever airport to the Washington Dulles International Airport. The plan estimates growth in passenger and freight activity in the future, and plans to construct a new terminal facility to take into account this projected growth. Future expansion beyond this project is somewhat constricted due to the geography of the surrounding area, however, the FAMPO staff plans to monitor the aviation activity of the area.

The Fredericksburg Area Metropolitan Planning Organization has developed a planning process for the *2040 Long Range Transportation Plan* that incorporates a needs assessment that takes into account multiple factors impacting the future of the transportation system in this region. It not only defines needs by mode and assigns costs associated with these projects, it creates a network that best addresses future needs. Through this process, it will strategically address transportation issues that are most needed for the region in order to address these issues within a constrained funding plan.

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## Definition of Need: Lessons Learned

MPO LRTPs often do not sufficiently take into account how it defines its “needs” within the Needs Assessment of the plan. While the plans often identify what projects are “needed,” many plans do not describe what a “need” is, or what it consists of. This is an integral component to the planning process, as defining what constitutes a need often defines the scope of the plan, and allows for an analysis as to how needs change with every successive plan update. When a plan includes a project evaluation process, which, in essence, is a description of the way it determined which projects are “needed,” it has, in a sense, defined a need. This methodology is important, and therefore this report recommends that it be included because it creates a linkage between needs and the process used to select and prioritize needs. In essence, it identifies which projects are “needed” in a region and why. However, the plan should be more explicit than that. A need could be defined as consisting of projects that are most needed when taking into account transit and other modal analysis, and those projects that best further the goals and objectives of the plan. Therefore, defining needs by mode is also important, as the definition of a need will vary depending on the mode of transportation discussed.

In addition to defining a need and describing the methodology used for assessing needs, the plan should clearly delineate the difference between the list of projects in the Needs Plan and the list of projects in the Cost Feasible Plan. To that end, this report recommends the creation of a “aspirational” plan, where needs projects that are large scale and/or are extremely costly in nature and are somewhat unlikely to be constructed can be listed. This will reduce the projected amount of funding shortfalls when calculating funded vs. unfunded needs, and will allow for better project prioritization. This also allows needs projects to be listed with regard to cost, rather than listing every project possible and, due to limited funding or poor construction feasibility, those that are unlikely to be built can be placed in a separate category. By better defining needs and the scope of the Needs Plan, an MPO can better pinpoint where funding should be spent to best address transportation demand within its region.

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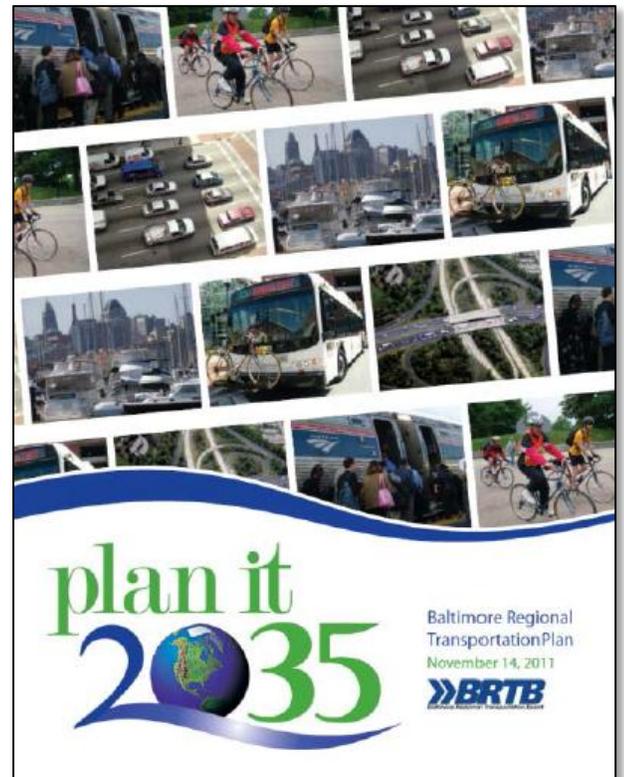
## Descriptiveness

The “Descriptiveness” criteria examines the degree to which the plan explores the state of needs in a region. Each component examines whether the plan includes a methodology for assessing needs, an assessment of existing conditions, and to what extent the plan incorporates proposed actions to address needs. The Baltimore Regional Transportation Board identifies needs through an extensive evaluation process, that utilizes and policy and technical criteria developed as part of their planning process. The criteria were linked directly to their plan’s goals and objectives. In addition, jurisdictions were required to designate a priority level for each project they submitted for inclusion in the plan. The Fresno Council of Governments illustrates the interrelationships between various transportation modes, and presents by mode, an existing system inventory, an assessment of needs, and proposed actions to address future transportation demand. Through these analyses, these plans have defined and described their transportation system needs throughout the region.

### Baltimore Regional Transportation Board: Plan It 2035

*Plan It 2035* is the LRTP developed by the Baltimore Region Transportation Board (BRTB), the planning organization charged with developing planning policies for the Baltimore, Maryland region. The region consists of 2,299 square miles and had a population of 2,662,204 people in 2010. The theme of the plan is “doing better with less,” in order to address a growing population that is putting increasing demands on transportation infrastructure and facilities. However, less funding is available for these projects than there was in the previous plan update.

The plan includes strategies for leveraging limited funding to address these issues, as well as the expected outcomes from these strategies. There is a higher percentage of system expansion funds allocated to bicycle and pedestrian projects as well as transit projects included in this plan. Due to increasing strains on the transportation system, the Baltimore region has developed a detailed and integrated long range transportation plan that defines needs through an extensive methodology that assesses existing conditions, and incorporates proposed actions to address needs. It also takes into account the needs of future generations when planning for the region’s future transportation system through economic development, community growth, and



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environmental protection. Because of its integrated and descriptive planning process, *Plan It 2035* has been selected as a best practice example.

## Criteria Highlight

*Plan It 2035* includes a methodology that directly addresses the way in which needs were assessed. A prioritization process was developed that assessed needs, where criteria was linked directly to the plan’s goals and objectives. The plan also includes an extensive assessment of existing conditions as related to plan goals and objectives, and includes an analysis of proposed actions mentioned to address needs.

In *Plan It 2035*, a prioritization process was used to assess needs, however, projects that were deemed “Regionally Significant” were not evaluated using the prioritization process. These projects were considered vital to meeting the transportation needs of all jurisdictions within the planning area, and were excluded from both the technical and policy evaluation process. Separate criteria were developed to determine whether projects should be considered “Regionally Significant.” For projects not deemed “Regionally Significant,” jurisdictions were required to select a priority level for each project they submitted for inclusion in the plan. Each jurisdiction could submit up to five high-priority projects, four medium-priority projects, and an unlimited number of low-priority projects. As seen in **Figure 5-3**, policy and technical evaluation criteria were developed to prioritize these projects, which were directly linked to each of the goals and objectives of the plan, ensuring that projects selected would further the vision of the plan.

### Policy Criteria

Identifying regional policy-based transportation priorities is a challenge. The intent is to ensure that jurisdictional and agency commitments receive due consideration in setting regional priorities. Each time a new long-range transportation plan is developed, the BRTB considers the policy factors of previous plans and commits to new factors, criteria, and point ranges that reflect the goals and direction of the current plan.

Evaluation of projects with respect to policy criteria is a qualitative process and strongly follows the priorities of the local jurisdictions and state agency members of the BRTB. It is conducted by the BRTB member that submits the candidate project.

The policy evaluation accounts for 60 percent of the overall project score. The policy evaluation criteria and scoring criteria with point ranges follow:

GOAL / CRITERIA	POINT RANGE
<b>1. IMPROVE TRANSPORTATION SYSTEM SAFETY</b>	
Reduces fatalities and injuries	0 – 6
Improves ability of emergency services to respond in a timely manner to incidents	0 – 4
Improves safety by upgrading interchange or intersection	0 – 4
Improves safety for pedestrians and bicyclists	0 – 6
<b>Total Points</b>	<b>20 max</b>

### Technical Criteria

The technical evaluation process was designed to evaluate three types of projects: (1) highway and interchange projects, (2) transit projects, and (3) bicycle and pedestrian projects. The technical evaluation was a largely quantitative analysis and accounted for 40 percent of the overall score. BMC staff members conducted the technical evaluation.

The technical evaluation criteria and scoring criteria with point ranges for each of the three categories follow. A project’s total technical score is the sum of the points it received for all criteria. Much of the technical evaluation was based on output from the regional travel demand model.

#### CATEGORY 1: HIGHWAY AND INTERCHANGE

EVALUATION CATEGORY	#	CRITERIA	POINT VALUES
Safety (25 points)	1a	Crash Frequency	0-10
	1b	Crash Severity	0-10
	1c	Incident Management	0-5
Accessibility (15 points)	2a	Disadvantaged Communities	0-5
	2b	Intermodal Access	0-5
	2c	System Connectivity	0-5
Mobility (15 points)	3a	Congestion Index	0-5
	3b	Peak Demand	0-5
	3c	Travel Time Savings	0-5

Figure 5-3: Policy and Technical Criteria from the BRTB LRTP

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In addition to prioritizing needs through an extensive methodology, existing conditions were evaluated in detail by goal and objective category. Each goal and objective was presented in the plan, in addition to strategies developed to reach each goal. Existing conditions related to each goal are identified as well. This process creates a direct linkage between goals and actions within the plan. In this way, the goal strategies also serve as performance measures to determine the effectiveness of each project. The plan includes eight goals:

- **Improve Transportation Safety** - The Baltimore region accounted for approximately 43 percent of the total number of statewide highway fatalities in 2009. This goal is aimed at reducing that amount by implementing policies to improve transportation safety. Strategies/proposed actions include: adopting safety plans that aim to reduce transportation fatality and injury rates, and improve the ability of emergency responders to answer calls in a more timely fashion.
- **Preserve Existing Infrastructure** - Due to the large percentage of commuter traffic in the region, Baltimore's existing infrastructure must be maintained to support travel demand. Strategies/proposed actions include: continue to invest in improvements to roadways, transit systems and bicycle and pedestrian facilities; and encourage local governments to develop asset management programs to monitor infrastructure conditions.
- **Improve Accessibility** - A diverse population in the Baltimore region calls for an awareness of the necessity for public accessibility. Accessibility is the degree to which a traveler can get from one destination to another easily and efficiently. Strategies/proposed actions include: increasing all transportation mode choices and addressing transportation equity for all areas of the region, showing a strong dedication to fund bicycle and pedestrian facilities within the city to link community centers with residential neighborhoods.
- **Increase Mobility** - With a diverse population of over 2 million people, the ability to get from one place to another as quickly as possible is important. Strategies/ proposed actions include: increase transportation system effectiveness and consistency through extensive information distribution to roadway and transit travelers, and prepare congestion mitigation plans for areas experiencing high levels of congestion.
- **Preserve the Environment** - The Baltimore region is committed to promoting environmental sustainability. Strategies/proposed actions include: promoting the use of energy conservation practices by supporting the development of fuel efficient technology, use of alternative forms

**Goals and objectives are directly linked to policy and technical evaluation criteria, servicing as performance measures for the plan's vision.**

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of energy, and investing in transportation related programs and projects that reduce runoff and promote water conservation.

- **Improve Transportation System Security** - Ensuring transportation security is a priority of the Baltimore region. To further this initiative, strategies/proposed actions include: making use of transportation funding to administer transportation system priorities in the region, and developing planning strategies to address the potential security ramifications of climate change.
- **Promote Prosperity and Economic Opportunity** - The Baltimore region recognizes the need to promote economic growth and competitiveness in the area to build its economic base. Strategies/proposed actions include: coordinating transportation funding and investments with regional plans addressing growth, development, while advancing transportation infrastructure in the region to provide better access and support to the area's "economic engines."
- **Foster Participation and Cooperation among all Stakeholder Groups** - The Baltimore region recognizes that only by working together can the region achieve progress through improved performance of the transportation system. Strategies/proposed actions include: improving communication with public and private stakeholders in the region's to solicit their feedback while working with elected representatives to improve their understanding of the opportunities and constraints of transportation alternatives.

*Plan It 2035* recognizes a need for an integrated plan that is both descriptive and concise. Through a strategic planning process, the BRTB identified needs that directly address the goals and objectives of the plan. The relationship between the plan goals and objectives and the needs projects is clearly defined, in addition to their relationship to the strategies that are meant to address each goal. The plan has taken into account all relevant factors to varying degrees, and will be able to meet the transportation demands of the Baltimore region for years to come.

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## Fresno Council of Governments: 2014 Regional Transportation Plan and Sustainable Communities Strategy

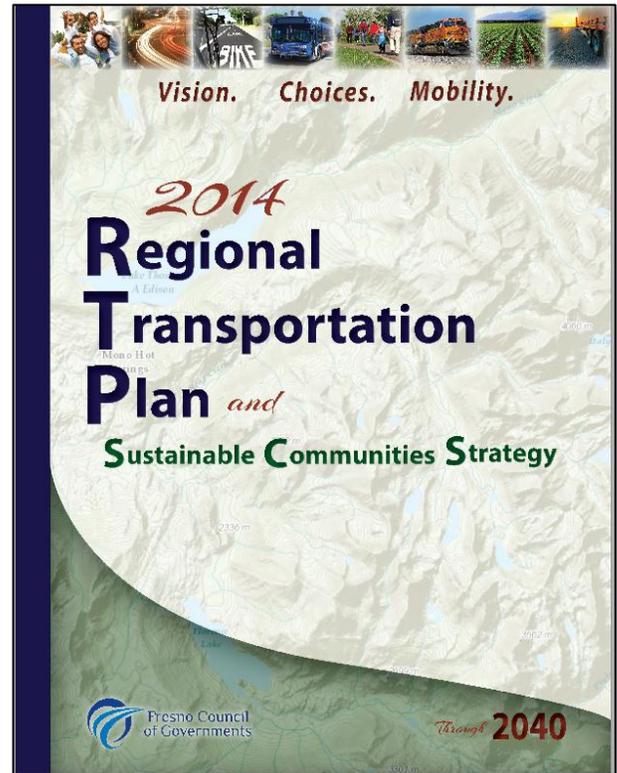
The *2014 Regional Transportation Plan and Sustainable Communities Strategy* is the L RTP developed by the Fresno Council of Governments (COG), the metropolitan planning organization for Fresno County, California. The region consists of 6,016 square miles and had a population of over 930,885 people in 2010. The Fresno COG also serves as the state-designated Regional Transportation Planning Agency, and is responsible for defining the vision for the future state of the transportation system improvements. It provides a framework for people and goods movement throughout the region.

