MIAMI-DADE MPO
Metropolitan Planning Organization

2040 Long Range Transportation Plan:

Compliance with Federal and State Requirements Study

Prepared by

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CHAPTER 1

INTRODUCTION

The **Miami-Dade Metropolitan Planning Organization** (MPO) prepares itself for the **2040 Long Range Transportation Plan** (LRTP) during a period of change and uncertainty on many levels. As the region begins to show signs of emerging from a difficult and long economic recession with sustained reductions in unemployment and increased home sales, projects are underway to prepare for post-Panamax international trade opportunities at the Port of Miami. On April 17, 2012, Governor Rick Scott signed a $69.9 billion state funding plan that included a number of line item vetoes affecting transportation projects. The State of Florida's 2012 Legislative Session leaves us with various laws and new requirements that will affect how we plan and pay for the future of the region's transportation and economic growth. On July 6, 2012, President Barack Obama signed a $105 billion transportation bill entitled "*Moving Ahead for Progress in the 21st Century Act*", or **MAP-21**, effective October 1, 2012. The new law replaces **SAFETEA-LU** (*Safe, Accountable, Flexible, Efficient Transportation Act: A Legacy for Users*), a 2005 bill that has been extended nine times since its September 30, 2009 expiration. MAP-21 is shorter than previous bills at a 27-month term through December 31, 2014, compared to the typical four to six year terms, but provides some stability for funding and planning for transportation projects in the near-term. During this same time, the Federal Transit Administration is processing a significant **Notice of Proposed Rulemaking** (NPRM) for Major Capital Investments concerning how transportation projects are advanced and funded, and a NPRM for environmental streamlining and expansion of categorical exclusions. A series of rulemaking will be needed to harmonize the process to implement a consolidated set of funding programs defined and provided for in MAP-21.

The 2040 LRTP*: Compliance with Federal and State Requirements Study* reports and assesses new and emerging legislation, planning trends from across the country, new emphasis areas, technologies, performance measures, and other factors. The purpose of this study is to provide fresh and innovative ideas based on reviews of planning undertaken by peer MPOs and exemplary LRTPs across the country. This information will be used in framing up the approach for Miami-Dade's next LRTP effort, including options that may be employed in developing a successful public outreach campaign. Four meetings with the **Study Advisory Committee** (SAC) were held to guide the research and recommendations that will position Miami-Dade County to continue its history of introducing *lasting change to* transportation plans for the region.

Best Practices Research. A cursory review of LRTP features was conducted at the outset of the study for initial review with the SAC participants. There are many important aspects in developing a long-range transportation plan that lead to successful implementation. During our examination of these LRTPs we maintained a focus on the differentiators that make these plans stand out and what makes their success in these important cities possible. A more in-depth review of LRTPs and the MPOs that created them is detailed in Chapter 2 and in **Appendix A**.

Emphasis Areas Review. Following the review of best practices in LRTPs, an examination of emphasis areas was conducted. The types of emphasis areas are grouped within four categories, namely:

- **Policy and Funding** – This would include the review of implications from recent and pending legislation, policy developments, revenue generation and use, capacity building, and innovations in project delivery.
- **Regional Issues** – A number of guiding principles and priorities drive the development of LRTPs. Some are mandated by federal planning regulations such as the federal requirement to harmonize local plans with statewide initiatives. For the first time ever, an activity-based regional model will be developed for the tri-county area consisting of Miami-Dade, Broward and Palm Beach counties. This regional LRTP is consistent with the 2012 legislative directive to establish regional priorities. Other guiding principles are provided to further beneficial outcomes, such as the Livability Principles recently adopted by the national inter-agency partnership among the Departments of Housing and Urban Development, Transportation, and the Environmental Protection Agency. Master plans and regional LRTP goals and objectives will drive priorities of Miami-Dade's LRTP for roadways, transit, freight, aviation, seaports, and multimodal transportation.

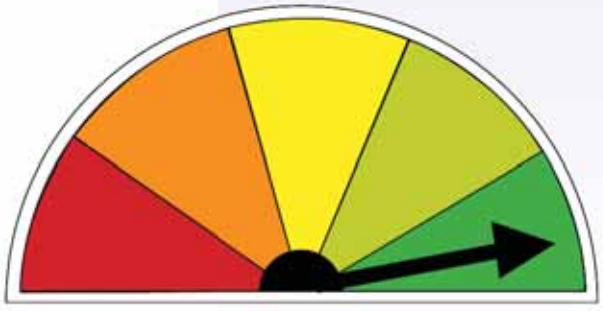
- **Sustainability** – Miami-Dade County has long been on the leading edge of sustainability planning and practices as evidenced by **GreenPrint**, which has prompted over 100 actions since its release in December 2010. In addition to Livability Planning and Complete Streets initiatives, sustainability of the transportation system itself will continue to be a focus of the LRTP through the Transportation Systems Management & Operations review of congestion management and identification of ways to make the most of the infrastructure now in place.

- **Engaging the Public** – New technological capabilities are being integrated with traditional public outreach methods, including telephone town hall meetings, internet-based collaboration and visualization techniques. This report examines trends and techniques employed by MPOs in the conduct and follow-up activities associated with LRTP processes.

A review of specific elements within each of the above emphasis area categories was used in developing recommendations for further consideration by the SAC in preparing for the development of the 2040 LRTP.

Performance Measures by Emphasis Area. In today's environment of fiscal constraint and shrinking public budgets, a sharper focus on measureable outcomes has been utilized by many regions and is now mandated by federal law. The use of performance measures is being defined by federal guidance to monitor results of projects and outcomes of programs, allowing for corrective actions and policy shifts to meet national goals. In practice, performance measures have been defined more broadly for regional transportation planning to incorporate environmental, economic and social equity factors. Some MPOs have developed monitoring reports to compare specific measures to a baseline and/or targeted outcomes that are often being communicated through easy-to-read and understandable dashboards and scorecards. This report reviews the evolution of the performance measure methodologies and techniques used in multimodal transportation plans, particularly in light of new and evolving technologies such as the use of smart phones and global positioning system (GPS) capabilities.

Is transit ridership increasing?



Yes! Regionally, transit ridership has been on an upswing since 2000.

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CHAPTER 2

BEST PRACTICES FOR LRTPs

BEST PRACTICES FOR LRTPs

How Are Transportation Needs Identified?

How Are Investments Prioritized and Selected?

How is Performance Monitored?

How Is the Public Engaged?

Recent Trends
- Funding
- Performance Measures
- Regional Plans
- Public Engagement

FHWA Examplary Plans by Topic Area

LRTP SUMMARIES

- Atlanta Regional Commission (ARC)
- Boston Region MPO
- The Chicago Metropolitan Agency for Planning (CMAP)
- Delaware Valley Regional Planning Council
- Denver Regional Council of Governments (DRCOG)
- Maricopa Association of Governments (MAG)
- MetroPlan Orlando
- Metropolitan Council
- **Miami-Dade MPO**
- New York Metropolitan Transportation Council (NYMTC)
- Oregon Metro
- Puget Sound Regional Council (PSRC)
- San Diego Association of Governments (SANDAG)
- Wasatch Front Regional Council (WFRC)

BEST PRACTICES FOR LRTPs

This chapter describes unique characteristics that make an LRTP exemplary. The first step in the process was to identify peer MPOs and exemplary LRTPs. Many MPOs in the U.S. represent multiple counties and a larger area and population than the Miami-Dade MPO. Some plan for multi-state populations and others are formed as a council of governments for larger geographic regions. A total of 13 MPOs are identified for our exploration into how these bodies accomplish their planning responsibilities and how they identify solutions for implementation. We are looking for comparative information with Miami-Dade's 2035 LRTP with an eye for innovation and fresh ideas that may help inform development of the approach for the 2040 LRTP update. In some cases, the LRTP selected for review stands out by virtue of recurring innovative ideas or national recognition of the achievements for that MPO. **Exhibit 2-1** provides comparative information on area and population served by these selected MPOs, including Miami-Dade.

EXHIBIT 2-1: Peer MPOs and Exemplary LRTPs

MPO	Location	State(s) Population (000)	2000 Population (000)	2010 Population (000)	Area (square miles)	Density (persons/ square mile	2000-2010 Growth	Growth to Horizon Year
Atlanta Regional Commission (ARC)	Atlanta, GA	9,688	3,891	4,819	4,573	1,054	23.9%	67%
Boston Region MPO	Boston, MA	6,548	3,066	3,160	1,458	2,167	3.0%	12%
The Chicago Metropolitan Agency for Planning (CMAP)	Chicago, IL	12,831	8,151	8,445	4,096	2,062	3.6%	25%
Delaware Valley Regional Planning Council	Philadelphia, PA	21,494	5,387	5,626	3,811	1,476	4.4%	11%
Denver Regional Council of Governments (DRCOG)	Denver, CO	5,029	2,395	2,775	3,401	816	15.9%	50%
Maricopa Association of Governments (MAG)	Phoenix, AZ	6,392	3,114	3,872	9,338	415	24.3%	67%
MetroPlan Orlando	Orlando, FL	18,801	1,434	1,837	2,860	642	28.1%	74%
Metropolitan Council	St. Paul, MN	5,304	2,642	2,850	2,970	959	7.9%	38%
Miami-Dade MPO	Miami, FL	18,801	2,253	2,492	2,015	1,237	10.6%	39%
New York Metropolitan Transportation Council (NYMTC)	New York, NY	19,378	12,068	12,368	2,726	4,537	2.5%	15%
Oregon Metro	Portland, OR	3,831	1,314	1,500	487	3,080	14.2%	43%
Puget Sound Regional Council (PSRC)	Seattle, WA	6,725	3,276	3,691	6,384	578	12.7%	40%
San Diego Association of Governments (SANDAG)	San Diego, CA	37,254	2,814	3,095	4,260	727	10.0%	40%
Wasatch Front Regional Council (WFRC)	Salt Lake City, UT	2,764	1,328	1,561	1,777	879	17.6%	55%