This is the seventeenth edition of the Fresno COG's L RTP and was developed through extensive involvement and intergovernmental coordination between various stakeholders. The Fresno region is the nation's number one farm county, and in 2011, the gross value of agricultural products was estimated at \$6.9 billion annually. In addition, the City of Fresno is the fifth largest city in California, and as such, the delicate balance between urban infrastructure and rural agricultural growth is central to the area's economy. Therefore, when planning for the movement of people and goods throughout the region, land use concerns were a central element of focus in the planning process. This requires a detailed and integrated plan to take these factors into account. Through strategic development, the Fresno COG has produced a long range plan that provides an extensive needs assessment to shape the transportation network for the region. Therefore, the *2014 Regional Transportation Plan and Sustainable Communities Strategy* has been selected as a best practice example.

### Criteria Highlight

The *2014 Regional Transportation Plan and Sustainable Communities Strategy* includes a needs assessment that shows the interrelationships between the various transportation modes, and presents, by mode, an existing system inventory, an assessment of needs, and proposed actions to address future transportation demand.

- **Multimodal** - The Fresno COG stresses the importance of looking at transportation planning with a holistic perspective, meaning that all modes are taken into consideration to provide a "seamless" journey along a multi-modal transportation network with little effort and delay. An



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existing conditions inventory includes information about the population and demographics of the region, such as the fact that Fresno is the county's major population center, as well as an inventory of existing transportation facilities—including the primary transportation corridor to Yosemite National Park, which has some of the highest visitation rates of all the national parks in the country. Based on this inventory, a needs assessment was developed which includes elements such as: corridor preservation, efficient goods movement, and preservation of recreational travel opportunities. Long term strategies/proposed actions to address needs include: expanding transit systems and the frequency of service, and improving connectivity between transit and rail, transit and air travel, cycling and transit, etc.

**The Needs Assessment incorporates a detailed evaluation of needs, a complete inventory of existing conditions and proposed actions and strategies to address needs.**

- **Highways, Streets, and Roads** - Fresno's roadway corridors play a major role in providing adequate mobility for the community, as well as promoting economic prosperity for the region. The efficient movement of goods from producer to consumer is important to the region. In order to conduct an existing systems inventory of highways, streets, and roads to determine what projects are needed to ensure adequate movement of these goods and services, a "Regionally Significant Road System" was developed. This system was created for modeling purposes based on the FHWA Functional Classification System of Streets and Highways. It groups streets and highways into classes based on the type of service provided. In this way, roadways are further defined based on type of use, so that needs can be best identified. Based on this inventory, a needs assessment was developed which includes elements such as: finding ways to fund the "Regional Transportation Network," addressing transportation system corridor needs through corridor studies, and changing travel demand. Proposed actions/strategies include: continuing work with stakeholders to develop an extensive multi-modal transportation network to address demand within the region, and continually monitoring traffic patterns to ensure accurate results when conducting urban and suburban/rural streets and highways analysis.
- **Urban Mass Transportation** - Mass transit plays a major role in Fresno's attempt to be more sustainable to ensure attainment with air quality standards, while bridging the gaps in the region's transportation system. This includes ensuring adequate service to both advantaged and disadvantaged populations. An existing service inventory shows that both public and private transit systems serve the region's population, including Amtrak rail passenger service. Further exploration into each transit option allowed the Fresno COG to identify unmet transit needs for incorporation into the needs assessment. "Unmet Transit Needs" hearings are conducted annually to address these needs, and reports are developed with strategies to address them. Proposed actions/strategies included: improved coordination of transit fares

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and route schedules to improve efficiency, as well as improved coordination between various stakeholders in the public and private sectors to ensure all areas of the region have adequate transit service.

- **Fresno County Rural Area Public Transportation & Social Service Transportation** - To further transportation system service, the Fresno County Rural Area is served by common carrier, general public, and social service agencies. A complete Coordinated Human Services Transportation Plan addresses gaps in levels of service, surveys users to assess needs, and identifies various resources currently being used. This plan was used to develop a needs assessment that tied into the “Unmet Transit Needs” reports. Several surveys were included to further identify future needs related to rural area public and social service transportation. In addition, 12 issue items were identified and explored within the needs assessment as related to rural service needs. Proposed actions/ strategies include: development of a Rural Short Range Transit Plan to address these needs in the short-term, and development of a long-range improvement plan to address needs in the long-term.
- **Aviation** - An essential element of the Fresno County transportation system, aviation plays a key role in the movement of goods and services in and out of the region. The Fresno County Regional Aviation System Plan includes a detailed account of all public airports in the county. It serves as a detailed inventory of these facilities. Following the detailed inventory, a needs assessment was developed within the LRTP. Future needs include: additional state and federal funding for existing airport facility maintenance as well as construction of new airport facilities to address future growth. Funding is also needed for airport master plans. Proposed actions/strategies include: future development of land use policy plans for airports, short-range improvement plans, and addressing issues such as airport accessibility and mass transit service to airports.
- **Non-Motorized Transportation** - Fresno County recognizes the necessity to develop a local bicycle and pedestrian trail system network to link gaps in the transportation system to promote multi-modal transportation options. The Fresno COG developed goals for the development of bicycle transportation and conducted an existing system inventory of the regional network. A needs assessment was developed, which identified a need for the preparation and adoption of Bicycle Transportation Plans, which are required for local jurisdictions to receive “Bicycle Transportation Account” funding. There is also a need to focus on facilities implementation undertaken by the county or the cities. Proposed actions/strategies include: the continued development of planned roadway facilities as part of the road construction program within the county to include accommodations for bicycle travel.
- **Rail** - The efficient movement of people and freight via an intricate rail network is central to the economy of the Fresno region. An existing system inventory indicates that the rail system in the county is composed of approximately 280 miles of mainline and branch line corridors. A

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needs assessment identified potential system expansion options for the region. Proposed actions/strategies included: funding for “grade separations,” including those on the Union Pacific mainline corridor, and future planning for high-speed rail to take full advantage of its benefits to the county.

The *2014 Regional Transportation Plan and Sustainable Communities Strategy* includes an extensive needs assessment that incorporates a detailed evaluation of needs, a complete inventory of existing conditions in the needs assessment context, and proposed actions and strategies to address needs. Because of this extensive attention to detail, this plan provides a comprehensive account that paints a vivid picture of the future transportation system in the area. Therefore, this plan has been selected as a best practice example for a comprehensive and descriptive needs assessment.

## Descriptiveness: Lessons Learned

MPO LRTPs need to incorporate a needs assessment that addresses current and future transportation demand for the region. Inclusion of a methodology for assessing needs is important to ensure that needs are addressed in a comprehensive fashion. The methodology also aids in defining what a need is, and what it consists of. Often, a plan will identify a need without explaining the process for identifying and addressing a need through projects within the project list. This methodology is necessary because it allows for the region to build upon the process developed and pinpoints exactly which factors are being incorporated in the assessment process, allowing for future incorporation of other factors as well. These elements are all important components of a quality plan. This report also recommends that Needs Plans include an assessment of existing conditions, by mode, to inventory the current transportation system and aid in analysis of future demand. This ensures that all components are incorporated into the plan.

The Needs Plan should also incorporate a proposed action section with identified ways to address needs. This allows for the plan to provide a scope for the future, and create performance measures to determine if the region's needs are being met. These performance measures should be directly in line with the vision, goals and objectives of the plan. The report also recommends that Needs Plans highlight the interrelationships between the various transportation modes to promote the development of an integrated system as a whole, and not as individual components. This provides a better picture of the state of the system, and is a comprehensive approach to transportation planning. Incorporation of all of these factors will produce a Needs Plan that will be descriptive in both nature and process.

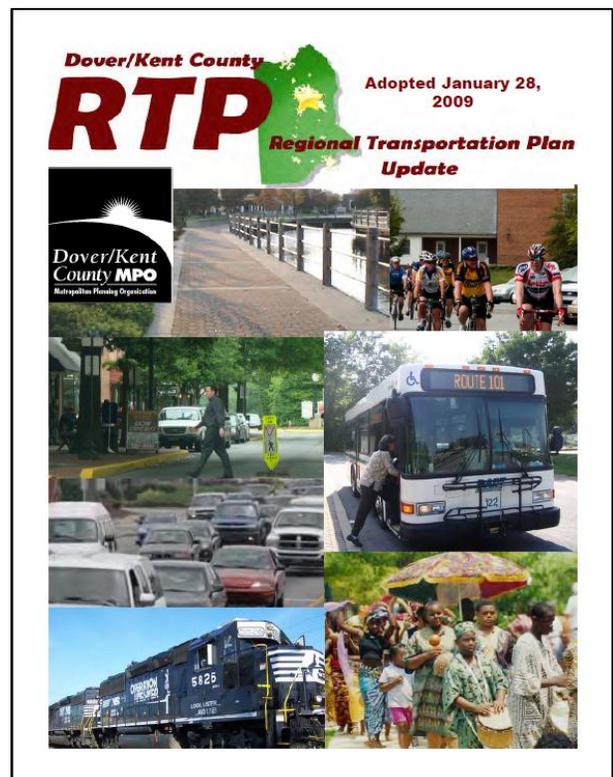
## Technical Methodology

The “Technical Methodology” criteria examines the extent to which a plan utilizes modeling methodologies (not just travel demand modeling) and modals analyses. Each component examines the degree of model incorporation within the plan, and the degree of model utilization complexity and descriptiveness. The Dover/Kent County MPO utilized a comprehensive technical analysis that incorporated various modeling techniques. It focused on the interrelationships between transportation and land use through the utilization of a travel demand model, a land use model, and an alternatives scenario analysis. The New York Metropolitan Transportation Council developed the New York Best Practice Model (NYBPM) to measure a wide array of factors impacting the transportation system in the region. This model incorporates extensive data sets, including survey data, socioeconomic data, traffic and transit counts, and extensive land use inventories. Similar to the Dover/Kent County MPO’s technical analysis, this model analyzes the impact on the transportation system on surrounding land use, which has proven to be a valuable component of analysis.

### Dover/Kent County MPO: Regional Transportation Plan

The *Regional Transportation Plan* is the LRTP developed by the Dover/Kent County Metropolitan Planning Organization, the metropolitan planning organization of the Dover/Kent County, Delaware, region. The area consists of 602 square miles, and had a population of 167,364 people in 2010. The *Regional Transportation Plan* update began in 2006 to directly coincide with the update of the Kent County Comprehensive Plan. A common vision was identified in both plans and is further emphasized by common goals and objectives.

This LRTP was developed through extensive inter-governmental coordination among stakeholders. As the state capital and the state’s second largest city, Dover’s relatively low cost of living has continued to spur growth in the region. Due to these factors, it is important that the region prepare for expected demands on the area’s transportation system. The LRTP for Dover/Kent County incorporated an extensive technical methodology that takes these factors, as well as others, into account. Because of this extensive analysis that incorporates various socio-economic factors in addition to system modeling, this plan has been selected as a best practice example.



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## Criteria Highlight

The *Regional Transportation Plan* involved an inventory of the transportation system between 2005 and 2007 using the Delaware Department of Transportation (DelDOT) travel demand model, in addition to several other analysis models, particularly a land use model and an alternatives scenario analysis. Through this multi-step process, the plan was able to assess the relationship between the transportation system and land use. The plan presented a list of projects and proposed actions/strategies to achieve the goals and objectives outlined. The analysis was extensive, and will be further explored within this section.

- **Travel Demand Model** – To forecast future demand on the region’s transportation system, the Dover/Kent County MPO generated traffic volumes for existing conditions and projected conditions. The projected conditions consisted of estimated 2030 Base conditions, including transportation improvement projects programmed through 2013, and well as estimated 2030 Shift conditions with transportation improvement projects programmed through 2013 that assumed a shift in population to growth areas. Using the DelDOT travel demand model, traffic volumes were then calculated and assigned to roadways within the network. Based on this analysis, trip paths were delineated along the highway network and routes selected based on the amount of time it takes to get from origin to destination, assuming that the quickest path would be selected.

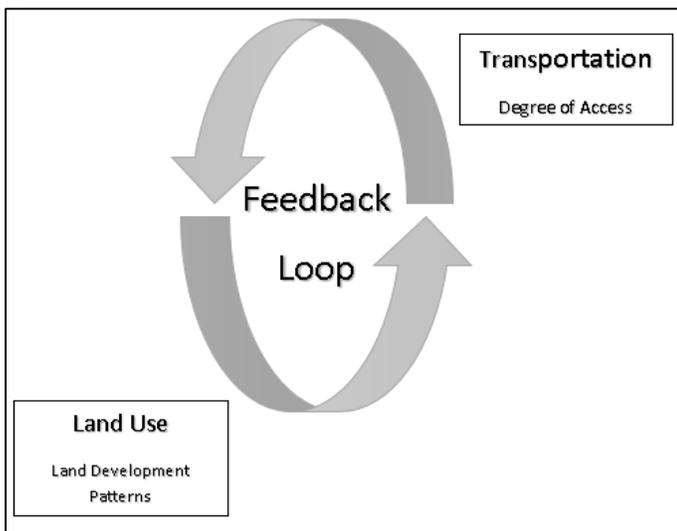


Figure 5-4: Analysis of the Interrelationship between transportation and land use depicted in the Dover/Kent County MPO LRTP

- **Land Use Model** – The plan used a land use model to estimate the impacts of transportation planning on land use. This model, CORPLAN, was used to estimate regional land development potential. It was used in conjunction with the travel demand model to provide a comprehensive analysis of the transportation system and its land use impacts. It examined the travel conditions and associated impacts from a preferred land use scenario and two alternative scenarios. This analysis was carried over into the plan update. An extensive analysis was conducted on the interrelationship between transportation and land use, depicted in **Figure 5-4**.