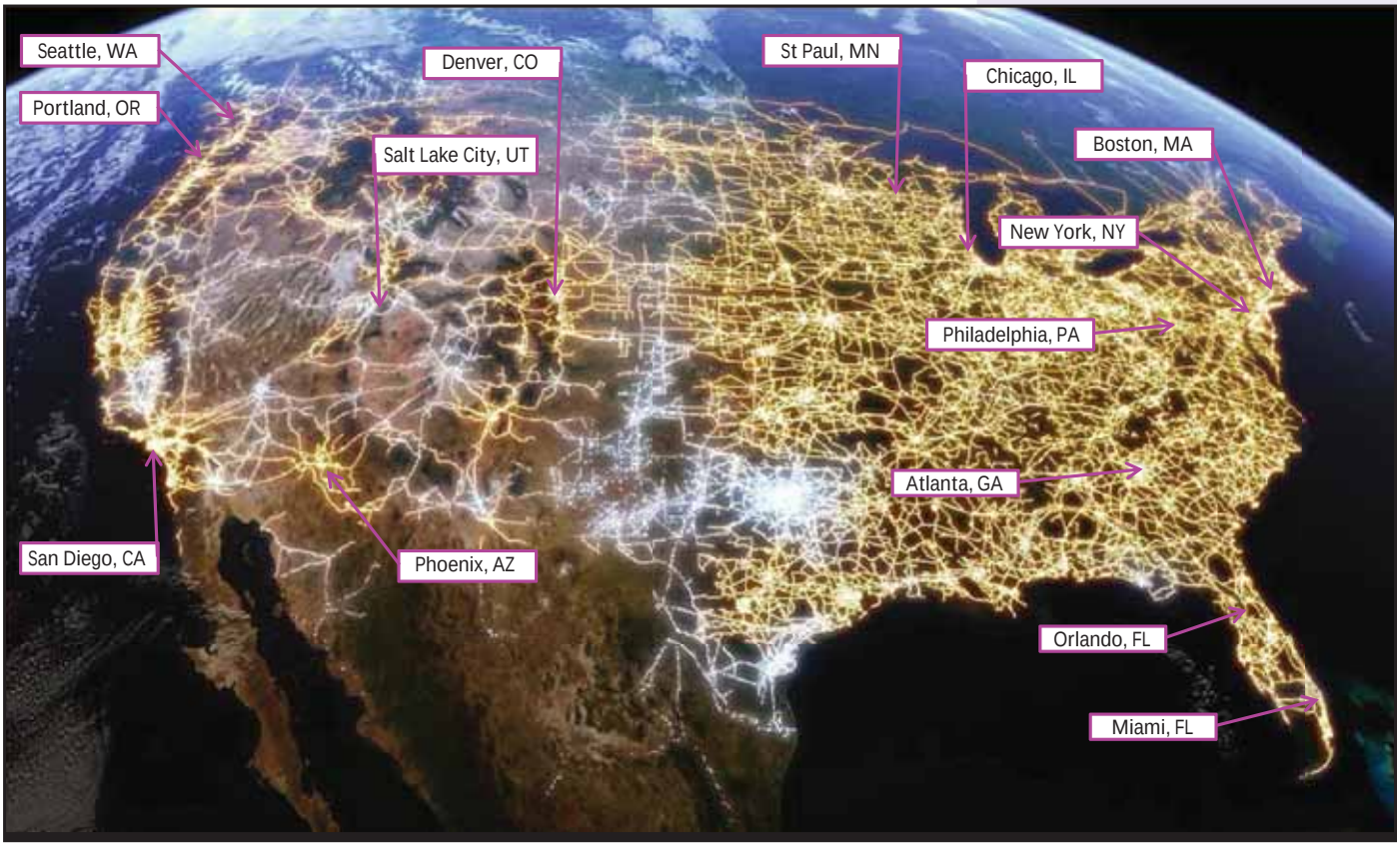
Source: FHWA MPO Search Engine, Transportation Planning Capacity Building

Exhibit 2-2 maps these locations. Of the MPOs reviewed, Maricopa Association of Governments (Phoenix, AZ) and San Diego are the only MPOs representing a single county as in the case of Miami-Dade. Even with a single county, both are much larger with San Diego County covering 4,260 square miles and Maricopa County covering 9,338 square miles. Miami-Dade falls in the mid-range in terms of area. It covers just 2,015 square miles, but has a relatively high density compared with many southern and southwestern cities at 1,237 persons per square mile. By comparison, Maricopa County only has 415 persons per square mile. The smallest area covered is the Oregon Metro in Portland at 487 square miles, but this region also has the second highest density of 3,080 persons per square mile, second to New York City's 4,537 persons per square mile. Delaware Valley Regional Planning Council is the only MPO included in this review that crosses state boundaries (PA/NJ).

Although all MPOs follow the same guidance from the **Federal Highway Administration** (FHWA) for metropolitan planning requirements, the manner in which they address these requirements varies widely. Observations from study team reviews of the LRTPs for the subject MPOs are discussed for some of the key LRTP requirements.

In several of the major metropolitan areas reviewed (Chicago, New York City, St. Paul, or Denver) over 50 percent of their state's population lives in those metropolitan areas. Miami-Dade County's population at 13.3 percent of the State of Florida is much smaller. Population is a major factor in transportation funding appropriations.

EXHIBIT 2-2: Map of MPOs Reviewed



How Are Transportation Needs Identified?

In Miami-Dade, transportation needs for the 2035 LRTP were identified based on system deficiencies as defined by volume-to-capacity ratios and projected travel markets. Consistent with Miami-Dade's process, all of the peer MPO's needs relate to key strategies, or goals and objectives. Many MPOs marry the identification of their transportation needs with development of an overall regional vision that is vetted with leadership and the public. Nine of the total MPOs reviewed in this study based their transportation vision on the results of a comprehensive regional plan that encompassed a broad range of cross-cutting goals for the economy, the environment, and social equity, often referred to as the "Three Es." Miami-Dade is a partner in the Southeast Florida Regional Partnership which is in the process of developing a similar plan known as **Seven50**, a plan to 2050 for the seven southeast Florida counties including Miami-Dade. In some cases, a vision developed many years prior still guides the transportation planning process. Oregon Metro developed a comprehensive vision for growth in the late 1990s known as *The Nature of 2040* that included a set of performance measures they use to track progress and update their plan. Denver's *Metro Vision*, originally developed in 1992, centers its aspirations on planning for regional growth, quality of life and sustainable infrastructure and regional funding solutions. These plans must be updated regularly to maintain their relevance; however, the foundation principles are maintained over time.

A new trend is the use of scenario planning. Six of the plans reviewed were developed based on scenario planning that forecasts possible future outcomes of various growth policies and project packages that are then used to communicate and weigh pros and cons of a particular course of action. Often associated with broader regional plans such as Atlanta's *PLAN 2040*, Delaware Valley's *Connections – The Regional Plan for a Sustainable Future,* and Salt Lake City's *Wasatch Choice for 2040*, these scenario plans provide a nexus for transportation and land use. Here in Florida, MetroPlan in Orlando carried out a highly successful and widely supported scenario planning process known as "*How Shall We Grow?*" MAP-21 recognizes the value of scenario planning and includes guidelines for the optional use of these tools in LRTPs. However, the use of scenario planning is not a pre-requisite for a good plan. Both San Diego and New York have excellent plans that are rooted in integrated growth and performance-based strategies that reflect regional needs and circumstances.

In all cases, transportation system needs outpace available funding. In many cases, maintenance of a "state of good repair" is being replaced with a "state of acceptable repair" because of funding constraints. In large metropolitan areas such as Miami-Dade, the majority of funds are dedicated to maintaining transportation systems already in place, leaving little for system expansion or enhancement.

Miami-Dade is participating in Seven50, a comprehensive regional plan that addresses development patterns and implications for transportation.

How Are Investments Prioritized and Selected?

Because funding is limited, MPOs are required by law to demonstrate that all projects included in the LRTP are funded by revenues that are reasonably expected to be made available. Given that not all identified needs can be met, it is becoming more and more important that projects selected address the most important needs that reflect the region's priorities and policy goals. Prioritization of projects must reflect the overarching vision established during the needs assessment.

The framework for project selection presents an opportunity to build public trust and gain support for a package of projects that further goals. Criteria established to evaluate and weight *measures of effectiveness* (MOE) can help the public better understand and appreciate the decision-making process and results. For LRTPs, MOEs are used as a means of selecting the most promising projects. These MOEs are applied to projected performance of particular projects to determine which projects may produce the best results. These MOEs are often mode-specific to provide a "level playing field" for comparing and ranking projects for funding.

One way regions prioritize investments is by allocating a percentage of unassigned funding to specific projects or modes. Projects within that investment category or transportation mode are then prioritized for inclusion in the cost affordable plan. This process of allocation was used by Boston, Delaware Valley, St. Paul, Portland, and San Diego. In many cases, the revenue source dictates the level of funding by mode, although flexibility was introduced with Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 allowing project sponsors greater control over funding priorities. For many regions, particularly older regions with mature transportation systems, only a small portion of available funds is available for prioritization.

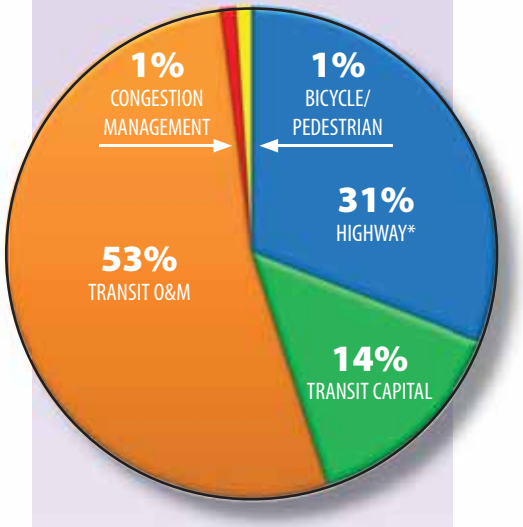
Other approaches to prioritize projects were used to reflect what is most important in each region. Atlanta used four decision points including:

1. Scenario planning to distribute funds among program areas,
2. Application of policy filters,
3. Project evaluation by priority objectives, and
4. Project selection based on plan-level performance measures.

Chicago used a three-phased process to compare projects against foundational strategies, and then selected projects based on professional judgment and investment strategy themes. In New York, the first priority has been maintaining their current and extensive transportation system in a state of good repair, followed by four foundation projects, which are all transit. In the Twin Cities, bridge repair is the top priority. Composite lists of regional partner priority projects are also incorporated into the multimodal plans where the MPOs themselves do not have authority over project selection, such as seaports or airports.

Expected Revenue and Cost of Plan

Year 2015-35 (Billions in Year 2008 $)



** State Highway System Operating and Maintenance costs not included. These costs are nearly equivalent to Highway capital costs.*

Source: 2035 Miami-Dade Transportation Plan

How is Performance Monitored?

For the most part, MPOs follow federal requirements for the **Congestion Management Process** (CMP) in all urbanized areas with a population over 200,000 persons, originally established in SAFETEA-LU in 2005 as an outgrowth of the Congestions Management Systems approach introduced in ISTEA in 1991. The change-over to the CMP resulted from a variety of factors, but most importantly from the expanded use of intelligent transportation systems and opportunities for regional cooperation and collaboration. Building on a decade of experience, the shift towards **transportation systems management and operations** (TSM&O) provides a greater connection between planning and management of transportation systems. In Atlanta, Delaware Valley, and Puget Sound the CMP is fully integrated into the multimodal transportation planning and project-level decision processes.

Once projects are prioritized and memorialized in a cost feasible plan, the next logical step is to keep track of the ultimate outcomes of those projects. Some MPOs follow both implementation progress and results generated by the projects themselves. Effective monitoring programs use performance measures that are meaningful to the regional vision and goals, can be reliably measured, and can be monitored over time. Although most LRTPs use MOEs for the purpose of prioritizing investments and fulfilling federal congestion management process requirements, western states (California and Washington for example) have requirements that go beyond the federal body of law for MPOs.