- **Level of Service (LOS)** – As part of the traffic analysis, the MPO conducted a LOS assessment of congestion levels on roadways and intersections. Level of Service has six categories: LOS A through LOS F. LOS A means that a roadway or intersection is free-flowing, with no congestion issues, LOS E means that a roadway or intersection is using all available capacity, and LOS F means that a roadway or intersection is exceeding all available capacity. A minimum LOS C was

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adopted for all roads in Kent County. This was to ensure that all roadways provide capacity for future development. In growth areas and areas that are more urban, a LOS D was adopted during peak hours since LOS C cannot be reached and would result in development being pushed beyond the growth boundary.

- **Alternatives Scenario Analysis** – Travel demand modeling indicates an increase in future demand leading to increased congestion levels. An analysis of the “Base” scenario shows that various segments of roadway within Kent County will not meet capacity by the year 2030. This scenario shows projects committed through 2013 but not beyond that. The “Shift” scenario shows that there are segments of roadways within the county that will have even higher unmet capacity needs than those predicted by the “Base” scenario. It shows where segments of the population shift to the urban centers of the county. A series of maps within the technical methodology section of the plan show the locations of roadways with the various LOS designations. Through this analysis, projects can be prioritized to address roadway demand.

Through an extensive technical methodology, the MPO can ensure that all factors are taken into account when attempting to forecast future transportation demand on various modes. Utilizing various models allows for more precise calculations to be made, because additional factors are incorporated into the analysis. Through this process, the *Regional Transportation Plan* provided a detailed, yet concise, account of the region’s future transportation demand.

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## New York Metropolitan Transportation Council: Plan 2040: A Shared Vision for Sustainable Growth

The *Plan 2040: A Shared Vision for Sustainable Growth* is the LRTP developed by the New York Metropolitan Transportation Council (NYMTC), the metropolitan planning organization for New York, New York. The area consists of 2,726 square miles, and had a population of 12,367,508 people in 2010. As one of the largest cities in the world, the city of New York estimates it will grow to over 14.3 million people by 2040. In addition to a massive population, this region moves more freight and people than any other area in the country. One-third of all rail commuters in the nation and one in five transit commuters live in this region. The area's mass transit and roadway networks typically support approximately 33 million passengers a day, and that number is expected to increase to roughly 38 million passenger trips by 2040. Therefore, the efficient movement of people and goods through this area is critical to the region's economy. It is imperative that the region develop a strategic transportation vision for a multimodal network that serves such a large and complex city.



The shared vision for *Plan 2040* centers on the development of sustainable transportation options for all. The transportation sector provides the second largest amount of greenhouse gas emissions nationwide, and mitigating this is a cornerstone of this plan. The Shared Vision consists of four components developed by the NYMTC as a blueprint to provide guidance on transportation investments in the region. To forecast future growth and continue forward with a shared vision, the NYMTC developed a complex yet integrated Best Practice Model to estimate future transportation demand. Due to the vision and comprehensive qualities of this model, *Plan 2040* has been selected as a best practice example.

### Criteria Highlight

*Plan 2040* incorporates the travel demand forecasting model for the New York Metropolitan Area, known as the New York Best Practice Model (NYBPM). It has been extensively incorporated into the plan, and the model itself takes into account a variety of factors that have a direct impact on the measurement of transportation patterns within the region.

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## About the NYBPM

The model was developed by the NYMTC to estimate future travel patterns in the region by examining demographics and available transportation system options. The model incorporates behavioral relationships that were created using complex datasets. Because a major theme of the plan is sustainability and planning for climate change, the model can be used to measure conformity with Air Quality Standards and can be used to conduct emissions analysis to evaluate projects to be included within the plan and the Transportation Improvement Program (TIP).

The NYBPM is an activity/tour-based model, and can be used for predicting regional transportation demand. It was upgraded in 2008 with 2000 socioeconomic/demographic Census data and is in the process of being updated for the 2040 plan update to incorporate 2010 Census data. It also used the 2006 American Community Survey (ACS) data related to journey-to-work patterns to estimate future commuter patterns. It uses the concept of “journeys” as opposed to “trips,” where a journey can consist of several trips which allows for more realistic planning. The model utilizes “tours (or paired journeys)” as the basic unit of analysis. It incorporates the use of a conceptual framework that takes into account individual daily activities and the relationship between members within a household to guide trip patterns in relation to space and time. The model then forecasted travel mode choices. A flowchart of model development can be seen in **Figure 5-5**.

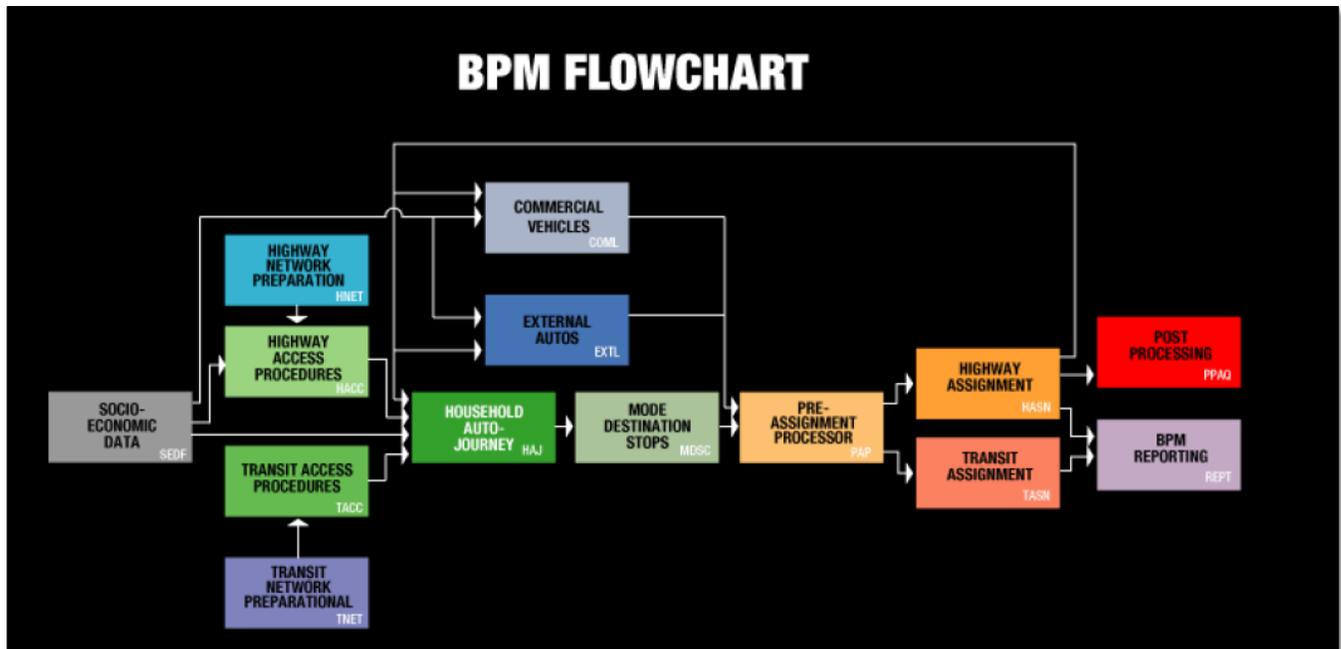


Figure 5-5: New York Best Practice Model Flowchart showing development of the model

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## Model Development

The NYBPM was initially developed in the 1990's as an interim model. It became a "workable" model that developed into a new forecasting model to meet Federal Regulations. It took several stages for the model to fully form, however, it has been extremely effective in predicting travel demand for previous plan updates.

- **Phase 1-** In 2001, the Best Practice Model was developed with a 1996 base year. Following a household survey conducted in the late 1990's, along with and traffic count data, roadway speed data, and other types of data collected during 1996-1997, the model was developed. The model itself is comprised of 3,586 traffic analysis zones in 28 counties and includes information necessary to support traffic volume and need estimations. The transit portion of the model includes all forms of public transportation: subway, commuter rail, PATH, aerial tramway, bus routes and ferry routes. In total, the transit system contains 1,176 routes.
- **Phase 2-** When the model was developed and data became available, the 1996 base year model was updated with 2002 data. All attributes were updated in both the highway and transit networks to reflect these changes.
- **Phase 3 -** The model was updated to its most recent form with a 2005 base year. It incorporates the most recent available data which includes 2000 Census data. The model includes over 8 million households, 25 million paired journeys, 8 trip purposes, 4 time periods, and 11 travel modes.

The NYBPM included various models, including the household model, auto-ownership model, journey-frequency model, mode, destination and stop choice model, time of day model, truck and commercial vehicle trip and an external model. Due to the complexity and comprehensive nature of the New York Best Practice Model, it allowed the NYMTC to estimate future travel demand patterns for over 12 million people, as well as for the movement of tons of freight. Because of the completeness of the model and the extensiveness of the results, this model has earned its place as a best practice example, and will aid in meeting the region's transportation needs for years to come.

## Technical Methodology: Lessons Learned

During the long range transportation planning process, forecasting future conditions and future demand on the transportation system is essential to developing an effective plan. In order to accurately forecast these conditions, MPOs can utilize various types of models to estimate transportation and land use patterns. This report recommends the usage of multiple modeling methodologies to accurately forecast needs. The travel demand model is already used by all of the MPOs in Florida because it uses elements such as transit and roadway networks as well as population and demographic data to estimate the future demand on transportation facilities in a region. As seen in the best practice examples, it can be combined with other models to estimate future transportation demand, as well as adopted into a new model that incorporates multiple levels of analysis.

This report also recommends the usage of other modal methods in addition to the travel demand model to take into account other factors and provide for the most comprehensive analysis possible. The plan should include a modal method that incorporates transportation behavior and relationships that have been developed with an extensive set of data that includes a travel survey of households in the region, along with land use inventories, socioeconomic data, traffic counts, transit ridership, and travel times. As seen in the best practice examples, a key component to a comprehensive modal analysis is the examination of the interrelationships between the transportation system and surrounding land use – through modeling methodologies. This concept is not widely incorporated within needs assessments, and it is important because it allows for the transportation system to be enhanced and expanded efficiently with knowledge of the movement of people and goods. It can be assumed that transportation services should be extended to residential areas as well as commercial businesses. It can also be assumed that shipping and freight ports should be located along rail lines or be accessible by truck to allow for efficient movement of goods. Knowledge of current and future land use greatly aids in this planning process because it shows where these uses are currently located and where they will potentially expand. This comprehensive analysis ensures that all factors are incorporated.

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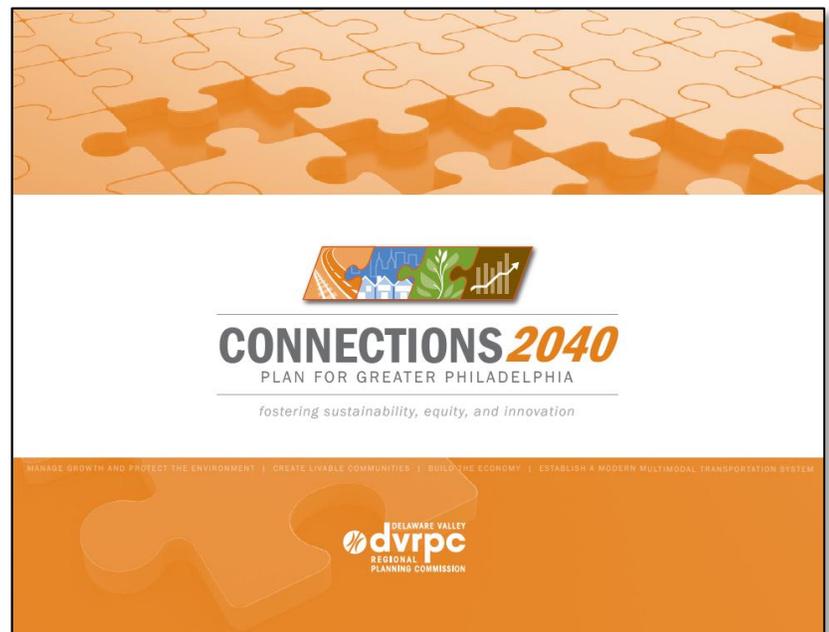
## Cost

The “Cost” criteria examines three elements of the long range transportation plan (LRTP): the extent to which the plan incorporates a Needs Cost Assessment by mode, whether it incorporates available revenues, and whether it incorporates funded and unfunded projects. Most LRTPs consist of both a Needs Plan and a Cost Feasible Plan. The Cost Feasible Plan is where the funded projects are listed. The Delaware Valley Regional Planning Commission identified projects that will play a significant role in furthering the vision of the plan. The plan then assigned costs to each needs project. Projects are delineated by mode type, and the information is displayed in simple graphics that are easy to understand. The plan also includes a detailed assessment of available revenues along with its unfunded needs. The Metropolitan Transportation Commission (MTC) prioritized projects using a two-part, quantitative benefit/ cost analysis and a comprehensive policy assessment. It includes a direct visual comparison of anticipated revenues vs. needed costs. Costs are broken down into maintenance, system efficiency, and expansion categories. The plan also includes many detailed, yet simple, graphics that show projected revenues and total needs in each category to identify any remaining funding shortfalls. This provides for a comprehensive analysis.

### Delaware Valley Regional Planning Commission: Connections 2040, Plan for Greater Philadelphia

The *Connections 2040 Plan for Greater Philadelphia* is the LRTP for the Greater Philadelphia area in Pennsylvania and New Jersey. The plan was developed by the Delaware Valley Regional Planning Commission (DVRPC), the metropolitan planning organization for the Philadelphia area. The planning area consists of 3,811 square miles, and had a population of 5,626,318 people in 2010. The plan was developed to address the region’s rapid rate of land development, which has surpassed the region’s rate of population growth by five to one. Therefore, the region recognizes a need for strategic mixed use development and extensive multi-modal transportation systems to aid

in meeting the region’s demand. The aging transportation network in this area is a major concern, so many of the projects in the plan are related to maintenance. Because of the estimated 11 percent growth in population by 2040 and the extensive movement of goods and freight within the region, it is important



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to strategically invest in projects that will aid in infrastructure maintenance and development. The plan identifies investments needed to meet demand, as well as contains a comprehensive examination of the causes of its decreasing funding options. It also offers some options to address its funding shortfall. The plan conducted a quantitative analysis of transportation needs to develop a comprehensive project list. Because of this comprehensive cost assessment, *Connections 2040* has been selected as a best practice example.