- The **Puget Sound Regional Council** (PSRC), for example, reports to the State of Washington every two years on their progress in implementing their plan, and how well it is achieving established goals. In their most recent *2012 Action Strategy*, PSRC unveiled a new framework for evaluating transportation investments in their next LRTP update. Based on their regional *VISION 2040*, measures are developed for four investment categories – transit, highway, arterial, and bicycle/pedestrian projects. Projects are evaluated by decade, and measures may be weighted to reflect relative importance to PSRC Boards at their discretion. A total of nine measures (air quality, freight, jobs, multimodal, land and water, safety and system security, social equity and access to opportunity, support for centers, and travel) are used for each of the four modal categories.
- In California, **SANDAG** is required by the State to conduct a *Sustainable Communities Strategy* (SCS) in conjunction with its transportation planning process. Pursuant to Senate Bill 375, the San Diego region was the first in California to produce a regional transportation plan with an SCS. Regional performance measures were established for the following goal categories: system preservation and safety, mobility, prosperous economy, reliability, healthy environment, and social equity. California Department of Transportation (Caltrans) developed a **Performance Measurement System** (PeMS) that uses urban freeway data. SANDAG is working with U.C. Berkeley and Caltrans to extend the capabilities of its PeMS to include ramp metering devices and other means to help transportation operators manage the network using real-time data.

The Puget Sound Regional Council works to support centers for travel as part of their 2012 Action Strategy.

SANDAG conducts a Sustainable Communities Strategy for a prosperous economy and healthy environment.

MAP-21 will take this process a step further into a biennial monitoring of our national highways and interstates that reflect national goals. Performance measures will also be established for transit systems that reflect local priorities in addition to national safety and state of good repair goals. (See Chapter 3, Policy and Funding.)

How is the Public Engaged?

The ability of an MPO to provide full and fair public engagement reflects their ability to garner public support for investment decisions. LRTPs can also serve as a starting point for developing public support for additional local investment commitments such as new or expanded sales taxes or the issuance of bonds.

Traditional outreach involves public notice of a meeting, workshop, or open house forum to provide an opportunity for the MPO to communicate their plans and gain feedback from the general public and stakeholders. Many times, it is hard to gain widespread interest in long term plans. Ways to make the information relevant, interesting and easy to understand are critical factors to success. Many MPOs seek venues where people already gather or find opportunities to attend regularly scheduled community meetings to reach people closer to home. Non-traditional means are also used to broaden participation and reach under-represented populations groups such as low-income households and minorities. Public engagement is an activity where originality and creativity counts. Some noteworthy methods include:

- Miami-Dade's use of the "*blocks and ribbons*" exercise in a workshop setting to engage participants.
- Atlanta partnered with the Civic League of Regional Atlanta in a series of *neighborhood summits*.
- Boston conducted a speakers' bureau known as "*Invite Us Over*" sessions, and conducted a Transportation Equity Forum.
- As part of the broader regional GO TO 2040, Chicago conducted large-scale public involvement – "*Invent the Future*" – involving 20,000 participants through a variety of in-person and online methods.
- Orlando conducted interactive meetings known as "*Community Conversations*" and "plan cams" to capture input.
- In the most recent plan initiation, New York launched an interactive website designed to solicit public interaction on key issues about the future of transportation in a way that participants can immediately see their comments and how other people respond to their ideas and input.
- Oregon Metro still maintains an online opinion panel called "*Opt In*."

The use of various visualization techniques provides an effective means of communicating complex ideas and processes in a way that is easily understood. Miami-Dade provides an online interactive tool, *InteracTIP* that ties project-level information to a map-based display. Denver has developed an online tool known as *MetroQuest* which allows users to visualize alternative futures based on the selection of various policy options. San Diego has also developed an interactive web-based visualization tool called *Envision 2050*.

Social media is becoming an even more important tool for communication, and one that is increasingly used by a broad range of our populations. Almost all sites connect to mainstream social media sites such as Facebook and Twitter. These tools are currently being used in the *Seven50* regional planning process. Surveys

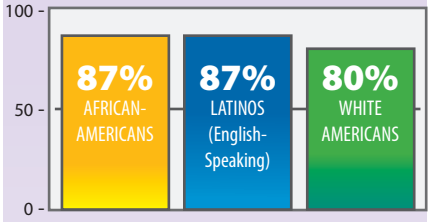
Miami-Dade MPO using ribbons, Legos™, and a map, helping participants to identify transportation priorities for their specific area.

conducted in 2010 by **Pew Research Center** in Washington find that two-thirds of African-Americans and English-speaking Latinos are wireless internet users, slightly higher than White Americans. About 87% of African-American and Hispanic groups own a cell phone, which is again higher than the number of the White respondents of which only 80% percent own a cell phone. Almost half of the households earning less than $30,000/year are wireless internet users. This demographic represents the fastest growing group of users. (Computerworld, July 9, 2010)

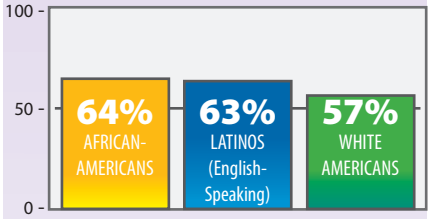
Recent Trends. The most obvious differences between LRTPs from one area to another are the priorities established in developing a cost constrained plan and the degree to which a particular travel solution, or mode, may receive more or less investment than another. The levels of investment are constrained by available funding and necessarily reflect what is important to local leadership and their strategy to achieve a desirable future condition. LRTPs will vary in the emphasis they place on priorities reached through a consensus-building planning process that includes proactive public involvement. The manner in which complex information is communicated also varies widely. A comparison of emphasis areas for the LRTPs reviewed is presented in the **Exhibit 2-3**.

Rapid Increase in Mobile Internet Use

Survey of 2,252 adults over 18.



U.S. ADULT CELL PHONE USERS



U.S. ADULT WIRELESS INTERNET USERS

Source: ComputerWorld - July 9, 2010

EXHIBIT 2-3: Emphasis Areas in Recent LRTPs

MPO	TSM&O	Transit Supportive	Scenario Planning Used	Part of a Multi-Element Regional Plan	Performance Based	Environment, Equity and Public Health
Atlanta Regional Commission (ARC)		✓	✓	✓	✓	✓
Boston Region MPO	✓	✓			✓	
The Chicago Metropolitan Agency for Planning (CMAP)	✓	✓	✓		✓	✓
Delaware Valley Regional Planning Council	✓	✓	✓	✓	✓	✓
Denver Regional Council of Governments (DRCOG)	✓	✓		✓	✓	✓
Maricopa Association of Governments (MAG)	✓	✓			✓	
MetroPlan Orlando	✓	✓	✓		✓	
Metropolitan Council	✓	✓				
Miami-Dade MPO	✓	✓			✓	✓
New York Metropolitan Transportation Council (NYMTC)	✓	✓		✓		✓
Oregon Metro	✓	✓	✓	✓	✓	✓
Puget Sound Regional Council (PSRC)	✓	✓		✓	✓	
San Diego Association of Governments (SANDAG)	✓	✓		✓	✓	✓
Wasatch Front Regional Council (WFRC)		✓	✓	✓		

Some general observations of recent LRTP planning trends from our reviews suggest there is a paradigm shift occurring in planning. That shift is driven by shrinking revenues, changing development patterns, a long and arduous economic recession resulting in loss of jobs and housing values, and advances in real-time technology. Highlights of our observations are noted below for funding, performance measures, regional plans, and public engagement.

Funding:

- A clear focus on revenue shortfalls relative to need.
- A shift in allocation of available revenues away from added-capacity highway solutions towards high-capacity transit solutions and management of capacity.
- Widespread discussion at the individual MPO and DOT level about new revenue sources, with the recognition that fuel taxes are neither adequate nor sustainable.

Performance Measures:

- Measures the impact of projects/plans against land consumption, environmental impacts, and other quality of life indicators in addition to quantifying congestion relief.
- Some planning processes maintain a scorecard or dashboard with ongoing, regularly reported measurement against goals and objectives established in the LRTP.
- All modes of transportation are brought into the discussion of transportation investments.

Regional Plans:

- Use of scenario planning to analyze and visualize outcomes relative to different investment allocations and land use policies.
- New generation of activity-based modeling tools that evaluate results of policy-driven individual behavioral choices.
- Review of transportation investments for all travel modes in relation to land use, regional growth, the environment, and the economy.

Public Engagement:

- Public participation efforts are often combined with larger regional planning efforts that address a full range of issues including climate change, sustainable development, public health, education, water supplies, energy use, climate resiliency, etc.
- Public participation combines traditional face-to-face meetings and workshops with high-tech media such as online meetings, surveys, electronic polling, etc.
- New communication technologies are allowing outreach to large numbers of people through telephone connections and web-based platforms to exchange ideas and share comments.
- Exemplary LRTPs are typically communicated through strong visual and readable documents and websites with easy to understand overviews and fact sheets.

Miami-Dade MPO public outreach visualization exercise.

FHWA Exemplary Plans by Topic Area

FHWA presents illustrative examples of MPO and State planning activities for several SAFETEA-LU planning topic areas. Many of the LRTPs addressed in this report are also included in this list of plans chosen by FHWA for the eleven topics detailed in the following. Plans that captured FHWA favor include plans other than LRTPs, such as TIPs, programmatic agreements, mitigation plans, consultation processes, etc.

1. Consideration of Planned Growth and Economic Development Planning

- Northeastern Illinois Planning Commission, Chicago, IL, *2040 Regional Framework Plan*
- North Central Texas Council of Governments, Dallas-Fort Worth, TX, *Mobility 2025 Update*

2. Transportation Systems Security/Emergency Preparedness

- Houston-Galveston Area Council, Houston, TX, wrote the *Regional Hazard Mitigation Plan*.
- Hampton Roads Planning District Commission, Hampton, VA, Regional Emergency Management Technical Advisory Committee which promotes multilateral operation of emergency support functions.
- Green River Area Development District, Owensboro, KY, Homeland Security Corps program that increased capacity of public health, public safety and disaster preparedness through citizen volunteers and groups.
- Oregon Department of Transportation, Salem, OR, prepared the *Strategic Transportation Action Safety Plan*.
- Southeastern Regional Planning and Economic Development District, Taunton, MA, Southeast Regional Advisory Council recommends to the *Commonwealth's State Homeland Security Strategy and EOPS' Guidelines*.
- San Diego Association of Governments, San Diego, CA, wrote the *Transit Emergency Planning Manual.*
- Ohio-Kentucky-Indiana Regional Council of Governments, prepared the *Regional Emergency Response Plan.*

3. Environmental Mitigation Activities

- San Diego Regional Planning Agency, San Diego, CA, *Environmental Mitigation Program* includes $850 million (regional sales tax revenues) that goes beyond traditional mitigation for transportation projects. Funding is tied to mitigation requirements and environmental approval process for projects in the *Regional Transportation Plan*.
- Central Massachusetts MPO, Environmental Consultation for the *Regional Transportation Plan Update* for hosting an Environmental Consultation Session as a forum for interactive conversation between agency staff and environmental community.

4. Public Participation Plan for Metropolitan Planning

- Baltimore Metropolitan Council/Baltimore Regional Transportation Board, Baltimore, MD, wrote the *Public Involvement Plan and Strategy Guide*.
- Kern Council of Governments, Bakersfield, CA, for their public involvement strategies.
- Chatham Urban Transportation Study, Savannah, GA, Public Involvement Plan and "*Connecting Savannah*" to bring people and projects together.

5. Consultation with Other Types of Planning

- Land Use Management:
  - Atlanta Regional Commission, Atlanta, GA, Land Use Coordinating Committee and "*Livability Centers Initiative*."
  - San Diego Regional Planning Agency, San Diego, CA, established a formal process for three groups to coordinate and plan land use management. *Regional Comprehensive Plan* included use of a "*Smart Growth Concept Map*" at the outset to define smart growth-related incentives for use in the Regional Transportation Plan.

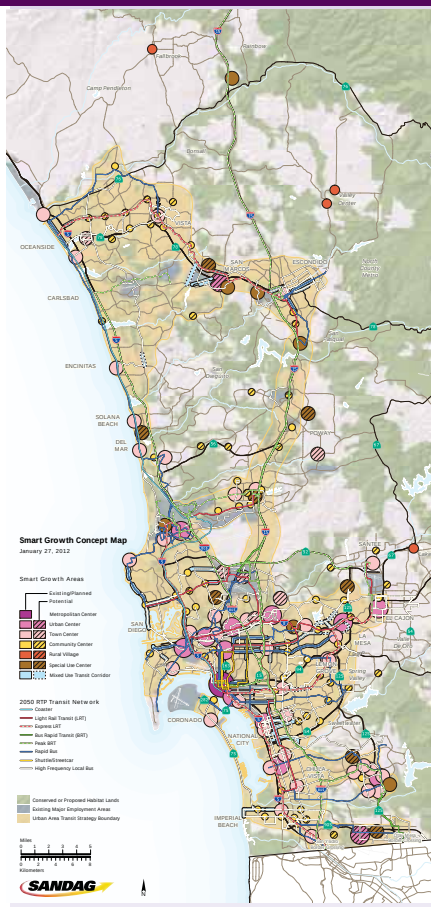
- Environmental Protection:
  - Association of Central Oklahoma Governments, Oklahoma City, OK, created *Oklahoma Clean Cities*, a public/private partnership sponsored by US Department of Energy to further progress in deployment of alternative fuel vehicles and refueling infrastructure.

- Conservation:
  - San Joaquin Council of Governments, Stockton, CA, wrote the *Multi-Species Habitat Conservation and Open Space Plan.*

- Historic Preservation:
  - Pennsylvania Department of Transportation, Harrisburg, PA, *Bridge Management Plan* that began with a comprehensive inventory and survey of historic bridges greater than 20 feet in length constructed prior to 1957.

6. Consultation with Tribes

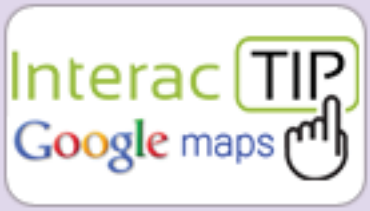
- Arrowhead Regional Development Commission, Duluth, MN, created a 20-year transportation plan for the Fond du Lac Reservation.
- Thurston Regional Planning Council, Olympia, WA, The Nisqually Indian Tribe and the Confederated Tribes of the Chehalis Reservation are examples of strong partnerships and collaborations between tribes and an MPO.
- Arizona Department of Transportation, Phoenix, AZ, and the Arizona Tribal Strategic Partnering Team.
- Georgia Department of Transportation, Atlanta, GA, *Historic Properties Eligibility Study* related to bridge and road improvements near New Echota, the first capital of the Cherokee Nation.



San Diego Regional Planning Agency created a Smart Growth Concept Map for their Regional Comprehensive Plan.

7. Consultation with Economic Development Agencies

- Berkshire Regional Planning Commission, Pittsfield, MA, *Southwest Pittsfield Economic Development Area Transportation Study*, also known as *South Street Alternatives Study*.



8. Visualization Techniques in Transportation Plan and Transportation Improvement Program (TIP) Development

- Tri-Met, Portland, OR, created high resolution maps for their LRTP.
- Atlanta Regional Commission, Atlanta, GA, designed an interactive map of Mobility 2030 Regional Transportation Plan (RTP) and TIP.
- Volusia County MPO, Daytona, FL, shared a low-tech "strings and ribbons" consensus building game.
- Metropolitan Transportation Commission, Oakland, CA, presented an extensive use of graphics and interactive mapping.
- Pima Association of Governments, Tuscon, AZ, Geographic Information System (GIS) interactive mapping of traffic counts, air quality, census information, and travel demand to forecast current and future roadway use.
- New York Metropolitan Transportation Council, New York, NY, presented GIS mapping and database capabilities for TIP.
- Washington State Department of Transportation, Olympia, WA, Online interactive map tied to detailed project information and photographs.

9. Electronic Publication of Plans and TIP/STIP

- North Jersey Transportation Planning Authority, Newark, NJ, *NJTPA Online Transportation Information System* (NOTIS) – An online interactive tool with options for map-based or text-based searches for map and data.
- Miami Valley Regional Planning Commission, Dayton, OH, *Web-TELUS* (Transportation, Economic, and Land Use System) is a fully integrated web-based information-management and decision-support system used to manage its TIP.
- Metropolitan Transportation Commission, Oakland, CA, implemented *WebFMS* (Web Fund Management System) to manage its TIP.
- Alaska Department of Transportation, Juneau, AK, developed *E-STIP* to manage and public its STIP electronically. It includes project information, maps or sketches, evaluation board scores, and current project status.
- Denver Regional Council of Governments, Denver, CO – TIP appendix with one-page summaries for each project.

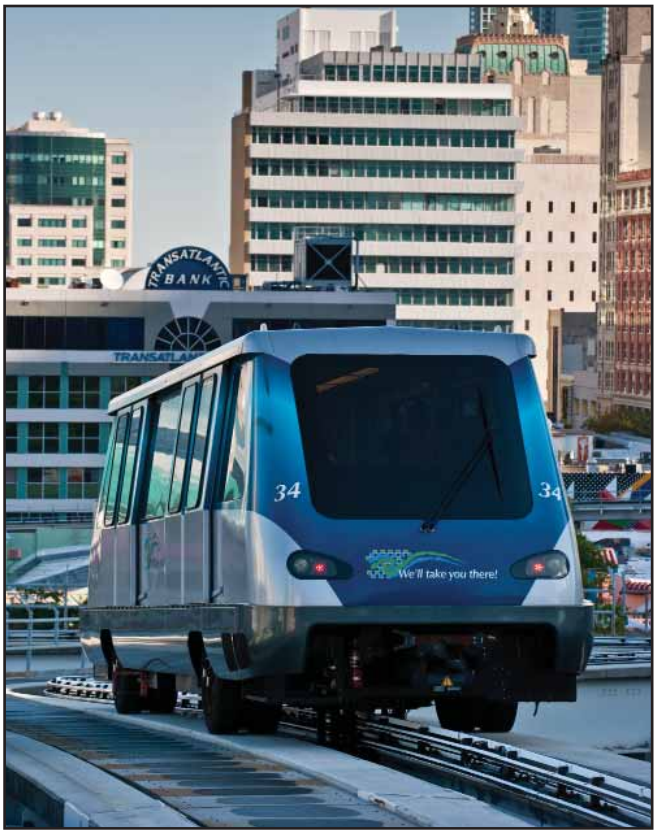
10. Coordinated Public Transit-Human Service Plan

- Maricopa Association of Governments, Phoenix, AZ
- San Diego Association of Governments, San Diego, CA
- East-West Gateway Council of Governments, St. Louis, MO
- Mid-America Regional Council, Kansas City, MO
- Fargo-Moorhead Metropolitan Council of Governments, Fargo, ND

11. Publication of Annual Listing of Projects

- Denver Regional Council of Governments, Denver, CO
- Mid-Ohio Regional Planning Commission, Columbus, OH

In the following pages, summaries of each MPO addresses their make-up, their most recent LRTP, and what makes their LRTP exemplary.



Various modes of transportation utilized in the City of Miami, FL

LRTP SUMMARIES

ATLANTA REGIONAL COMMISSION

The Atlanta Regional Commission (ARC) serves as the regional planning and intergovernmental coordination agency for the 10-county region (City of Atlanta in Fulton County and surrounding Cherokee, Clayton, Cobb, DeKalb, Douglas, Fayette, Gwinnett, Henry, and Rockdale counties). ARC's mission is to ensure sustainable growth and economic advantage by focusing on and balancing environmental responsibility, economic growth, and social needs. ARC has various planning responsibilities for differing geographic areas. ARC is the state-designated Metropolitan Planning Organization for transportation planning within a larger 18-county area which includes the additional counties of Forsyth, Coweta, and Paulding, plus portions of Spalding, Newton, Walton, Barrow, and Bartow. ARC is responsible for Clean Air Act non-attainment air quality planning for a larger geographic area (20 counties for ozone; 22 counties for particulate matter 2.5), including the 10 counties within the regional commission boundaries. The agency also serves as the MPO for all or parts of 18 counties to assist local governments with comprehensive regional planning, and other purposes such as workforce and aging guidance (10 counties), and water resources planning (15 counties).

ARC was involved in the *Transportation Investment Act of 2010* for the 10-county Atlanta region. This $8 billion regional transportation bill was defeated in a referendum on July 31, 2012. The Atlanta region is one of 12 transportation districts established around the State of Georgia. Three counties outside Atlanta approved the referendum.

PLAN 2040: Regional Transportation Plan, 2011-2040 The region's most recent LRTP was adopted on June 22, 2011. It is a part of the larger, comprehensive *PLAN 2040* that ties together broad planning elements such as environmental, social and economic issues and provides a framework for linking transportation and land use planning. As part of the *PLAN 2040*, adopted July 27, 2011, a Regional Transportation Plan (RTP) was developed to address growth through systems and policies. This LRTP can afford $60.9 billion (2012 dollars) for infrastructure modernization (roads and transit), demand management, and system expansion, but it also includes $66 billion in an Aspirations Plan if funds become available.

Atlanta Regional Commission

Counties Served:
10 as the Regional Commission
18 as the MPO

MPO Area Covered: 4,573 sq. mi.

Statewide: 59,425 sq. mi.

MPO 2010 Population: 4.8 million

Statewide: 9.7 million

Population Growth 2000-2010: 23.9%

Population Growth 2005-2040: 67%

MPO Density: 1,054 persons/sq. mi.

From 2000-2010, growth in the Atlanta region was topped only by Houston and Dallas.

What makes this LRTP exemplary?

Sustainability Focus - The long-range RTP was developed in the context of *PLAN 2040's* sustainability focus. Land use scenarios were developed (namely, Ultra Sprawl, Concentrated Growth, and Local Policy) to compare resulting levels of congestion and growth to compare against the regional vision, which considered cross-cutting goals for housing, congestion, and economic growth.

Performance - It established a performance-based plan management approach to track business practices, project implementation, and plan outcomes for five emphasis areas: mobility, connections and access, safety, economic growth, community/environment, and state of good repair.

Implementation Assistance - It established the *Livable Centers Initiative* to assist local jurisdictions with transformation of transit-supportive centers through planning and implementation studies and incentive programs that address land use, multimodal travel, jobs, and housing near transit.

LRTP SUMMARIES

BOSTON REGION MPO

The Boston Region MPO region includes 101 cities and towns in eastern Massachusetts, most within 20 miles of the city of Boston. The region includes diverse cities and towns ranging from the well-known urban centers of Boston, Cambridge and Somerville, located in the Boston Harbor, to a number of smaller, relatively rural towns and cities. The MPO is represented by 14 elected Board members.