## Criteria Highlight

Due to its funding limitations, *Connections 2040* outlined a vision for the future, and then included projects that will play a significant role in furthering that vision. The plan prioritized projects based on forecasts of reasonably anticipated revenue, revenue allocation, and the evaluation of major regionally significant projects. In order to develop a project cost assessment, needs were identified and put into categories based on the methodology used to assess them. Needs, as identified in *Connections 2040* include:

<b>Roadway System Preservation</b>	Projects identified for maintenance of roadway and bridge infrastructure.
<b>Roadway Operational Improvements</b>	Projects that utilize physical and technological improvements to enhance the efficiency of the transportation network.
<b>Bike and Pedestrian</b>	Projects that are designed to further the bicycle and pedestrian network.
<b>Roadway System Expansion</b>	Projects that build capacity to the roadway network within the region. Types of projects include: roadway widening and extensions, as well as construction of new roadway facilities.
<b>Roadway Other</b>	Miscellaneous projects, including parking facilities, drainage, etc.
<b>Transit System Preservation</b>	Projects that address needs for existing rail infrastructure, as well as vehicle fleets and stations.
<b>Transit Operational Improvements</b>	Projects related to improvement of the existing network. These include: signal preemption, fare modernization, and service frequency improvements.

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<b>Transit System Expansion</b>	Projects that build on the transit system, such as new facilities, and expansion of service to new routes and lines.
<b>Transit Other</b>	Miscellaneous projects to further the transit system.

The plan then assigned costs to each needs project. Most L RTPs do not conduct a detailed cost assessment of the Needs list of projects, typically only those projects included in the Cost Feasible Plan. Even when cost is incorporated into a needs assessment, often the cost information by mode is difficult to delineate. This plan skillfully displays cost information through tables and graphics that identify amounts in a simple, yet detailed manner that is easy to understand. **Table 5-1** outlines the assessed cost for each of the categories. Projects were identified by mode, and further broken down into mode type.

**Table 5-1: Assessed Costs for Project Category by Mode Type from the DVRPC L RTP**

<b>TOTAL TRANSPORTATION NEED (2014-2040)</b>			
<i>(BILLIONS OF Y-O-E \$)</i>			
<b>MODE</b>	<b>PROJECT CATEGORY</b>	<b>PENNSYLVANIA</b>	<b>NEW JERSEY</b>
<b>ROADWAY</b>	System Preservation		
	Pavement Preservation	\$ 12.6 B	\$ 6.1 B
	Bridge Preservation	\$ 33.9 B	\$ 6.2 B
	Operational Improvements	\$ 3.9 B	\$ 2.6 B
	Bicycle and Pedestrian	\$ 0.5 B	\$ 0.2 B
	System Expansion	\$ 1.5 B	\$ 1.0 B
	Other	\$ 0.4 B	\$ 0.4 B
	<b>ROADWAY SUBTOTAL</b>	<b>\$ 52.9 B</b>	<b>\$ 18.4 B</b>
<b>TRANSIT</b>	System Preservation		
	Rail Infrastructure	\$ 11.4 B	\$ 0.9 B
	Vehicles	\$ 11.6 B	\$ 1.7 B
	Station Enhancements	\$ 5.2 B	\$ 0.1 B
	Operational Improvements	\$ 2.9 B	\$ 0.8 B
	System Expansion	\$ 5.7 B	\$ 3.9 B
	Other	\$ 2.0 B	\$ 0.9 B
	<b>TRANSIT SUBTOTAL</b>	<b>\$ 38.8 B</b>	<b>\$ 8.4 B</b>
	<b>SUBREGION TOTAL</b>	<b>\$ 91.7 B</b>	<b>\$ 24.8 B</b>

SOURCE: DVRPC

Costs were assessed separately for Pennsylvania and New Jersey. The plan estimates \$69.3 billion in roadway needs - \$16.4 billion in New Jersey and \$52.9 billion in Pennsylvania. The plan estimates \$47.2 billion in transit needs - \$8.4 billion in New Jersey and \$38.8 in Pennsylvania. Based on a total needs assessment of over \$116.5 billion, the plan includes a comparison of needs to available revenues. Total revenue for all projects amounts

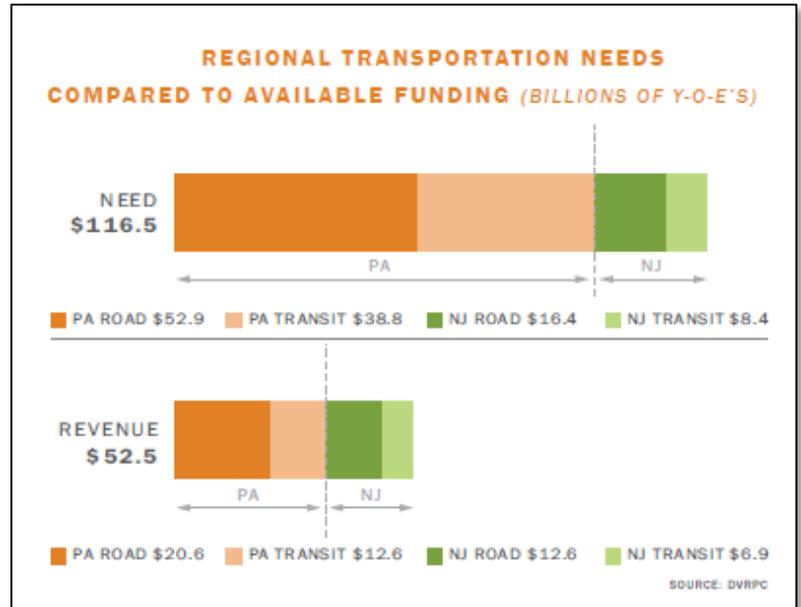
to about \$52.5 billion. Revenues are further broken down by state and by mode type, and are well displayed in **Figure 5-6**.

Therefore, unfunded needs accrue to about \$64 billion. **Figure 5-6** further explores the state of unfunded needs. In many L RTPs it is difficult to determine the total funding shortfall amount. Often this number

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can only be calculated through adding up the total amount of projects that are unfunded in the plan. This plan easily identifies and describes the deficit amount through simple graphics that are easy to interpret. It states that in Pennsylvania, only about 39 percent of its vision can be funded, and that there is a deficit of funding that accrues to approximately \$26.2 billion. In New Jersey, about 76 percent of its vision can be funded, with a deficit in funding of about \$1.5 billion. Costs are further examined based on available revenues and region system preservation needs. Funded and unfunded projects are also identified within the plan, based on available revenues.

The DVRPC has developed a comprehensive LRTP that incorporated cost elements associated with regional needs, revenues, and funded as well as unfunded projects. It displays what can be confusing information in a way that is simple and easy to interpret. *Connections 2040* has thus focused investments to address transportation needs to best address its vision.



## THE FUNDING GAP



**In the Pennsylvania subregion**, based on forecasted revenue figures, there is a total estimated funding gap of \$32.3 billion for roadway projects over the life of the Plan. Only about 39 percent of the total Plan vision is able to be funded. There is a total transit funding deficit of about \$26.2 billion over the life of the Plan. Only about 32 percent of the total identified transit vision is able to be funded.

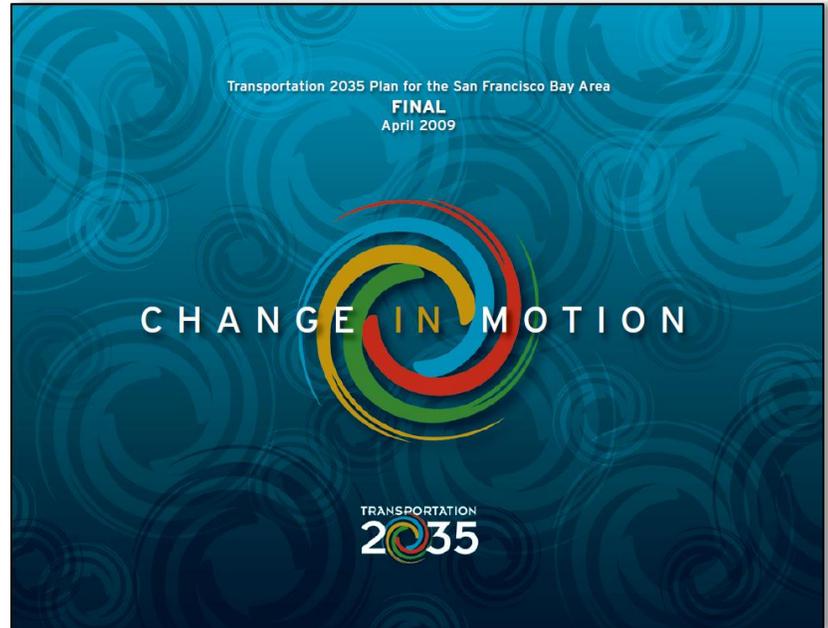


**In the New Jersey subregion**, on the highway side, there is a total estimated funding deficit of \$3.9 billion over the life of the Plan. About 76 percent of the total vision can be funded. On the transit side, there is a total funding deficit of about \$1.5 billion over the life of the Plan.

**Figure 5-6: Regional Transportation Needs Compared to Available Funding, and Funding Gap addressed from the DVRPC LRTP**

## Metropolitan Transportation Commission (MTC): Change in Motion: Transportation 2035

*Change in Motion: Transportation 2035* is the LRTP for the San Francisco Bay Area, developed by the Metropolitan Transportation Commission (MTC), the metropolitan planning organization for the region. The area consists of 7,485 square miles and had a population of 7,150,828 people in 2010. This plan is guided by the three pillars of sustainability: a healthy environment, a thriving economy, and an equitable society in which all residents have equal access to an efficient transportation network.



Over 7 million people reside in the San Francisco Bay Area. In addition, the area provides over 3.5 million jobs and it is the state's second-largest center of growth. The Metropolitan Transportation Commission estimates a 1.7 percent growth per year in the job market, with an increase in population to over 9 million people by the year 2035. With such a significant population and economic growth rate, the demand on the transportation system will only increase. Due to increasing demand and decreasing funds for transportation projects, it is important that the plan strategically identify costs associated with each project, and available revenues to build and maintain them. This plan incorporated a descriptive and integrated cost assessment that takes into account revenues, expenditures, as well as its funding shortfalls. For these reasons, this plan has been selected as a best practice example.

### Criteria Highlight

*Transportation 2035* prioritized projects for inclusion based on a project assessment process made up of two parts that included a quantitative benefit/cost analysis of projects in relation to established performance goals, and a qualitative analysis of established policies that reflected the overall vision conveyed in the three pillars of sustainability. Performance goals were selected based on their direct relationship in furthering the plan's vision and goals.

Unlike many LRTP's, *Transportation 2035* includes a direct visual comparison of anticipated revenues vs. needs costs. In many plans this information can be difficult to delineate, as mentioned in the previous best practice example. This plan offers another example of ways to assess transportation expenditures

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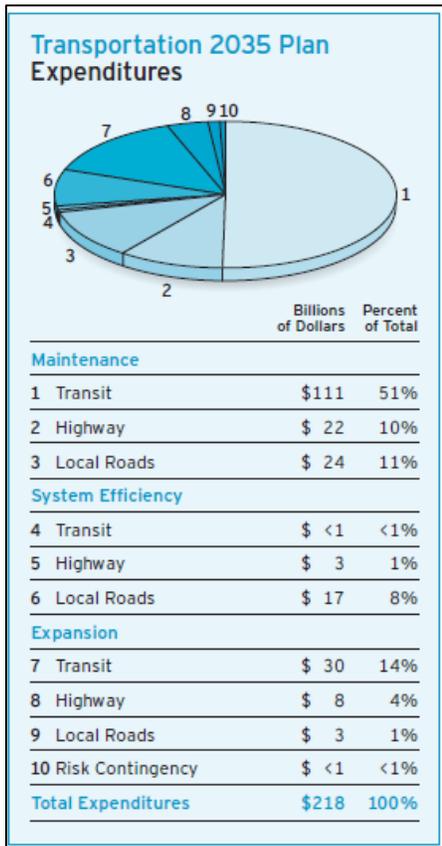
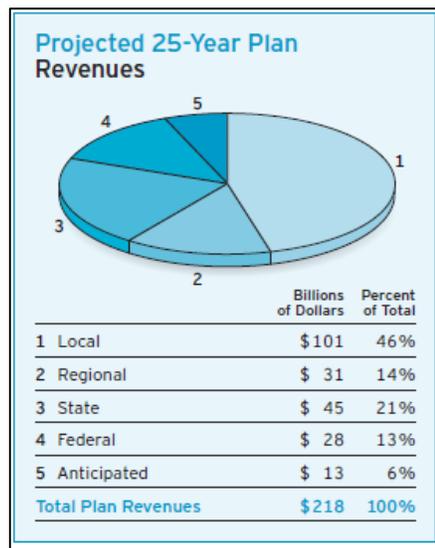


Figure 5-7: (Above) Needs Costs by mode and category from the MTC LRTP

Figure 5-8: (Below) Projected Revenues by Funding Source identified from the MTC LRTP



for inclusion in the financially constrained plan. Costs are broken down by mode under Maintenance, System Efficiency, and Expansion categories, as seen in **Figure 5-7**. Total expenditures amounted to approximately \$218 billion dollars. Transit costs accrue to approximately \$141 billion, and constitute about 65 percent of the plan's total expenditures. Highway, local roads, and bridges accrue to approximately \$73 billion, and constitute approximately 33 percent of the plan's total expenditures.

Projected revenues are shown in **Figure 5-8**. Funds are divided into Local, Regional, State, Federal, and Anticipated sources. Local revenues account for the largest percentage of project funding at 46 percent. State revenues account for the second largest amount, at 21 percent. Federal and Anticipated revenues account for the smallest percentages of funding, at 13 percent and 6 percent respectively.