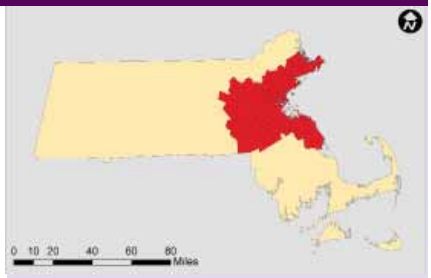
Paths to a Sustainable Region, 2015-2035

The Boston Region's most recent LRTP was adopted on September 22, 2011. Boston is struggling to fully address the growing needs of the region's aging infrastructure and a significant backlog of maintenance requirements for highways, bridges, and transit. Although the 2035 plan maintained previous commitments to regionally significant projects, it did allow for a small portion to be allocated to non-regionally significant projects (defined to be less than $10 million or that do not add capacity to the transportation system) and for other modes of travel to expand travel options. Investment categories emphasize state of good repair, multimodal traffic management and modernization, management and operations, expansion of transit, roadways, freight, shared-use paths, clean air, and mobility. Maintenance of the existing system is the dominant need for the Boston Region and will limit expansion of the system. The MPO introduced two new emphasis areas in the 2035 LRTP – climate change and livability. Project measurement focuses on projection of trips by mode. All average weekday trips are expected to increase 12 percent, with 30 percent increase in transit, 17 percent increase in biking and walking, and a seven percent increase in auto trips.

What makes this LRTP exemplary?

Project Prioritization – Boston based the selection of projects on investment strategies developed from three land use cases: (1) Current Approach, (2)Current LRTP and a Regional Needs-Based Focus, and (3) New Mix of Projects and Programs – Lower Cost/More Flexibility. Although the recommended plan resulted in a modification to the current approach, the approach to looking at investment strategies based on possible land use futures provided a clear understanding of choices for decision makers.

Readability - The Executive Summary is simple and clear with the big questions answered: What are the projects?; Where are the projects?; and How much do they cost? The "Recommended Plan" has a nice level of detail about its larger-scale projects, while small projects aren't included at all, keeping the plan less cluttered. Aggregate information by investment category is not presented making the plan difficult to analyze. Needs for eight priority corridors and one central area were prioritized based on primary need for system preservation, mobility, safety, the environment, and transportation equity.



Boston Region Metropolitan Planning Organization

Counties Served: Parts of 6

MPO Area Covered: 1,458 sq. mi.

Statewide: 10,554 sq. mi.

MPO 2010 Population: 3.2 million

Statewide: 6.5 million

Population Growth 2000-2010: 3%

Population Growth 2009-2035: 11.8%

MPO Density: 2,167 persons/sq. mi.

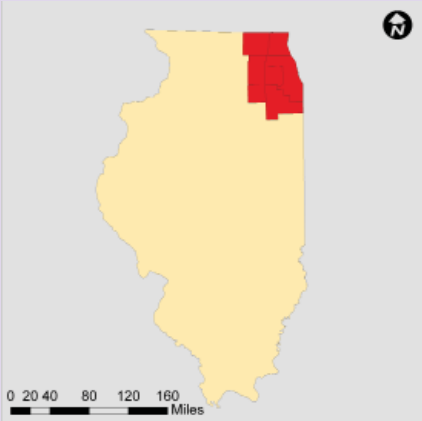
LRTP SUMMARIES

CHICAGO METROPOLITAN AGENCY FOR PLANNING

The Chicago Metropolitan Agency for Planning (CMAP) is the official regional planning organization for the Chicago Metro Area in northeastern Illinois. In addition to the City of Chicago, the region is also made up of Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will counties. CMAP emphasizes quality of life in its comprehensive plan to keep the regional communities and the economy strong. Its goal is to coordinate the efforts of the local government agencies, and to supply them with technical assistance and analysis to improve land use and transportation decision making throughout the region.

Go To 2040: Regional Mobility

CMAP's most recent LRTP is a chapter in *Go To 2040*, the region's first comprehensive regional plan in more than 100 years, that builds on the region's assets, identifies it shortcomings, and recommends actions to enhance and sustain economic vitality and global competitiveness. This plan establishes coordinated strategies to help the region's communities address transportation, housing and social systems, economic development, environmental, open-space, and other quality-of-life issues. The Regional Mobility chapter details Chicago's commitment to strategic investment in transportation with expansion of public transit and a more efficient freight network. The Regional Mobility Plan contains three sections of recommended actions: (1) Invest strategically in transportation; (2) Increase commitment to public transit; and (3) Create a more efficient freight network. Six specific funding strategies are also recommended: create cost and investment efficiencies; implement congestion pricing; implement parking pricing; increase motor fuel taxes and index them to inflation; institute a replacement for motor fuel taxes in the long term; and pursue public-private partnerships.



Chicago Metropolitan Agency for Planning

Counties Served: 7

MPO Area Covered: 4,096 sq. mi.

Statewide: 57,914 sq. mi.

MPO 2010 Population: 8.4 million

Statewide: 12.8 million

Population Growth 2000-2010: 3.6%

Population Growth 2010-2040: 25%

MPO Density: 2,062 persons/sq. mi.

What makes this LRTP exemplary?

Readability - CMAP's website and documentation make it one of the best, with high quality and strong graphic features, making it easy to read and understand the focal areas. It has a short plan and a full plan, both of which are very well written with well-placed maps, charts, illustrations, graphics, and photographs to aid in understanding and reinforcing the structure of the documents. The organization of the website makes it a pleasure to navigate. A full version in Spanish is also online.

Relevance - CMAP uses a portrait of residents that includes their personal history and issues they have dealt with in getting around Chicago, being eco-friendly, living with a disability, and dreaming of a better environment. These personal experiences help make the larger issue of long-term transportation planning relevant to the reader.

Sustainability Focus - The 2040 LRTP is a part of a comprehensive plan that addresses many issues. Sustainability topics in the plan include preservation of open space, water and energy conservation, sustainable local food, and human capital which incorporates education, workforce development and economic innovation.

Investment and Accountability - Governance issues are also highlighted in the plan to address issues such as tax reform, governmental accountability, public access to information, technical assistance, and coordinated investments.

LRTP SUMMARIES

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

The Delaware Valley Regional Planning Commission (DVRPC) is the federally-designated MPO for the Greater Philadelphia Region including nine counties within two states (Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania, and Burlington, Camden, Gloucester, and Mercer in New Jersey). DVRPC was adopted by an Interstate Compact in 1965 by the State of Pennsylvania, and reenacted and amended in 1967 by the states of New Jersey and Pennsylvania. The RPC addresses land use, environmental protection, and economic development in addition to transportation planning.

Connections 2035, The Regional Plan for a Sustainable Future

The current long-range plan, adopted July 23, 2009, considers long-term and recent development trends, and considers future land use scenarios to create a regional vision in consideration of public input to guide their 26-year plan for maintaining existing transportation infrastructure with limited new capacity expansion. Their plan is organized around four key planning principles: (1) Create Livable Communities; (2) Manage Growth and Protect Resources; (3) Build an Energy-Efficient Economy; and (4) Create a Modern Multimodal Transportation System. Fiscal and environmental responsibility are hallmarks of their plan with a goal of preserving more than 500,000 acres of open space in an effort to reverse a trend between 1970 and 2005 when 320,000 acres were lost to development. Scenario planning was conducted to address development patterns anticipated with an expected growth of 630,000 residents by 2035, an 11% increase. Center-based, concentrated growth around 100 community centers was promoted as a cost-saving approach. Economic growth for a "green economy" was promoted with a goal of reducing greenhouse gas emissions by 50% through promotion of eco-industries and green-collar jobs along with location-specific strategies to reduce stationary and mobile energy emissions by locating employment opportunities closer to residential communities. They also focused on closing the funding gap with a goal of generating $100 million each year in local funding for a modern multimodal transportation system.

What makes this LRTP exemplary?

Affordability - It focuses on "right-sizing" projects and implementing small-scale alternatives rather than costly new roadway or transit options.

Implementation Assistance - It emphasizes capacity-building support (technical and funding) for municipalities and establishes momentum to implement plan elements.

Performance Monitoring - Clear goals are established with performance measures for each. Progress is intended to be tracked for each of the four priorities with a user-friendly, graphic-intensive dashboard website.

Scenario Planning - Priorities are established through the comparison of three scenario plans –recentralization, sprawl, and trend. Priority is placed on system maintenance with 72 percent of the plan's funding categorized as such. Only 12 percent of the plan's projects are considered new, regional projects.

Delaware Valley Regional Planning Commission

Counties Served: 9

MPO Area Covered: 3,811 sq. mi.

Statewide: 54,777 sq. mi.

NJ: 8,723 sq. mi.

PA: 46,054 sq. mi.

MPO 2010 Population: 5.6 million

Statewide: 21.5 million (NJ/PA)

NJ: 8.8 million

PA: 12.7 million

Population Growth 2000-2010: 4.4%

Population Growth 2005-2035: 11%

MPO Density: 1,476 persons/sq. mi.

LRTP SUMMARIES

DENVER REGIONAL COUNCIL OF GOVERNMENTS

The Denver Regional Council of Governments (DRCOG) is the designated MPO for the Denver area, and serves nine counties including Adams, Arapahoe, Boulder, Broomfield, Denver, Clear Creek, Douglas, Jefferson, and Gilpin. The *Metro Vision Issues Committee* is the primary policy committee of DRCOG in addressing plans to guide growth, transportation and environmental quality into the future. The *Mile High Compact* is a voluntary agreement among Denver metro area jurisdictions to manage growth guided by the Metro Vision plans. DRCOG has an extensive Transit-Oriented Development webpage that ties these plans together with the FasTracks transit program.

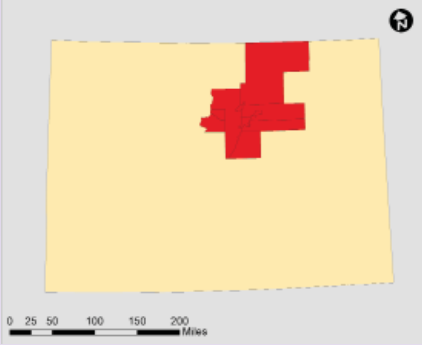
2035 Metro Vision Regional Transportation Plan

With a clear focus on outcomes, Denver's LRTP harkens back to a 1992 *Metro Vision* which still serves as the foundation of the ongoing conversation about how best to protect a well-defined high-quality metropolitan setting and a healthy downtown core, urban cores and surrounding communities. Formalized as the *Mile High Compact* in 2000, this binding agreement guides development through growth management tools and plans that ensure commitment to local implementation efforts and regional collaboration. Beyond the basic goals established for types of growth areas (urban centers, freestanding communities and rural town centers, and large-lot development), emphasis areas were identified in the 2035 plan to address challenges associated with high growth and less efficient development patterns and lower densities. Other social challenges include the dominance of the automobile as the primary form of household transportation, lack of good jobs/housing balance, and a growing elderly and disabled population and changing lifestyles. Environmental challenges include air and water quality. Establishment of policies and a vision for each type of land use helps create consistency in the development of transportation goals. Six growth and development elements of the *Metro Vision* pertain closely to transportation: (1) extent of urban development, (2) urban centers, (3) freestanding communities, (4) rural town centers, (5) large-lot development, and (6) community design. Four environmental elements guide transportation planning: (1) parks and open space, (2) water quality, (3) air quality, and (4) noise.

What makes this LRTP exemplary?

Focus on Outcomes – Potential projects are evaluated according to five 2035 goals: (1) Urban centers should have 50 percent of new housing and 75 percent of new employment; (2) Increase construction of alternative transportation facilities; (3) Reduce trips to work by single-occupancy vehicles to 65 percent; (4) Reduce regional per capita Vehicle Miles Traveled (VMT) by 10 percent; and (5) Reduce annual per capita greenhouse gas emissions from the transportation sources by 60 percent.

Visualization – *Transportation Regional Improvement Projects and Surveys* (TRIPS) database allows users to view planned and programmed transportation projects. FHWA calls out DRCOG for an exemplary electronic posting of plans and TIPs, information, technical assistance, and coordinated investments.



Denver Regional Council of Governments

Counties Served: 10 + partial county
MPO Area Covered: 3,401 sq. mi.
Statewide: 104,094 sq. mi.
MPO 2010 Population: 2.8 million
Statewide: 5 million
Population Growth 2000-2010: 15.9%
Population Growth 2010-2035: 50%
MPO Density: 816 persons/sq. mi.

LRTP SUMMARIES

MARICOPA ASSOCIATION OF GOVERNMENTS

The Maricopa Association of Governments (MAG) is a Council of Governments that serves as the regional planning agency and the MPO for the metropolitan Phoenix area, addressing transportation, air quality, water quality, and human service issues within the region. Membership consists of 25 incorporated cities and towns within the urbanized area of Maricopa County, Indian representation (two communities and a nation), the Arizona Department of Transportation, and a citizens' committee. The LRTP is developed under the direction of the Transportation Policy Committee, a public-private partnership established by MAG and charged with finding solutions to the region's transportation challenges. In 2004, the region adopted by Proposition 400 a ½-cent sales tax for a period of 20 years which funds multimodal transportation needs. More than half the state's population resides in Maricopa County. It is one of the fastest growing regions in the U.S. with projections of 1 million persons expected to be added to the population each decade to reach over 6 million people by 2030. Available land of 3,200 square miles is projected for future residential land use in Maricopa County.

Regional Transportation Plan - 2010 Update, 2010-2031

MAG's performance-based RTP, originally published in 2003, was updated in 2006, and most recently on July 28, 2010. It puts forth a multimodal vision for the region including freeways, highways, streets, transit, airports, bicycle and pedestrian facilities, freight, demand management, systems management, and safety. The RTP's four stated goals are: (1) system preservation and safety, (2) access and mobility, (3) sustaining the environment, and (4) accountability and planning. The RTP summarizes revenue sources by modal use in terms of an amount and then in terms of percentages. Of the total $29.6 billion in year of expenditure dollars, they use 69 percent for highways/arterials and 30 percent for transit. Performance criteria were established to include: (1) extent of local funding (public and private), (2) social and community impacts, (3) establishment of a complete transportation system,(4) construction of projects that serve regional transportation needs, (5) construction of segments that connect with other elements of the regional transportation system, and (6) other factors that demonstrate broad public support and regional balance. They also use the Illustrative Corridor/Project Concept for both transit and highways. A number of projects formerly in the 2003 plan were moved outside the planning period and are included in this category.

Maricopa Association of Governments

Counties Served: 1

MPO Area Covered: 9,338 sq. mi.

Statewide: 113,990 sq. mi.

MPO 2010 Population: 3.9 million

Statewide: 6.4 million

Population Growth 2000-2010: 24.3%

Population Growth 2005-2030: 66.6%

MPO Density: 415 persons/sq. mi.

What makes this LRTP exemplary?

Regionalism - MAG places a high priority on projects that support intermodal connectivity of transportation system elements and on leveraging funding with local public and private shares.

Performance Measures - Based on a framework for performance measures developed during a 2008 update of their Congestion Management process, performance measures are the cornerstone of this RTP. The focus on performance measures is in part driven by the passage of Proposition 400 which required annual performance audits beginning in 2010 and every five years thereafter to coincide with the RTP development.

Performance Tracking - The MPO also provides an interactive web-based multimodal data lookup system. The idea of maintaining updated performance measure data is commendable; however, the data is somewhat dated: 2007/08. Depth and complexity of data is extensive. Map-based links make access easy.

LRTP SUMMARIES

METROPLAN ORLANDO

MetroPlan Orlando is the MPO for the tri-county east-central area within Seminole, Orange, and Osceola counties. The MPO Board for MetroPlan is made of 25 members (19 voting members) representing the three counties, the largest cities, transportation operating agencies and advisory committees, and the Department of Transportation. MetroPlan Orlando, the first multi-county MPO in Florida, stresses the importance of regional cooperation in prioritizing the funding for multimodal transportation projects. The region is currently constructing SunRail, a tri-county commuter rail service scheduled for operation in 2014. The region shows the highest growth of all the MPOs in this review during the decade preceding the 2010 U.S. Census, and the 2030 LRTP projects an additional 70 percent residential growth.

2030 Long Range Transportation Plan, 2010-2030

The region's most recent LRTP was adopted on August 12, 2009. The plan ties land use development patterns with transportation planning by incorporating an alternative land use scenario in an attempt to promote smart growth principles with a greater emphasis on transit. MetroPlan Orlando's 2030 LRTP places equal importance on the technical aspects of creating the plan (travel demand modeling, funding options, and prioritizing projects for a cost feasible plan), and on the public involvement in the long range planning process. The *2030 Vision* was shaped by an extensive outreach process known as '*How Shall We Grow?*' that used scenario plans to visualize future development outcomes. This two-year outreach process involved 20,000 Central Floridians. By comparing and contrasting the "trend" land use plan with an "alternative" land use plan, participants in the planning process supported a vision framed by a transportation plan that provides transportation choices, concentrates future development, and fosters distinct, attractive, and safe places to live.

What makes this LRTP exemplary?

Transportation Linked to Land Use - This LRTP is characterized by the effective integration of land use with transportation through visualization of alternative futures and revenue forecasts. This analysis of the trend and alternative land use plan was carried into the cost feasible plan development with the application of three levels of financial plans based on Tier 1: existing, Tier 2: reasonably available, and Tier 3: new revenues.

Scenario Planning - The extent of public engagement in developing the vision and in the review of the scenario plans is another important aspect of this LRTP. The public consensus plan and the adopted cost feasible plan consisted of the alternative land use scenario with the Tier 3 financial plan.

Readability - The plan overview document is concisely written with well-placed tables, graphics, and references to supporting documentation which is easily accessed from the LRTP website.

MetroPlan Orlando

Counties Served: 3

MPO Area Covered: 2,860 sq. mi.

Statewide: 65,758 sq. mi.

MPO 2010 Population: 1.8 million

Statewide: 18.8 million

Population Growth 2000-2010: 28.1%

Population Growth 2004-2030: 74%

MPO Density: 642 persons/sq. mi.

LRTP SUMMARIES

METROPOLITAN COUNCIL MINNEAPOLIS-ST. PAUL

The Metropolitan Council is the regional planning agency serving the Minneapolis-St. Paul Twin Cities area, including the seven surrounding counties. Its responsibilities encompass comprehensive regional planning for transportation, wastewater, parks, and aviation systems.

2030 Transportation Policy Plan, 2010-2030

The Metropolitan Council's most recent LRTP was adopted on November 10, 2010. Aggregate information on the cost feasible plan is not available. Each transportation mode is a separate chapter in the LRTP. Most of the discussion in the financial report focuses on statewide revenues and costs. Minnesota DOT's 2009 Statewide Transportation Plan estimates a trunk highway investment need exceeding $65 billion over the next 20 years. This compares to projected revenues of $15 billion, leaving a $50 billion gap for mobility needs. State law passed in 2008 channels significant levels of new revenue to highways and transitways; however, roadway maintenance costs and legislatively-mandated bridge repair/replacement investments are expected to absorb a large portion of these new revenues. As the title implies, this is a policy plan which presents very detailed regional transportation goals, objectives, and investment priorities for each mode: highways, transit, freight, bike and pedestrian, and aviation. Regional mobility policies in the LRTP emphasize increasing the people-moving throughput of the highway system combined with strategies to minimize future demand on the system. The plan is described as "realistic, innovative, flexible, and focused." The highway vision includes congestion management and pricing. The transit contribution includes a focus on the development of a network of transitways (commuter rail and light rail transit) supported by a regional bus system to increase reliability of travel times and increase opportunities for transit-oriented development around station areas. A practical approach to identifying transit service and design levels was based on travel markets as defined by population and employment densities and their propensity to use transit. Key performance measures included subsidy per passenger and passengers per in-service hour.

Metropolitan Council Minneapolis-St. Paul

Counties Served: 7
MPO Area Covered: 2,970 sq. mi.
Statewide: 86,936 sq. mi.
MPO 2010 Population: 2.8 million
Statewide: 5.3 million
Population Growth 2000-2010: 7.9%
Population Growth 2000-2035: 37.9%
MPO Density: 959 persons/sq. mi.

What makes this LRTP exemplary?

Multimodal Planning - The Regional Mobility section of the plan defines the congestion management process and emphasizes a multimodal approach to addressing congestion through highway transportation system management, transportation demand management, transit opportunities, and land use policy.

Performance Targets - This policy plan establishes performance measures and sets a goal of doubling regional ridership by 2030 through ambitious improvements and a systemwide approach to transit involving a regional bus system and a network of light rail and commuter rail transitways.

Standards and Indexes - *Regional Transit Standards* were developed using a *Transit Market Index* for specific areas that is calculated at the Census Block Group level using three factors: (1) populations density, (2) employment density, and (3) transit-dependent population. The Index helps to identify different types and levels of transit services appropriate for each market.

Master Plan Update - The 2030 Policy Plan includes an extensive discussion of aviation (first major update since 1996) and freight.

LRTP SUMMARIES

MIAMI-DADE METROPOLITAN PLANNING ORGANIZATION (MPO)

The Miami-Dade MPO is responsible for guiding the transportation planning process and approving projects for Miami-Dade County which includes 34 municipalities including the City of Miami and many unincorporated areas. As part of the larger, south Florida metropolitan area, the MPO takes part in many regional initiatives that include Broward and Palm Beach counties to the north and Monroe County (the Florida Keys) to the south.

In addition to ensuring conformance with all federal and state laws and regulations, the mission of the Miami-Dade MPO is to plan for the provision of integrated and efficient transportation facilities and services in Miami-Dade County while ensuring the highest possible level of community participation in the transportation planning process. The MPO places great emphasis on public outreach and community involvement initiatives

Miami-Dade 2035 Long Range Transportation Plan, 2010-2035

The region's most recent LRTP was adopted on October 29, 2009. It seeks to develop a transportation system that optimizes the movement of people and goods while reinforcing sustainability, equity, and environmental compatibility. The goals of Miami-Dade's 2035 LRTP focus on improving the countywide transportation system through new investment projects, while maximizing the use of the existing transportation system. They include measures such as increasing safety and security, supporting economic vitality, preserving the environment, promoting energy conservation, and enhancing integration and connectivity between all modes of travel. Project selection is based on measures of effectiveness (MOEs) that serve as indicators of the plan's ability to meet these goals and assess performance on a systemwide basis.