Following an assessment of total plan expenditures and calculated revenues, *Transportation 2035* contains a section that includes the total need amount by grouping modes into project type: projects identified for maintenance, projects identified to increase efficiency, and projects identified to promote system expansion. This table is another example of a great way to visually show the total needs cost vs. available funding. The total needs amount is identified for each project category, followed by committed funds already identified in the Cost Feasible Plan, followed by discretionary or new investments, followed by the funding shortfall amount, which amounts to a total of \$49.4 billion. This visual neatly outlines an entire section of investment information in one simple table, which can be seen in **Figure 5-9**.

Focusing on funding shortfalls, it is important to compare the total shortfall amount for each funding category against total needs assessed for that category. When comparing total needs cost with total shortfall cost, a 25 percent funding deficit still exists. Funded and unfunded projects are further identified within the plan, and the funding shortfall is largely made up of transit capital replacement projects. This information was easily delineated from several simple graphics included in the plan. These graphics, along with straightforward and simple explanations, make this plan the ideal example for need cost assessments. This information can also

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be found in **Figure 5-9**. This plan will allow the MPO to anticipate costs and revenues to better determine project need for years to come.

**Figure 5-9: Needs Costs with Identified Funding and Remaining Calculated Shortfalls from the MTC L RTP**

<b>Summary of Discretionary Funding (With Remaining Shortfalls)</b>				
In billions of year-of-expenditure dollars				
	Total Need	Committed Funds	Discretionary Funds	Remaining Shortfall
<b>Maintenance</b>				
Local Streets and Roads Maintenance	\$ 34.5	\$ 16.3	\$ 7.0	\$ 11.2
Transit Capital Replacement	\$ 40.3	\$ 16.7	\$ 6.4	\$ 17.2
Transit Operations	\$ 98.0	\$ 90.0	\$ -	\$ 8.0
State Highway Maintenance	\$ 17.0	\$ 4.0	\$ -	\$ 13.0
<b>Efficiency</b>				
Lifeline Transportation Program	\$ 0.7	\$ 0.3	\$ 0.4	\$ -
Regional Bicycle Program	\$ 1.0	\$ -	\$ 1.0	\$ -
Transportation Climate Action Campaign	\$ 0.4	\$ -	\$ 0.4	\$ -
Planning Funds	\$ 0.3	\$ -	\$ 0.3	\$ -
Transportation for Livable Communities	\$ 2.2	\$ -	\$ 2.2	\$ -
Freeway Performance Initiative	\$ 1.6	\$ -	\$ 1.6	\$ -
<b>Expansion</b>				
Transit and Roadway Expansion*	\$ -	\$ -	\$ 12.1	\$ -
Risk Contingency	\$ 0.2	\$ -	\$ 0.2	\$ -
<b>Total</b>	<b>\$ 196.2</b>	<b>\$ 127.3</b>	<b>\$ 31.6</b>	<b>\$ 49.4</b>

\*Includes \$6.1 billion in net Bay Area Express Lane Network revenue

Source: MTC

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## Cost: Lessons Learned

Many LRTP Needs Plans often do not take into account costs when determining which projects should be included. They are not required to do so. In fact, Needs Plans, by definition, are supposed to evaluate which projects to include without regard to cost. However, not incorporating cost into the needs planning process has proven to be an issue, resulting in some MPOs including every type of potential project possible—and some of these projects would only be feasible with unlimited funding resources. Therefore, when calculating funding shortfalls, these projects cause the funding gap to be extremely high. This report recommends the incorporation of a needs cost assessment by transportation mode. This cost assessment will aid in determining which projects can be included in the Cost Feasible Plan, and which, if any, projects can be included in an “aspirational” plan, which is meant to list projects that visionary/aspirational, and for which funding of these projects is rather unlikely. This will aid in reducing the funding shortfall amounts and therefore unmet needs.

This report also recommends the incorporation of available revenues within the development of a Needs Plan. Doing so will aid in prioritizing projects for inclusion in the Cost Feasible Plan based on realistic funding amounts. Available revenues are often only discussed in the Cost Feasible Plan, and not often incorporated into the Needs Plan. Available revenues drive the project prioritization process; however, knowing the amount of funding possible allows for strategic prioritization of projects to ensure that those projects most needed will receive funding. This would also aid in reducing estimated funding shortfalls. In addition, identifying funded and unfunded projects in a Needs Plan will allow funding shortfalls to be calculated so the MPO can measure the degree to which transportation demand is being met within the region. This can be used as a performance indicator to ensure that the plan’s vision, goals and objectives are met. By incorporating these various elements, Needs Plans will be better equipped to address future transportation demand.

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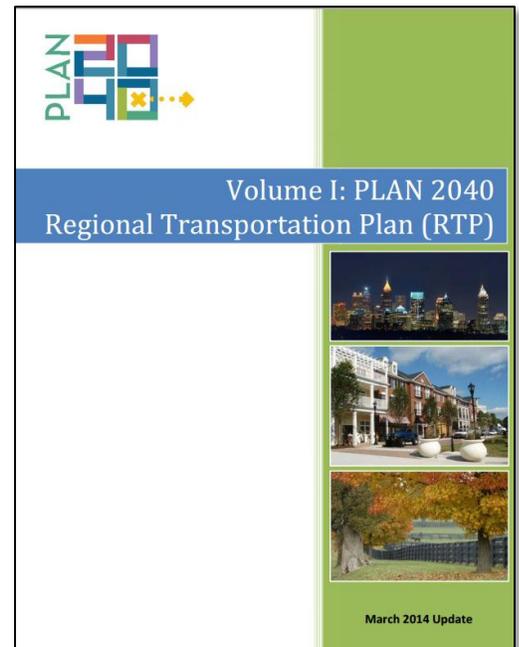
## Quality

The “Quality” criteria examines the overall integration and extent of the evaluation process used to select projects included in the Long Range Transportation Plan (L RTP). This process may be used for selecting projects from the Needs Plan for incorporation within the Cost Feasible Plan. The Atlanta Regional Commission utilizes a complex “performance-based planning process” that identified key resource allocations, conducted a performance analysis of projects, and identified connections between projects and the plan’s goals and objectives. The prioritization process also included four Key Decision Points to further prioritize projects. This comprehensive analysis provided for the incorporation of a wide variety of factors when determining which projects to include in the project list. The Puget Sound Regional Council developed a project prioritization process that included four main project investment categories: Regional System Expansion, Local Projects, Programmatic, and State of Good Repair. Under the “Regional System Expansion” category, projects were evaluated using nine prioritization measures that reflect the nine growth strategies of the region. Extensive cost data was gathered for the “State of Good Repair” category, “Local Projects” were identified by local jurisdictions, and an evaluation of past program trends was used to identify projects in the “Programmatic” category. Through this extensive analysis, projects were selected based on an assessment that was developed specifically to address needs using measures deemed appropriate for each category.

### Atlanta Regional Commission: Plan 2040 Regional Transportation Plan

*Plan 2040* is the L RTP for the metropolitan Atlanta, Georgia region, developed by the Atlanta Regional Commission (ARC), the area’s metropolitan planning organization. The ARC serves as Atlanta’s regional planning and intergovernmental coordination agency, and as such, its duties include developing an L RTP that addresses the region’s transportation needs for the future. The ARC boundaries vary based on planning responsibility, and can range from 10 to 22 counties, depending on the issues being addressed. For example, for carrying out day-to-day MPO duties, the ARC consists of 18 counties, but for addressing air quality attainment issues, it spans all 22 counties.

The entire planning area consists of 4,573 square miles, with a population of over 4,819,026 people as of the 2010 Census. The Atlanta Regional Commission estimates the region to grow to over 8 million people by 2040. Planning and projecting needs for an area this large requires an integrated and extensive process, not only in plan development and implementation, but also in project selection and prioritization. This is mainly due to its large projected growth rate, and also because the city of Atlanta contains the world’s



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largest airport, and is the freight capital of the Southeast. Based on the quality of the planning and project evaluation process outlined in this planning process, *Plan 2040* has been selected as a best practice example.

## Criteria Highlight

*Plan 2040* utilizes a “performance-based planning process” that includes plan development and plan management elements. The performance framework used to guide plan development identified: a step by step process for the allocation of key assets, a performance analysis of how information was utilized, and a connection of the plan’s goals and objectives to guarantee that the vision is maintained throughout the planning and implementation process. The performance framework also includes four “Key Decision Points (KDP)” that are used as criteria for project evaluation. These criteria reflect the ways in which the ARC has chosen to apportion various resources. An outline of the performance framework and key decision point process can be seen in **Figure 5-10**. The four Key Decision Points are: Conduct Program-Level Scenario Analysis, Apply Policy Filter, Project Evaluation, and Project Selection.

- **Key Decision Point 1 - Conduct Program-Level Scenario Analysis**, involved identifying available funding sources for different types of transportation projects. These projects align with those included in the plan’s previous update. Project level performance trend lines were also

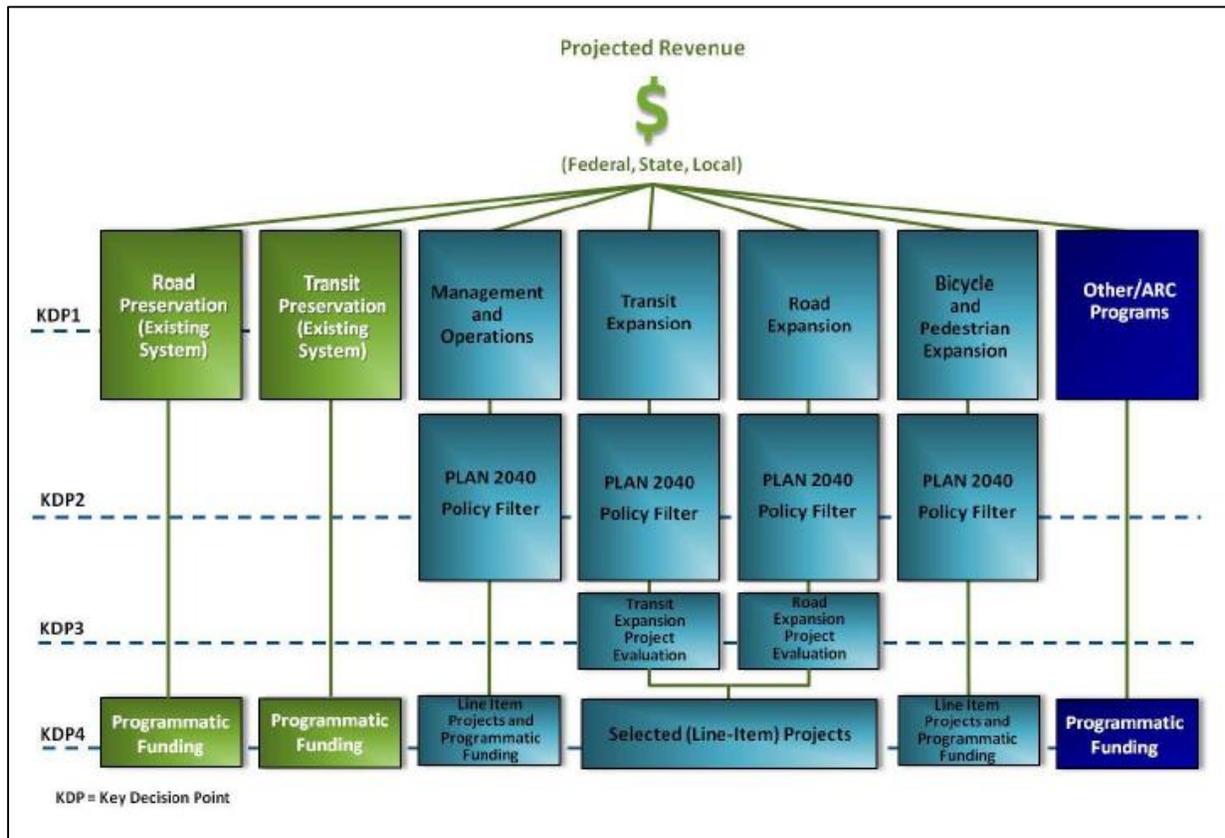


Figure 5-10: Performance Framework as outlined in the ARC LRTP

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developed during this stage, specifically for preservation programs to ensure that projects designed to maintain existing infrastructure were included. These trend lines were used to determine if there was an ideal funding level that could be allocated to projects that would guarantee the best level of return-on-investment. Once these trend lines were developed and funding distributed, they were used to aid in allocating funding to other types of projects. The key result from this step was the establishment of an ideal funding scenario and allocation across various project types.

- **Key Decision Point 2 - Apply Policy Filter**, involved analyzing projects to ensure consistency with the policies of the plan. By doing so, the projects were only selected for inclusion if they advanced the plan's vision and policies. The policy filters connected the four program areas in the plan: Management and Operations, Transit Expansion, Road Expansion, and Bicycle and Pedestrian Expansion. Projects consistent with the policy filters were the only ones included for review in Key Decision Point 3.
- **Key Decision Point 3 - Project Evaluation**, involved scoring and ranking projects that were identified using the policy filters. This was done through the utilization of performance measures, organized by emphasis areas, which advance the plan's goals and vision. Reviews of various projects were centered on roadway and transit expansion, and the criteria used were reviewed by the ARC and public and private stakeholders, and were developed from regional best practice techniques. A prioritized roadway and transit project list was produced from this extensive review. Projects selected through this process had a benefit/cost estimate calculated for each project. These projects were identified as high-performance, at which point a four-tiered analysis was used to incorporate the combined benefit/cost and performance prioritized projects into the plan.
- **Key Decision Point 4 - Project Selection**, involved the final selection of projects and drafting of the plan. Due to funding limitations, simply ranking projects for incorporation in the plan was not sufficient to identify project needs. Therefore, projects were selected through a series of steps that included: mapping high-performing projects by program area, identifying complimentary investments, selecting and programming projects, and evaluating the draft plan. Once the draft plan was developed from these projects, it was evaluated against "plan-level performance measures" that advance the plan's emphasis areas. Plan level performance, versus project level performance, reflects a more multimodal analysis. The resulting plan was an inclusive and extensive list of projects that incorporated the vision and priorities of the region.

The ARC also utilized a collaborative process that involved feedback from officials from around the region on technical and policy developments to incorporate developments from MAP-21, new performance data, and the Statewide Strategic Transportation Plan (SSTP). Due to the extensive project evaluation process, the Atlanta Regional Commission's *Plan 2040* included transportation projects that incorporated the

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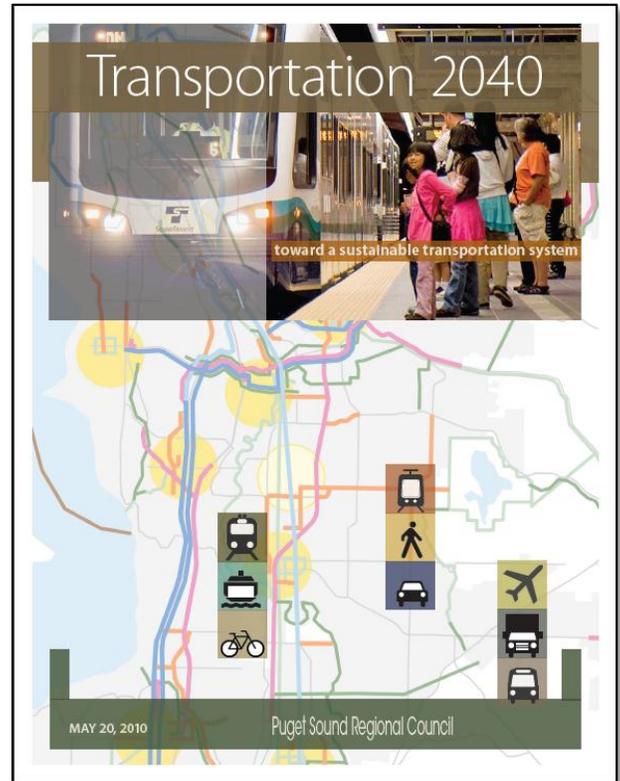
vision, goals and objectives of the plan. The overall quality of the process was extensive, impressive, integrated and effective. As a result, the Atlanta region will be able to further their transportation vision that addresses the region's needs well into the future.

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## Puget Sound Regional Council: Transportation 2040

*Transportation 2040* (T2040) is the LRTP for the Puget Sound region of the state of Washington, which includes the city of Seattle. The plan was developed by the Puget Sound Regional Council (PSRC), the area's metropolitan planning organization. The PSRC is made up of the four counties surrounding the Puget Sound, and is responsible for developing the area's long range transportation plan, growth strategy, and the area's economic strategy. The PSRC planning area consists of 6,384 square miles, with a population of over 3,690,866 people in 2010. As the major planning entity within the Seattle region, the PSRC is largely responsible for identifying and addressing the region's transportation needs for the future.

In addition to addressing the needs of its population, the PSRC covers a diversified topographic area with a range in elevation from sea level to over 14,000 feet. However, the Puget Sound Regional Council estimates that 97 percent of its growth will be located within its identified urban growth boundaries, and thus public transportation and sufficient roadway systems will be necessary to meet the increasing transportation needs of its population. In addition to population growth, the region is increasingly becoming a hub for high-tech businesses, commerce, and trade. Meeting these demands takes an innovative and integrated transportation plan to ensure that limited funding is strategically spent on projects that are most needed. Therefore, the Puget Sound Regional Council has developed a new project prioritization process for its *Transportation 2040* update. The strategic techniques it incorporates are the reason why this plan was selected as a best practice example.



### Criteria Highlight

The current long range transportation plan, *Transportation 2040*, combines two broad categories of projects: "constrained" and "unprogrammed." Fiscally Constrained projects and Unprogrammed Needs projects are incorporated as an integrated set of projects for the region. This allows for needs to be directly compared to revenues. However, in order to further the project selection and prioritization process to meet future demands, the PSRC has developed a new prioritization process to be used for future plan updates. When developing the prioritization framework, the PSRC board agreed that it must reflect the vision, goals and objectives of the plan. It includes four plan investment categories that reflect

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these ideals. These categories are: Regional System Expansion, Local Projects, Programmatic, and State of Good Repair.

**Table 5-2: Financially Constrained Plan Investment Categories from the PSRC LRTP**

<p><b>Regional System Expansion</b></p> <p>\$ 65 Billion</p>	<p>Includes investments in highways, arterials, transit, and bicycle/ pedestrian facilities. This category also includes investments in existing and future transit capital as well as auto ferry capital costs.</p>
<p><b>Local Projects</b></p> <p>\$ 20 Billion</p>	<p>This category includes investments in local transit, streets, and arterials as identified in local comprehensive plans.</p>
<p><b>Programmatic</b></p> <p>\$ 7 Billion</p>	<p>This category includes investments in demand management, intelligent transportation systems, traffic operations, and passenger ferries.</p>
<p><b>State of Good Repair</b></p> <p>\$ 81 Billion</p>	<p>Includes estimation of state, local government, and transit agency investment in Preservation, Maintenance, and Operation. This category also includes existing and future transit service cost.</p>
<p><b>Total</b></p> <p>\$ 173 Billion</p>	<p><b>Total investment in the Constrained portion of T2040</b></p>

As seen in **Table 5-2**, the “Regional System Expansion” category includes investments in all types of roadway and multimodal infrastructure projects as well as investments in existing and planned transit projects. The “Local Projects” category includes investments in roadway and transit projects at the local level. The “Programmatic” category includes projects in demand management, intelligent transportation systems, traffic operations, etc. This category is the smallest, and the PSRC advisory groups reviewed investment trends to evaluate how well their investments are meeting regional goals. The “State of Good Repair” category includes an estimate of state, local, and transit agency investment in preservation, maintenance, and operations. The “State of Good Repair” category contains the largest amount of projects and funding. The cost estimates included in this category have been developed using region-wide cost data gathered for the analysis in addition to a detailed analysis of existing and future conditions. The prioritization framework was used for all of the project categories except “Local Projects,” since those projects were identified at the local level based on the priorities of the area, and were included in the plan as is. For projects that fall under the “Regional System Expansion” category, projects are grouped into “Constrained” and “Unprogrammed” categories. The MPO board developed nine prioritization measures under this category to evaluate how well system improvement projects implement the nine growth

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strategies of the region, which are: air quality, freight, jobs, multimodal, Puget Sound land & water, safety & system security, social equity & access to opportunity, support for centers, and travel.

**Figure 5-11: Performance Criteria from the PSRC LRTP**

AIR QUALITY			
This measure addresses air quality impacts to health, the environment and climate, as well as potential shifts towards cleaner fuels.			
Purpose: reduce air quality related impacts to people and the environment. How well does the project reduce air pollutants including greenhouse gas emissions and criteria pollutants <sup>1</sup> ? How well does the project avoid impacts to sensitive populations? For the following questions, the reduction comparison is relative to a project no-build scenario.			
Points	Choose one	5	The project will reduce vehicle miles of travel and eliminate vehicle trips by providing an alternative to single occupancy vehicles.
		3	The project will reduce vehicle miles of travel, but does not eliminate vehicle trips—e.g. shortening auto trips through the use of a park and ride facility or creating a more direct route.
	Choose one	2	The project will improve traffic flow on a freight related facility, and will reduce idling by trucks (e.g., through signal coordination or by removing a bottleneck).
		1	The project will improve traffic flow (e.g., through signal coordination or by removing a bottleneck).
	1	The project will avoid or mitigate emissions within ¼ mile of sensitive land uses (daycare facilities, schools, and retirement homes).	
	Purpose: Increase use of clean technologies. How well does the project use alternative energy, cleaner fuels, or less energy?		
	2	The project explicitly relies on a proven alternative energy technology <sup>2</sup> .	
Total	10 (max)		

- **Air Quality** – As seen in **Table 5-11**, this measure is used for the evaluation of projects for air quality impacts on health, the environment, climate, and alternative fuel potential. The criteria examines how well a project reduces air pollutants and avoids impacts to sensitive populations. It also measures whether projects increase the use of alternative fuel technologies, cleaner fuels, and reduces energy consumption.

**Figure 5-12: Performance Criteria from the PSRC LRTP**

FREIGHT			
This measure addresses the extent to which projects provide benefits to freight users of the transportation system (travel time and reliability) as well as a reduction in conflicts with other modes of travel, improves access to freight-related areas, and improves key freight-related facilities.			
Purpose: System performance benefits for freight. How well does the project provide benefits to freight-related system users by improving travel time, reliability, and efficiency for freight haulers (all freight modes), and how well does the project reduce conflicts?			
Points		3	The project improves a facility identified as a freight bottleneck through the Washington State Department of Transportation's Truck Performance Measures program <sup>3</sup> or other adopted agency plan.
		1	The project reduces conflict between freight modes (truck and rail)—e.g. grade separation or bridge openings.
		1	The project reduces conflict with freight and one or more passenger modes—e.g. through a separation of modes such as a pedestrian overpass or separated parallel bicycle facility.
	Purpose: Access to freight-related areas. How well does the project support planned development in Manufacturing and Industrial Centers (MICs) and other freight-related areas?		
	Choose one	2	The project improves access within, or to, more than one MIC (or between a MIC and a Regional Growth Center)
		1	The project improves access within or to one MIC
1	The project improves access to an area identified in the Regional Freight Strategy as a freight generator. <sup>4</sup>		
Purpose: Improves key freight facility. How well does the project serve designated <i>Freight and Goods Transportation System</i> <sup>2</sup> routes?			
	2	The project is on a designated T-1 or T-2 route	
Total	10 (max)		

- **Freight** – As seen in **Table 5-12**, this measure examines whether projects will provide better travel time and reliability for freight carriers, reduce conflicts with other travel modes, increase access to freight through planned development of manufacturing and industrial centers, and improve freight facilities.

- **Jobs** - This measure examines projects for their support in existing and new business creation. It looks at elements like increasing access to areas of high job concentration, and access to economic foundations, and whether the project supports job retention and expansion, and provides access to job related training and educational opportunities.

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- **Multi-Modal** - This measure examines whether projects offer alternatives to driving alone, and whether they offer incentives to utilize those alternatives. It examines how well projects improve mobility and connections between transit and non-motorized modes.
- **Puget Sound Land & Water** - This measure examines how well projects minimize habitat loss, fragmentation and alteration of lands. In addition, this measure also examines how projects attempt to minimize impact to forest and agricultural lands, as well as improves water quality and reduces storm water runoff.
- **Safety and System Security** - This measure examines whether projects provide options for safer travel and a reduction in serious injury and fatality rates, as well as improve transportation system security.
- **Social Equity and Access to Opportunity** - This measure examines how well projects improve mobility and reduce negative impacts on minority, low income, elderly, youth and people with disabilities and populations that do not own vehicles. This is conducted through an analysis as to how well projects improve environmental health, as well as increase access to opportunity.
- **Support For Centers** - This measure examines how well projects support the creation of new population and employment centers , as well as those that are already existing, in addition to transit oriented development, housing centers, and accessibility to/from/within the center, as well as transit supportive land use.
- **Travel** - This measure examines whether projects reduce congestion and delay to improve traffic flow, reduce existing transportation problems, improve future congestion issues, and improve overall system efficiency.

For each prioritization measure, the plan includes a scorecard that has elements necessary to be included within each project. Project sponsors complete a web-based form that includes questions under each measure, generating a scorecard result. In addition to the nine prioritization measures, projects in the “Regional System Improvements” category were reviewed against the regional growth strategies to assess the distribution of benefits and costs, as well as to assess how these investments align with population and employment growth in the Vision 2040 Regional Growth Strategy. The plan also identifies multiple ways in which the scorecard, as well as the prioritization framework, can be used. Projects can be sorted by category and benefit score, by category and project status, by category and timeframe as compared to the plan financial strategy timeframe, and by measures.

The quality of the project evaluation process that has been developed for this MPO is quite complex. An extensive assessment of cost data was prepared in order to select projects in the “State of Good Repair” category. “Local Projects” were included based on the priorities of the area. An evaluation of trends in

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past program investments was conducted to guide future project funding to meet plan goals for projects included in the “Programmatic” category. An extensive scorecard evaluation process was used, as well as a cross-check with the regional growth strategy for projects included in the “Regional System Improvements” category. This process has the potential to provide for the development of an integrated project needs list that features essential projects that further the goals and objectives of the region.

## Quality: Lessons Learned

The long range transportation planning process identifies projects needed to build and improve facilities to meet future transportation demand in the region, and results in the identification and funding of projects incorporated in the Cost Feasible Plan. However, from initial project identification through to project incorporation, the process has a tendency to become convoluted. When drafting an LRTP Needs Plan, this report recommends the development of a project prioritization process to ensure that all projects included in the plan are most needed in the region. This prioritization process plays a key role in defining the scope and direction of the plan, as the projects selected through this process are those that best address demand, and are, in essence, the plan in action.

It is also important to incorporate within an LRTP a project evaluation process component that reviews projects for consistency with the vision, goals, objectives, and policies of the plan. Often, LRTPs will list goals and objectives in one section of the plan with no consistency or even mention of them throughout the rest of the document. It is important that there is consistency and overlap throughout the document to ensure that the projects selected through the prioritization process are those that best address the vision, goals, objectives, and policies of the plan—linkage between needs planning process and the plan’s vision, goals and objectives. Because most MPOs are dealing with limited funding, it is important that its projects are well integrated into the plan, move the plan forward in vision and principle, and have been selected through a thorough evaluation process.

## Lessons Learned

When examining the best practice examples listed in this section, these plans have addressed the various criteria identified in Chapter 2 in a unique and thorough manner. Each plan includes a different way of addressing the planning process, based on local factors and needs of the planning area. Through an extensive examination of each plan, it is clear that there are several elements that should be included in an *ideal* Needs Plan. When exploring the “Definition of Need” criterion, it is important for plans to identify what a “need” is, or what it consists of, in addition to including both a Needs Plan and a Cost Feasible Plan. This report also recommends the creation of an optional third component, known as the “Aspirational Plan,” where projects that are not likely to be completed in the 20-year scope of the LRTP, but will still affect the overall goals and objectives of the plan, can be listed. When exploring the “Descriptiveness” criterion, it is important for a plan to extensively explore the state of needs in a region, in addition to including a methodology for assessing needs, an assessment of existing conditions, and incorporation of proposed actions to address needs. When examining the “Technical Methodology” criterion, it is important for the plan to utilize planning tools/methodologies (not just travel demand modeling) and modal analyses. When examining the “Cost” criterion, it is important for the plan to incorporate a Needs Cost Assessment by mode, highlighting available revenues to help differentiate between funded and unfunded projects. When examining the “Quality” criterion, it is important for the plan to include an extensive evaluation process used to select projects included in the plan. Together, these criteria help to provide a comprehensive examination of needs within a region.