Miami-Dade Metropolitan Planning Organization

Counties Served: 1

MPO Area Covered: 2,015 sq. mi.

Statewide: 65,758 sq. mi.

MPO 2010 Population: 2.5 million

Statewide: 18.8 million

Growth 2005-2035: 39%

MPO Density: 1,237 persons/sq. mi.

Miami-Dade County is the largest metropolitan area in Florida; however, as a percent of statewide population, it is on the low end compared with most peer regions reviewed in this report.

What makes this LRTP exemplary?

Public Involvement - The 2035 LRTP involved an intensive public involvement process. Outreach events included workshops that used an effective visualization process known as "blocks and ribbons" along with interactive digital survey technology known as OptionFinder. These input keypads enabled real-time assessment of priorities in 12 public workshops and with Steering Committee members accurately and with immediate results for participants to view. An interactive website that uses map-based information to communicate planned improvements was also developed that is still used widely throughout the tri-county region. The user-friendly website known as Transportation Outreach Planner provides customized demographic reports, community background reports and outreach strategies and is managed through a joint effort involving the three counties, Florida International University and The Metropolitan Center. Materials are open to the public and can be downloaded.

Regionalism - Although Miami-Dade's LRTP is for a single county, planning for the LRTP involves extensive coordination with the area's regional plan conducted by the Southeast Florida Transportation Council (SEFTC) to include Miami-Dade, Broward, and Palm Beach counties.

Movement of Goods - The LRTP puts heavy emphasis on freight movement plans and strategies. The Port of Miami with significant rail and roadway freight traffic is an economic driver as well as an integral part of the transportation system. The MPO devotes considerable emphasis to ensure movement of goods is addressed as well as the movement of people.

LRTP SUMMARIES

NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

The New York Metropolitan Transportation Council (NYMTC) is a regional council of governments and is the designated MPO for one of the most extensive transportation networks in the world. The region includes the five boroughs of New York City and five suburban counties in Long Island (Nassau and Suffolk counties) and the lower Hudson Valley (Putnam, Rockland, and Westchester counties). NYMTC studies potential transportation improvements, forecasts future conditions and needs, and pools the planning resources and expertise of its member agencies in developing a shared strategic vision for transportation and development.

A Shared Vision for a Shared Future, 2010-2035 Regional Transportation Plan (RTP)

In the summer of 2012, NYMTC launched their 2040 Update of the 2035 RTP adopted on September 25, 2009. Their previous RTP is the product of a cooperative public involvement and intergovernmental planning process that focused on sustainable growth in the region by targeting specific areas for future development. This more comprehensive plan known as *plaNYC 2030: a Greener, Greater New York*, established long-term planning goals and objectives to ensure sustainability through initiatives affecting transportation, housing, open space and air quality. These key initiatives are carried into subsequent RTPs. NYMTCs 2035 RTP consists of five Regional Shared Goals: (1) improving air quality, (2) increasing mobility, (3) reducing congestion, and (4) preserving a high quality of life; ten regional Desired Growth Areas to guide future growth and development; a set of Strategic Regional Transportation Investments as a first step toward improving long-term mobility in the region, highlighted by Four Foundation Projects: (1) Three MTA New York City Transit's projects for Second Avenue Subway, (2) Long Island Rail Road Access to the East Side of Manhattan, (3) No. 7 Subway Extension to the West Side of Manhattan, and (4) New Jersey Transit's Access to the Regional's Core Project under the Hudson River; and ten Strategic Regional Policy Guidelines. This planning framework was carried out in the context of five overarching issues: (1) lifestyle and workforce change, (2) economic innovation and technological change, (3) globalization and security, (4) energy and climate, and (5) transportation financing.

New York Metropolitan Transportation Council

Counties Served: 10

MPO Area Covered: 2,726 sq. mi.

Statewide: 54,555 sq. mi.

MPO 2010 Population: 12.4 million

Statewide: 19.4 million

Population Growth 2000-2010: 2.5%

Population Growth 2010-2035: 15.3%

MPO Density: 4,537 persons/sq. mi.

What makes this LRTP exemplary?

Project Development – Identification of Desired Growth Areas (DGA) by NYMTC's principals targets and leverages efforts to work collaboratively towards sustainable development by targeting investments in transportation infrastructure and services. The focus is on job creation (350,000 new jobs estimated in DGAs, or 25 percent of all job growth by 2035), and by providing for infrastructure to encourage residential infill of 10 percent of the forecasted population growth, transportation investment can be minimized overall.

Revenue Generation – It explores four broad categories of supplemental funding sources: (1) travel-based revenues, (2) public-private financing, (3) debt financing, and (4) special tax assessment.

Visualization – FHWA highlights NYMTC's use of visualization as exemplary. Their upcoming LRTP uses a new method of generating a public conversation through a web-based product (MindMixer) that categorizes public input through an online vehicle as well as feedback from others.

OREGON METRO

Serving the City of Portland and surrounding areas, Oregon Metro is one of the only directly-elected MPOs in the country. The region is made up of Clackamas, Multnomah, and Washington counties in the northwestern part of the state. In addition to transportation planning, it also places emphasis on land use planning by maintaining an urban growth boundary that dictates development and reduces urban sprawl in the region. Oregon Metro is also responsible for maintaining and operating public institutions such as parks and zoos, as well as the region's Geographic Information System. It is committed to planning policies that cross jurisdictional lines in order to improve the local quality of life.

2035 Regional Transportation Plan, 2010-2035

Adopted on June 10, 2010, Oregon Metro's current LRTP focuses on outcomes and methods of achieving the region's *2040 Growth Concept*, a publicly-supported vision for directing growth toward centers, corridors, and employment areas. This Regional Transportation Plan is intended to serve as a blueprint that guides investments in the region's transportation system. The goals of these investments are to reduce congestion, build new sidewalks and bicycle facilities, improve transit services and access to transit, and maintain freight access. Of total freight transportation, 70 percent involves truck trips on a freeway, a significant issue for the area. The plan recognizes that the personal automobile will continue to be the most popular form of regional travel, but places equal emphasis on other modes to ensure that the transportation systems works together in the most effective way possible. Single-occupant vehicles represent 43.1percent of all trips projected to 2035, a 4 percent decrease from 2005. Alternative transportation mode share is projected to rise to 4.8 percent for transit, 7.5 percent for walking and 1.2 percent for bike trips. About 40 percent of all trips taken are by carpool/vanpool. An emerging issue is providing an accessible system for an aging population which is expected to double in the next 25 years. Funding has become more problematic for the region. While reinforcing the focus on livability and sustainability goals, including economic competitiveness, a new focus of the 2035 plan is maintaining and optimizing existing infrastructure and on future actions to stabilize transportation funding and identify new revenue to pay for needed infrastructure. Portland is a leader in public transit, but in recent years the Tri-County Metropolitan Transportation District has faced major budget shortfalls that may jeopardize their ability to expand as planned.

What makes this LRTP exemplary?

Linking Transportation to Land Use – Oregon Metro focuses on multimodal investments in mobility corridors and town centers. The transportation planning process follows the *2040 Growth Concept* adopted in 1995 through an extensive public process. Targeted outcomes include compact development, safe and stable family-oriented neighborhoods, healthy economy, a balanced transportation system, and widespread mixed income housing. This blueprint provides the guiding principles and overall framework for the transportation system needs plan.

Oregon Metro

Counties Served: 3

MPO Area Covered: 487 sq. mi.

Statewide: 98,379 sq. mi.

MPO 2010 Population: 1.5 million

Statewide: 3.8 million

Population Growth 2000-2010: 14.2%

Population Growth 2005-2035: 42.8%

MPO Density: 3,080 persons/sq. mi.

PUGET SOUND REGIONAL COUNCIL

The Puget Sound Regional Council (PSRC) serves the Seattle metropolitan area counties of King, Pierce, Snohomish, and Kitsap. As the MPO and regional planning agency, PSRC works with local governments to develop policies and make decisions about transportation, economic development and growth management in the central Puget Sound region of the State of Washington. Their primary activities include long-range planning, prioritizing and distributing federal transportation funds, and providing regional data and analysis.

Transportation 2040, 2010-2040

Adopted by the Council on May 20, 2010, *Transportation 2040* is PSRC's most recent LRTP. It outlines a long-term template for how the region should invest in transportation to accommodate rising travel demand while remaining flexible to the ways the region will change. The LRTP builds on *VISION 2040* a regional growth strategy that calls for a growth pattern with more growth occurring in existing urban areas to better match job and housing locations and reduce commutes. The LRTP establishes three key strategies: (1) *Congestion and Mobility* improvements consist of effective land use planning, demand management, efficiency enhancements, and strategic capacity investments. The highest priority, receiving the largest share of funding, is to maintain, preserve, and operate the region's transportation system. "Smart corridors" are created with advanced technologies, traveler information systems, and advanced variable road tolling. New roadways are limited to key missing links, enhancing existing facilities, and supplemented by a strategic multimodal capacity improvement plan. Attention to monitoring system performance is included in this LRTP. (2) *Environment* – Protection of the region's environmental health provides for clean air, improved treatment of run-off as well as emerging issues of climate change adaptation and greenhouse gas emissions. State greenhouse gas and vehicle miles traveled (VMT) goals are addressed with a four-part strategy involving land use, transportation pricing, transportation choices, and technology. (3) *Funding* relies on traditional funding in the early years with a transition over time to a new "user-pay" model that involves a variety of methods ranging from high-occupancy toll lanes to VMT charges, all designed to replace the gas tax and better fund and manage the transportation system. The LRTP also takes a new approach to transportation funding that involves a long-term shift in more reliance on users paying for transportation improvements while reducing the contribution to air pollution and improving public health in the region.

Puget Sound Regional Council

Counties Served: 4
MPO Area Covered: 6,384 sq. mi.
Statewide: 71,298 sq. mi.
MPO 2010 Population: 3.7 million
Statewide: 6.7 million
Population Growth 2000-2010: 12.7%
Population Growth 2010-2040: 40%
MPO Density: 578 persons/sq. mi.

What makes this LRTP exemplary?

Sustainability Focus - PSRC received an outstanding achievement award from the National Association of Metropolitan Planning Organizations for *Transportation 2040*. The basis for this recognition stems from significant innovations that use transportation to shape a livable metropolitan region by directly supporting the region's land use vision and prioritizing projects that serve regional centers. The focus on technology to improve, a four-part environmental health and preservation strategy, and the transition to a new sustainable financial structure based on user fees and other pricing approaches to replace the gas tax were lauded. The clear, well-written, and visual presentation of the LRTP and the extent of the outreach conducted in developing the plan were also exemplary factors.

LRTP SUMMARIES

SAN DIEGO ASSOCIATION OF GOVERNMENTS

The San Diego Association of Governments (SANDAG) is the MPO for San Diego County and 18 cities located within its borders. It serves as the forum for decision making on strategic plans, public transportation, and other topics pertinent to the region's quality of life. SANDAG, in addition to planning and allocating funding, is also designed to inform and involve its region's residents in the decision-making process related to regional growth and management issues.