# Chapter 6 L RTPs and Sector Plans

A Metropolitan Planning Organization's (MPO) Long Range Transportation Plan (LRTP) assesses the current state of transportation planning in the region to determine which transportation options best serve the needs and expectations of that region in the future. In contrast, a Sector Plan establishes how a county would like land in a specified project area to be developed. In this section, LRTPs and Sector Plans are explored in greater detail, with a focus on the history of sector planning, an exploration of the relationship between LRTPs and Sector Plans, and an examination of Sector Plans potentially impacting the planning areas of the selected MPOs for this analysis.

## Brief Background on Sector Planning

In 1998, the Sector Planning program began as a demonstration project through the creation of four "optional sector plans." The program allowed for the creation of a maximum of five plans, however only four were approved. The program was permanently established through Florida Statute (F.S.) 163.3245. The bill also made changes to the program, and removed the limitation on the number of Sector Plans that could be submitted. The minimum size of a sector planning area must be at least 15,000 acres to be eligible for the program.

The Sector Plan approval process consists of two stages: the creation of a long-term master plan, and the implementation of that master plan through the creation of a detailed specific area plan. A long-term master plan contains (1) a framework map, (2) policies used to guide intergovernmental coordination, development, and protection of natural resources, and (3) a general identification of the transportation facilities, water supplies, and public facilities that are regionally significant and would be needed to support the development area within the Sector Plan. Detailed specific area plans must contain at least 1,000 acres and include the same information as a long-term master plan, but each component must be discussed in greater detail for the specific region the plan covers. It must establish a build out date in which approved uses are not subject to density/intensity reductions or downzoning.

The long-term master plan adoption process requires an amendment to the comprehensive plan that is in accordance with the state coordinated review process. Local government development orders are used to implement specific area plans and are transferred to the State Department of Economic Opportunity, in the same way a Development of Regional Impact order would be transferred. However, neither long-term master plans nor specific area plans are required to demonstrate a need for the amount of allowed development, and are allowed to have a planning timeframe that exceeds that of the comprehensive plan. Also, if adopted before July 1, 2011, a comprehensive plan amendment can be converted to a Sector Plan if the planning area is over 15,000 acres under F.S. 163.3245(11), as long as the amendment meets the requirements outlined for a long-term master plan in F.S. 163.3245(3)(a).

# Chapter 6 LRTPs and Sector Plans

## Nexus between LRTPs & Sector Plans

An MPO's LRTP assesses the current state of transportation planning in the region and determine which transportation options best serve the needs and expectations of that region in the future. It includes future goals, strategies, and projects to address the region's future transportation needs. A Sector Plan establishes how a county would like land in a project area to be developed. It often includes a comprehensive examination of the project area's current environmental, economic, transportation, infrastructure conditions, as well as future projections. Sector Plans usually cover smaller regions than LRTPs, and thus are not as extensive. Because a Sector Plan only addresses transportation as one of the many components within its overall planning process, transportation is only a small component of an overall Sector Plan's planning process. In addition to these basic differences between LRTPs and Sector Plans, there are a couple other key differences that affect the relationship between sector planning and MPO LRTP efforts. These key differences will be explored within this section.

### Planning Horizon

Long Range Transportation Plans (LRTPs) are required by 23 C.F.R. 450.322(a); 339.175(7), F.S. to address a scope of a minimum of 20 years into the future from the date of the plan adoption. The LRTP must also include future goals, strategies, and projects to address the region's future transportation needs. Per federal statutes and regulation, LRTPs must include "both long-range and short-range program strategies/actions that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods." Under 23 C.F.R. 450.322(c) each MPO is required to review and update their LRTP at least once every five years to ensure that land use and transportation needs are continually addressed.

Under F.S. 163.3245, both the Long-Range Master Plans and Specific Area Plans, as part of the Sector Planning process, are allowed to have planning timeframes that exceed the 20-year timeframe required for LRTPs. The only requirement for Sector Plans is to establish a build-out date, until which approved uses are not subject to density/intensity reductions or downzoning.

### Incorporation of Cost

Title 23 C.F.R. 450.322(f) requires MPOs to incorporate a Cost Feasible Plan within their LRTPs. The Cost Feasible Plan provides realistic cost information on prioritized projects, which should come from a well-defined Needs Plan. A Cost Feasible Plan should provide potential funding sources for projects listed in the plan. Dependent upon the MPO, projects are selected using a variety of methodologies, and should reflect the vision, goals and objectives of the LRTP. A Cost Feasible Plan is also required to incorporate cost based on "Year of Expenditure (YOE)" Dollars. This is meant to allow for a more realistic calculation of revenues and expenditures for the next 20 years.

Unlike LRTPs, Sector Plans are not required under Florida statute to incorporate any sort of cost information. Because the purpose of a Sector Plan is to provide general guidelines on how the jurisdiction

## Chapter 6 LRTPs and Sector Plans

would like to see land developed, it does not require cost specific information. A Sector Plan generally provides objectives and policies utilized to guide development of various regions within the sector planning area. It provides density and intensity requirements, which must be compliant with the comprehensive plan.

Due to these key differences, challenges can arise when it comes to ensuring fluidity between LRTPs and the Sector Plans that affect them—either by locating within the MPO jurisdiction or adjacent to it. Sector Plans have an impact on affiliated LRTPs by shaping the current and future transportation needs of the region. When a sector planning area is defined, it can be assumed that transportation needs will increase in the region as development increases. It is therefore important for a region’s LRTP to take these needs into account when planning for the future. The sector planning process requires that LRTPs incorporate projected population, approved land uses, densities, and intensities. Because many of the Sector Plans impacting MPOs examined for this analysis were enacted after the respective LRTP, and because the development of the plans are so different, there often is not an explicit link between the two. However, when examining the LRTP transportation projects extending service to the sector planning area, it can be surmised that there is a relationship between the two plans. This relationship will be further explored in the following section.

# Chapter 6 L RTPs and Sector Plans

## Sector Plans Impacting Selected Florida L RTPs

Several of the Florida MPOs include jurisdictions that have developed Sector Plans to guide development in these areas. Because these plans are so different, there is often no apparent link between them. **Table 6-1** shows the time-frame that the L RTPs and Sector Plans were enacted. Based on this table, the Horizon West Sector Plan and the Clear Springs Sector Plan were the only plans enacted prior to the corresponding MPO L RTP updates, and the Northeast District Element Sector Plan was enacted the same year as the L RTP update. Therefore, there is an apparent overlap between the plans. However, closer examination of transportation projects included in the various L RTPs may show a linkage between the two plans, as projects may extend service to the sector planning areas; and since these regions are rural, it can be concluded that these services exist solely for the purpose of serving the development expected to locate in these areas. The plans impacting the MPOs selected for analysis will be further explored throughout this section.

**Table 6-1: Sector Plans and relevant MPO L RTP adoption dates**

County/ MPO	Sector Plan Name	Year L RTP adopted	Year Sector Plan adopted
Escambia County/ Florida-Alabama TPO	Mid-West Escambia County Optional Sector Plan	October 2006	March 2011
Nassau County/ North Florida TPO	East Nassau Community Planning Area Sector Plan	June 2010	Spring 2013
Orange County/MetroPlan Orlando	Horizon West Sector Plan	October 2010	December 2000
Osceola County/MetroPlan Orlando	Northeast District Element	October 2010	August 2010
Polk County/Polk TPO	Clear Springs Detailed Specific Area Plan	December 2010	January 2009

## Chapter 6 LRTPs and Sector Plans

### Mid-West Escambia County Optional Sector Plan (Florida-Alabama TPO)

The Mid-West Escambia County Optional Sector Plan is located within the jurisdiction of the Florida-Alabama TPO. The Sector Plan, adopted in March 2011, was enacted after the Long Range Transportation Plan. Therefore, it is understandable why there are no direct projects referencing the “Mid-West Escambia County” sector planning area in the TPOs’ LRTP. However when examining the Needs Plan, there are several projects that were identified that extend service to the sector planning area. These projects include two potential lane widening projects, one widened to four lanes and one to six lanes. Also, the Needs Plan calls for the construction of a new four lane roadway going through the urban centers and neighborhood regions of the sector planning area. This is the only project of the three mentioned that made it into the Cost Feasible Plan. Therefore, it was assumed that this project is meant to serve the growing population of the sector planning area. The Sector Plan also discusses the potential for bus rapid transit and commuter rail projects to be included within the region in the future; however, these projects have not been included in the Needs or Cost Feasible Plans.

### East Nassau Community Planning Area Sector Plan (North FL TPO)

The East Nassau Community Planning Area Sector Plan is located within the jurisdiction of the North Florida TPO. The Sector Plan, adopted in spring 2013, was also enacted after the TPO’s LRTP. Therefore, it is understandable why there are no direct projects referenced in the “East Nassau Community Planning Area” sector planning area in the LRTP. However, similar to the previous MPO, there are several projects listed in the Needs Plan that extend service to the sector planning area. These projects include a new interchange project, a new four lane road, a four lane road widening project and a six lane road widening project. A new interchange project will be located on I-95 to grant direct access to the urban center of the sector planning area. The new four lane road will grant access from the new interchange to residential areas located within the sector planning area. A connection from this road to S.R. 200/A1A will be expanded to four lanes to handle this traffic. A six lane road widening project will expand S.R. 200/A1A, which grants direct access to the sector planning area from the east and west. In addition to these roadway projects, the Needs Plan also includes a commuter rail project that will extend from the urban core of Jacksonville in all directions, and will be adjacent to the sector planning area. It can be surmised that this rail service will, in part, be extended to this region to serve the residents locating in the sector planning area. All of these projects except for the interchange project and the new four lane road are included in the North Florida TPO’s Cost Feasible Plan.

### Horizon West Sector Plan (MetroPlan Orlando)

The Horizon West Sector Plan is located within the jurisdiction of MetroPlan Orlando. The Sector Plan, adopted in December 2000, was enacted before the LRTP update, and therefore it is important to note the apparent overlap between the two plans. The MetroPlan Orlando 2030 LRTP and the Horizon West Sector Plan reflect each other when comparing density / intensity of dwelling unit information, as well as housing and job projections. The LRTP even includes a section on a proposed freight village that is discussed in the Sector Plan. The proposed freight village would be located northeast of the State Road 429 interchange at New Independence Parkway, giving access to State Road 429 and State Road 545.

## Chapter 6 L RTPs and Sector Plans

When examining the LRTP project list in the Cost Feasible Plan, there are several four lane and six lane road projects included in the sector planning area. It is reasonable to assume that these projects were included in the LRTP to serve the population located in the sector planning area. In addition to major roadway projects, an extension of the LYNX bus system and LYNX premium bus service to the outer boundary of the sector planning area can serve the population located there.

### **Northeast District Element (MetroPlan Orlando)**

The Northeast District Element is also located within the jurisdiction of MetroPlan Orlando. The Sector Plan, adopted in August 2010, was enacted several months before the MPO's LRTP. However, it is safe to assume that both plans were developed around the same time and should therefore have some overlap between them. When examining the MetroPlan Orlando LRTP, there are several four-lane road projects that are included in the plan that are located in and around the sector planning area, which appear to be included to increase access to development within that region. These projects were included in the Cost Feasible Plan; however, they were downgraded to two-lane roadways. Still, it is safe to assume that these projects would not have existed if it were not for the development estimated for this sector planning area.

### **Clear Springs Detailed Specific Area Plan (Polk TPO)**

The Clear Springs Detailed Specific Area Plan is located within the jurisdiction of the Polk TPO. The Sector Plan, adopted in January 2009, was enacted before the LRTP update; and therefore, it is understandable that there is some overlap between the two plans. When examining the Polk TPO LRTP, there are several projects that directly reference the Clear Springs Sector Plan. A new four lane highway project is included in the Needs and Cost Feasible Plans that traverses through the sector planning area to serve the population locating there. When examining transit needs, several funded route improvements that serve the sector planning area have been included in the Cost Feasible Plan. There are also several proposed multi-use trail projects included in the Cost Feasible Plan that would go through the sector planning area.

### **Sector Plans: Conclusions**

Upon closer examination of these Sector Plans, it is apparent that there is an overlap between the Sector Plans themselves and the MPO LRTPs for the region they fall within. While there may not be a direct reference to a specific long range transportation plan within a Sector Plan or vice versa, it is safe to assume that, because sector planning areas are by definition rural, LRTP projects extending service to the sector planning areas have been included in the Sector Plans to serve those regions and the development expected to locate there. Therefore, while the linkage between the two plans hasn't been explicit in the past, it can be expected that if the population of the sector planning regions is forecasted to increase, the number of transportation projects in the area will as well, particularly for the 2040 LRTP plan updates.

# Chapter 7 Recommendations

The recommendations presented in this section are based upon the case studies in chapters 4 and 5, as well as some of the key ideas from the statewide Metropolitan Planning Organization Advisory Council (MPOAC) guidelines on developing Long Range Transportation Plans (LRTPs), and the Center for Urban Transportation Research (CUTR) 2013 review of long range plans.

The intent of this research was to develop guidelines for the preparation of MPO LRTP Needs Plans that can be used as a means to estimate statewide funding needs throughout Florida's metropolitan areas. The case study examples from chapter 5 can be considered best practice in terms of a specific criterion. Five criteria were used to evaluate the case study examples. It can be noted that the five criteria should be balanced and in some cases a model Needs Plan for one criterion may not be a model for others. Ensuring that a balance exists is essential to the development of a Needs Plan.

In addition to the case studies, two other resources were utilized to form the recommendations—the MPOAC's "Financial Guidelines for MPO 2040 Long Range Plans" and CUTR's "Review of MPO Long Range Transportation Plans and Estimate of Statewide 2035 Metropolitan Area Financial Shortfall." Both documents included ideas/suggestions that were useful to this research.

The "Financial Guidelines for MPO 2040 Long Range Plans" document approved by the MPOAC on January 24, 2013, included four key provisions related to the development of Needs Plans (as summarized below):

1. Needs Plans need to include costs estimates by mode
2. Needs Plans should only include projects that are necessary to meet future demand or advances the goals, objectives and policies of the MPO—and cost should be given significant consideration when choosing among alternatives to meet need
3. Certain types of projects should not be considered "needed" if they represent projects that are extremely unlikely to be implemented and will unnecessarily inflate estimated needs
4. Needs Plans will include an estimate of unfunded costs in base year dollars

These key points in combination with the Center for Urban Transportation Research (CUTR) 2013 report on Florida's LRTPs and the case studies helped solidify the recommendations presented below.

## Use of Evaluation Criteria as a Guide

Five criteria were developed to evaluate the case study LRTP Needs Plans. Each criterion contained several sub-criteria that were used to further define components within each plan. The five criteria included: (1) definition of need, (2) descriptiveness, (3) technical documentation, (4) cost, and (5) quality. These five criteria are summarized as follows:

1. **Definition of Need** – the ability of a Needs Plan to clearly define its needs, and the degree to which the plan is able to define needs by mode
2. **Descriptiveness** – the extent to which a Needs Plan includes a methodology to assess needs, how it assesses existing needs, and how it incorporates proposed actions to address needs
3. **Technical Methodology** – the extent to which multiple methodological tools are integrated into the Needs Plan, and the extent to which modal analysis tools are employed as well
4. **Cost** – the extent to which a Needs Plan incorporates a cost assessment by mode, whether it incorporates available revenues, and whether it incorporates funded and unfunded projects
5. **Quality** – the quality of a Needs Plan project evaluation process; the quality of the linkage between the LRTPs vision, goals, objectives and project evaluation criteria; and the quality of the integration of any applicable Sector Plans

It is recommended that each of these criteria be considered by MPOs as they develop their Needs Plans, especially in regards to how an MPO defines “what are their needs” and the linkage between their needs definition to the LRTPs vision, goals and objectives.

### Linkage of Needs Plans with Sector Plans

The sector planning process was created to promote and encourage long-term planning for conservation, residential and commercial development, and agriculture purposes to facilitate the protection of regionally significant resources in areas with at least 15,000 acres by emphasizing urban form.

Sector Plans are not required to be based on a demonstrated need and can exceed the planning timeframe of the area's comprehensive plan as well as the MPO's 20-year LRTP. The sector planning process does require LRTPs to incorporate, to the maximum extent feasible, the projected population and approved land uses, densities and intensities within the sector planning area—and by extension this applies to the Needs Plan as well. As a result, transportation projects in the adopted Sector Plans must be coordinated with the MPO's LRTP.

Since the adoption of the latest statutes on Sector Plans were approved after many of the MPO LRTPs were previously adopted, the explicit linkage between the two planning processes was not always evident, which was expected. However, as the new round of LRTP updates is underway, it is expected that all of the MPO LRTPs will include an explicit linkage between an applicable Sector Plan and the LRTP. The recommendation for this effort is that MPOs not only document this linkage as part of the overall planning process, but that the MPOs document this linkage specifically related to how the estimated population, land use densities and intensities within the Sector Plan affect the development of both the Needs Plan and the ultimate Cost Feasible Plan.

## Summarize Needs Costs by Mode

The 2013 report by the Center for Urban Transportation Research (CUTR) estimated a statewide shortfall in transportation funding for urban areas over the next twenty years totaling approximately \$126.4 billion. This amount has grown over 300 percent since it was first estimated in 1997. The statewide funding shortfall has grown so large in the past few years as to call into question the validity of the estimate, not the validity CUTR's work, but the estimates developed by the individual MPOs that CUTR uses to prepare the statewide estimate. The statewide funding estimate is based upon the cumulative estimates of each of the 26 MPOs throughout Florida. In order to assess the magnitude of the individual shortfalls, 10 of the state's 26 MPO Needs Plans were reviewed. Based on our review, not all of Florida's MPOs provide cost estimates for individual projects within their respective Needs Plans. As a result, it is difficult to fully assess what is impacting the growth in the statewide needs estimate.

Although we were unable to completely assess which projects/modes impact the statewide estimate, the review of the Florida Needs Plans did illustrate a few areas as to why the needs of any particular MPO may have grown so large over the years relative to their adopted Cost Feasible Plan:

- Needs lists that include a large number of roadway projects – some needs lists with more than twice as many roadway projects as their Cost Feasible Plan
- Needs lists may be incorporating projects that are more “wish list” oriented than a list of realistic “reasonable” needs
- Needs lists that include large capital intensive transit/rail projects (e.g., BRT, Streetcar, commuter rail, etc.)

In order to assist with the development of a statewide needs funding estimate that can be assessed for reasonableness, consistent with the MPOAC guidelines on the development of Long Range Transportation Plans, it is recommended that MPOs develop cost estimates for all projects (by mode) identified in their Needs Plans. In order to support the development of a statewide estimate, three templates have been developed that a MPO can use to summarize the costs of their Needs Plan. The summary templates have been developed for three key modes: highways, transit/rail, and non-motorized modes. The templates will be useful when the costs from all of the MPO Needs Plans are consolidated into a single statewide estimate of urban funding needs. The Needs Plan Summary Templates are shown below in **Tables 7-1, 7-2, and 7-3**.

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**Table 7-1: Roadway Needs Cost Summary**

Roadway Needs Cost Summary		
	Costs (in Base Year Dollars)	
	New Capacity	Maintenance & Operations <sup>1</sup>
<b>Roads <sup>2</sup></b>		
State Hwy System (SHS) <sup>3</sup>	\$	\$
<ul style="list-style-type: none"> <li>• Strategic Intermodal System (SIS)</li> </ul>	\$	\$
<ul style="list-style-type: none"> <li>• Non-SIS State Highways</li> </ul>	\$	\$
Non-State Hwy System, i.e. local roads <sup>4</sup>	\$	\$
<b>Total</b>	<b>\$</b>	<b>\$</b>

**Table 7-2: Transit/Rail Needs Cost Summary**

Transit / Rail Needs Cost Summary				
	Costs (in Base Year Dollars)			
	Existing Service		New Service	
	Capital (vehicle replacements)	Maintenance & Operations	Capital (additional vehicle purchases)	Maintenance & Operations
<b>Transit/Rail <sup>5</sup></b>				
Fixed Route, Deviated Route, BRT, etc.	\$	\$	\$	\$
Paratransit	\$	\$	\$	\$
Water Taxi/Ferry	\$	\$	\$	\$
Commuter Rail/Light Rail/Streetcar	\$	\$	\$	\$
<b>Total</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>

<sup>1</sup> Includes maintenance and operating costs for both existing and new projects

<sup>2</sup> Includes: additions to roadway capacity, bridges, park-n-ride lots/facilities, intersection improvements, TSMO improvements, ITS projects, etc.

<sup>3</sup> The State Highway System (SHS) is the summation of the SIS and Non-SIS State Highways

<sup>4</sup> Includes all other roadways that are not part of the SHS/SIS

<sup>5</sup> Includes transfer centers and other facilities associated with transit/rail service

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Table 7-3: Non-Motorized Needs Cost Summary

Non-Motorized Needs Cost Summary		
	Costs (in Base Year Dollars)	
	New Capacity	Maintenance & Operations <sup>6</sup>
<b>Non-Motorized <sup>7</sup></b>		
Bicycle Facilities	\$	\$
Sidewalks	\$	\$
Paved multi-use (shared-path) Trails	\$	\$
Non-paved multi-use (shared-path) Trails	\$	\$
<b>Total</b>	<b>\$</b>	<b>\$</b>

<sup>6</sup> Includes maintenance and operating costs for both existing and new projects

<sup>7</sup> Includes amenities such as shelters and trailheads associated with non-motorized facilities

## Aspirational Plan

Long Range Transportation Plans (LRTPs) are comprised of multiple components, but essentially can be divided into two parts—a Needs Plan and a Cost Feasible Plan. This two-part division has worked well for Florida’s MPOs for a number of years. However, as the sheer number of projects (and by extension funding) included in many of the Needs Plans has dramatically increased, a new paradigm in how Florida LRTPs are developed may be warranted.

Consistent with the MPOAC’s guidelines on the preparations of Needs Plans, projects should not be included in a Needs Plan if they are not likely to be implemented within the 20-year planning horizon of the LRTP. Since the MPOAC guidelines on LRTP development, along with the recommendations in this effort, note that Needs Plans should include cost estimates for all projects by mode, it makes sense to include only those projects in the Needs Plan that are relatively realistic—in terms of timing, need and cost. However, if these types of projects are removed from the Needs Plan, where would they go?

The answer to that question is the basis for the recommendation of a new “optional third component” of the long range planning process, which could be called an Aspirational Plan—a planning process that would allow the incorporation of a long-term conceptual master-plan set of projects as an element of an MPO’s LRTP. As envisioned, an Aspirational Plan could be used to identify the ultimate build-out desires for an MPO, but it would not need to include project timing or cost estimates of proposed facilities. The possible advantage of such a plan is that it could be used by an MPO to define its ultimate vision and allow long-term desired transportation projects to be recognized without necessarily including them in a 20-year Needs Plan.

An Aspirational Plan component would allow an MPO to include those projects that should be included somewhere in a long range plan for visionary and/or goal related reasons; but due to a number of reasons, such as project costs, unlikelihood of completion, or even the ability to generate a reliable cost estimate, these projects would be better suited for incorporation in a part of the LRTP that does not require detailed information.

This recommendation would incorporate a new third component within the long range planning process, which in logical order would include:

- Aspirational Plan
- Needs Plan
- Cost Feasible Plan

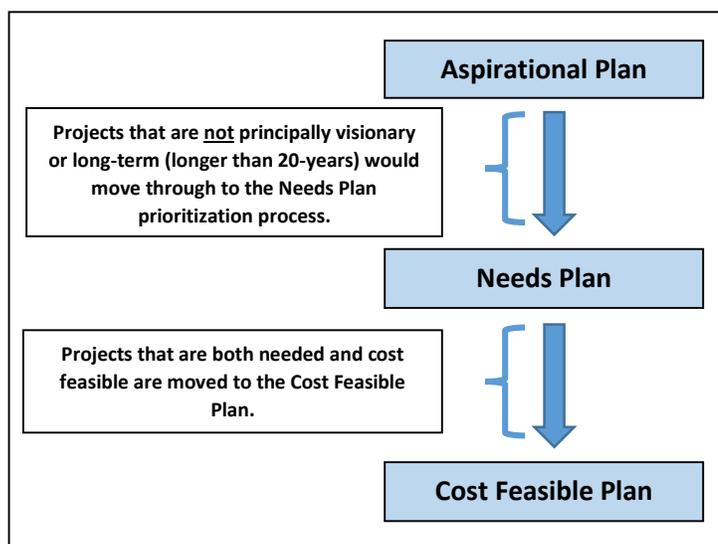
Aspirational projects allow the MPO to better shape the state of the region’s transportation system by identifying projects that the region would like to see in the distant future, beyond the current scope of the LRTP. In the event that the region identifies an “aspirational” project as a Needs Plan priority and provides sufficient cost information, it would be removed from the Aspirational Plan and incorporated

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into the Needs Plan. The use of an Aspirational Plan that feeds into a Needs Plan could make Needs Plans more effective, thus reducing the amount of work an MPO must do to ensure that all potential projects are included in the planning process to meet the future transportation needs of the region.

By incorporating an Aspirational Plan, as seen in **Figure 7-1**, projects are prioritized through a two-step process, to narrow the selection of feasible projects that are likely to be constructed within the 20-year horizon of the LRTP. Since an Aspirational Plan is meant for visionary and/or long-term projects, longer than the 20-year LRTP timeframe, the projects and details of these projects may be more conceptual than the information provided for projects in the Needs Plan and Cost Feasible Plan.

Once projects are screened through the Aspirational planning process, the remaining projects constitute the Needs Plan. Those projects are then prioritized again, and projects are selected for inclusion in the Cost Feasible Plan based on the needs and priorities of the region. Adding this third component allows for additional screening of projects, and can aid in reducing high estimated Needs Plan funding levels, since projects in the Aspirational Plan do not need cost estimates.



**Figure 7-1: Three-Tiered project evaluation process for inclusion of projects in the Cost Feasible Plan.**

## Consistency

Some projects in an LRTP may bridge both the Needs Plan and the Cost Feasible Plan; e.g., a project that goes beyond the horizon year of the LRTP such that it is only partially funded in the Cost Feasible Plan, with the remaining un-funded portion of the project included in the Needs Plan. These projects are unique in that they are not fully funded in the LRTP; although MPO's are required to provide sufficient detail for the un-funded portion of these projects the same as they would for the funded portion that is in the Cost Feasible Plan.

In order for these types of projects to make their way into a Transportation Improvement Program (TIP) and State Transportation Improvement Program (STIP) and advance through the Project Development & Environment (PD&E) process, these projects must be "consistent" with the LRTP. This is how the planning process and the National Environmental Policy Act (NEPA) are linked together. "Consistency" refers to the consistency of a project's description (how it details implementation and funding) between the LRTP, the TIP and the STIP. A project's description in a NEPA document needs to be consistent with the implementation schedule in the LRTP and TIP/STIP. Projects with inconsistencies between the TIP/STIP and the respective LRTP will not be approved for federal funding until the consistency issue is addressed.

In addition to the projects that are in both the Cost Feasible and Needs Plans, complete projects from the Needs Plan may also move into a Cost Feasible Plan, and then into a TIP/STIP. Projects like these are typically called "illustrative projects," which is defined in 23 CFR 450.104. Illustrative projects are high-priority projects that are ready to move into the Cost Feasible Plan if additional revenues were to become available. These projects can be thought of as either high ranking Needs Plan projects, or projects that are of a higher priority than those listed in the Needs Plan. In either case, illustrative projects would be the first projects to be added to the Cost Feasible Plan if new funding were to become available.

In both cases these projects require that "consistency" between the TIP/STIP and the LRTP be met. In terms of the Needs Plan, all phases of a partially funded project must provide cost estimates using Year of Expenditure (YOE) dollars—even for the un-funded phases that are listed in the Needs Plan. Therefore, the recommendation for the Needs Plan is that MPO's prepare sufficient information for projects in the Needs Plan so if available funding were to become available for its illustrative projects the LRTP amendment process would be relatively easy.



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