2050 Regional Transportation Plan, 2012-2050

On October 28, 2011 the SANDAG Board of Directors adopted its current *2050 Regional Transportation Plan* and *Sustainable Communities Strategy*. The cornerstone of this plan is the impetus behind State Bill 375 adopted in 2008 which requires MPOs to prepare a *Sustainable Communities Strategy* (SCS) to show how the region will meet its goals for reducing greenhouse gas emissions from automobiles. SB 375 supports implementation of Assembly Bill 32 adopted in 2006 which requires California to lower statewide greenhouse gas emissions to 1990 levels by 2020. The SCS is an integrated element of the regional transportation plan and builds on a *Regional Comprehensive Plan* (RCP) developed in 2004 and updated in 2011 in conjunction with the transportation plan to evaluate alternative land use scenarios to promote smarter growth and elevate the role of public transit in people's daily lives. Transit received 36 percent of the funds for the first 10 years of the 40-year plan; highways received 34 percent (largely high-occupancy lanes on existing freeway corridors). This allocation for transit will continue to increase to 57 percent in the next decade. Other related plans include the *Active Transportation Program* for *Safe Routes to School* and *Safe Routes to Transit* and incentives for sustainable development. The plan calls for development of activity-based models, under development at the time of the 2050 RTP, for use in the next plan update.

What makes this LRTP exemplary?

Linking Transportation with Land Use – Long before SB 375, SANDAG was at the forefront of alternative land use scenarios and their effect on transportation and greenhouse gas emissions. Tying land development plans to transportations plans of all types is a hallmark of this transportation plan.

Performance Measures and Tracking – Bolstered by state requirements to reduce greenhouse gases, the San Diego region continually monitors how well the transportation plan is progressing through an expansion of the *Performance Measurement System* (PeMS) to incorporate measures for multiple modes of travel.

Equity in Public Involvement – A *Stakeholders Working Group* (SWG) was established to involve persons with particular expertise, but also to further involve minority and low-income communities, in framing key elements of the plan, including the Public Participation Plan. To incentivize involvement, SANDAG established a mini-grant program to focus the SWG on its concerns in a timely and meaningful manner. To encourage participation and ensure participants felt they were heard, the chair of the SWG was the first Vice chairman of the SANDAG Board.

San Diego Association of Governments

Counties Served: 1

MPO Area Covered: 4,260 sq. mi.

Statewide: 163,695 sq. mi.

MPO 2010 Population: 3.1 million

Statewide: 37.3 million

Population Growth 2000-2010: 10%

Population Growth 2008-2050: 40%

MPO Density: 727 persons/sq. mi.

LRTP SUMMARIES

WASATCH FRONT REGIONAL COUNCIL

The Wasatch Front Regional Council (WFRC) serves as the MPO for the Salt Lake City and Ogden-Layton Urbanized Areas and is the designated MPO for Salt Lake, Davis, and Weber counties. In addition to transportation planning, WFRC works with smaller cities in the region to manage Community Development Block Grant funding and is involved in disaster mitigation planning for the entire Wasatch Front Region.

Wasatch Front Regional Transportation Plan, 2011-2040

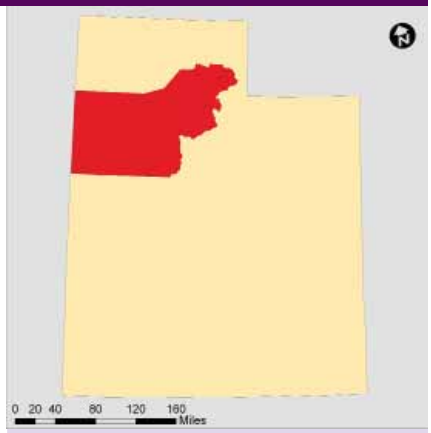
Based on a previously adopted regional land use and transportation vision, *Wasatch Choice for 2040*, WFRC adopted its current LRTP on May 26, 2011. Its goal is to enhance the ability of the region's transportation networks to successfully meet the expected growth in travel demand through the year 2040. Scenario planning was used as a strategic planning tool along with travel demand modeling that incorporated several regional land use inventory and environmental databases, including *Utah's Planning Environmental Linkages* (UPEL), developed by BioWest, and Utah Department of Transportation (UDOT's) UPLAN, an interactive GIS mapping platform and planning tool that allows users to better visualize regional transportation projects and data. Four alternatives were reviewed and refined by local community planners and engineers, elected officials and the general public. Alternatives included a No Build System, Current Plan, and two Build Alternatives developed by two teams made up of select members of UDOT, Utah Transit Authority (UTA), and WFRC staffs. The four alternatives were evaluated by the public and policy-makers, and then modifications were made to try and incorporate as many projects as affordable. Objectives included increasing mobility through mode choice, minimizing traffic congestion while maintaining the number of vehicle miles traveled per capita, and enhancing the region's economic competitiveness while reducing environmental impacts and improving air quality.

What makes this LRTP exemplary?

Project Selection and Phasing – A preferred alternative was selected through a regional visioning exercise and then refined to include core highway and transit systems, with a few additional high-performing individual projects that came from the visioning process. Their selection was based on technical merit and public input.

Visualization – Website includes ArcGIS Explorer Online interactive map of the RTP that is easy to use and includes summary information on the facility.

Plan Implementation – Recommendations of the 2040 RTP are constantly monitored to determine condition and operating efficiency. WFRC developed a system to monitor and manage its transportation systems. Each year, it publishes a report entitled *Surveillance of Land Use and Socioeconomic Characteristics* to monitor trends in population and employment data.



Wasatch Front Regional Council

Counties Served: 5 (partial counties))

MPO Area Covered: 1.777 sq. mi.

Statewide: 84,897 sq. mi.

MPO 2010 Population: 1.6 million

Statewide: 2.8 million

Population Growth 2000-2010: 17.6%

Population Growth 2010-2040: 55%

MPO Density: 879 persons/sq. mi.

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Compliance with Federal and State Requirements

CHAPTER 3

EMPHASIS AREAS

POLICY AND FUNDING

Surface Transportation Legislation
- Performance Management
- Metropolitan Planning Requirements
- FHWA Regulatory Reviews
- New Starts/Small Starts Regulations

Strategic Use of Public Private Partnerships (P3) for Transit and Tolling
- Exemplary P3 Projects
  - Denver RTD's Experience
  - Congestion Pricing and Tollways

Revenue Sources – Known and Potential
- Leveraging Local Funds
- Innovative Policies and Incentive Programs
  - Mileage Based User Fees
  - Congestion Parking Strategies

Implementation Assistance

REGIONALISM

Regional Planning

Harmonizing Master Plans
- Freight Plan Update
- Strategic Airport Plan (2015-2050)
- Port of Miami 2035 Master Plan
- Countywide Bike/Pedestrian Plan

Statewide Strategic Plan Updates
- 2060 Florida Transportation Plan
- Florida's Strategic Intermodal System
- 2012 Legislative Session

Air Quality Standards and Compliance

Regional Activity-Based Modeling

SUSTAINABILITY

Transportation Systems Management and Operations

Land Use and Transportation Connection

Livability Planning

Public Health

Equity: Access and Affordable Housing

Safety and Security

Sea Level Rise Resiliency

ENGAGING THE PUBLIC

Environmental Justice

Integrating Emerging Technologies

Visualization Techniques

EMPHASIS AREAS – POLICY AND FUNDING

Areas of emphasis in this category include any policy directives or emerging issues associated with funding availability or sources. The primary issue in this category is federal surface transportation legislation which not only affects levels of funding to support roadways and transit, but also determines how the nation's metropolitan regions must plan for their long-term transportation needs. FHWA regulates and monitors how each MPO carries out their mission as required by federal law. Historically, federal funding has made a number of major capital investments possible with the U.S. Department of Transportation (DOT) serving in the role of a financial and oversight partner in local projects. A rigorous, competitive, and time-consuming process is required for local sponsors to obtain federal support to implement a new transit project, also referred to as a New Start project. The days of local representatives lobbying for "earmark" funding are gone. Today, funding is tight and competition is steeper. As well, mature transit systems are experiencing sizable obligations to maintain a state-of-good-repair for their systems and vehicles. Roadways and bridges are aging and the ability to maintain acceptable safety standards is getting harder. A number of ideas have emerged, but none that are either popular or easy to implement. Nonetheless, local MPOs must find solutions to meet the transportation demands of growing populations with or without federal support.

MAP-21 updates, information, training opportunities, and guidance can be found at www.fta.dot.gov/map21/

SURFACE TRANSPORTATION LEGISLATION. On July 6, 2012, President Barack Obama signed a 27-month bill entitled Moving Ahead for Progress in the 21st Century (MAP-21). The bill passed Congress on June 29, 2012 by a wide margin in the House of Representatives of 373 to 52, and 74 to 19 in the Senate. Effective October 1, 2012, this $105 billion jobs-creation bill continues spending at current levels. The Congressional Budget Office reviewed the Senate Conference Report and estimated that the bill would reduce budget deficits by $16.3 billion from 2012-2022. It's been two years and nine months since the September 30, 2009 expiration of the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU). Earlier versions of the bill included provisions to advance the Keystone XL Pipeline project and prevent the Environmental Protection Agency from regulating harmful coal ash waste from power plants. Instead, a provision to extend lower student loan interest rates, reauthorization of national flood insurance, and a program to distribute restoration funds to Gulf Coast recipients who were damaged by the BP oil spill were included.

While maintaining federal-aid highway funding at current levels through fiscal year 2014, MAP-21 introduces new reforms to consolidating programs, and also eliminates dozens of programs to make more funding resources available to states and metropolitan areas to invest in their most critical needs. The new bill has taken a longer time to be written and adopted by federal leadership than its duration. On the heels of its creation, Congress will need to begin the process of developing consensus for a longer-term bill. The first order of business will be to identify new funding sources. As the Highway Trust Fund nears bankruptcy, the very issue that has prolonged the ability of Congress to reach agreement remains unresolved.

Some key provisions of MAP-21 include:

Project Delivery Streamlining – Consensus was reached early in negotiations that the process required to deliver projects takes too long and is too complex. Streamlining measures include a maximum four-year deadline for agency reviews subject to loss of funding; and the National Environmental Policy Act (NEPA) expansion of categorical exclusions for projects requesting less than $5 million in federal funding, projects within operational right-of-way, and disaster rebuilding projects.

Performance Measures – The highway program is focused on key outcomes, such as reducing fatalities, improving road and bridge conditions, reducing congestion, increasing system reliability, and improving freight movement and economic vitality.

National Highway Performance Program – This program combines the interstate maintenance program into a new program to address the interstate system and the national highway system with a priority to better maintain roads and bridges.

America Fast Forward – In an effort to leverage fewer dollars to advance more projects, this provision expands the existing Transportation Infrastructure Funding Innovation Act (TIFIA) to a billion dollar per year program and increases the maximum share of project costs from 33 to 49 percent. Other provisions include eligibility of funding for related projects and favorable terms for rural areas.

National Freight Strategic Plan – Making freight a national priority, MAP-21 provides incentives for states that fund projects to improve freight movement.

- This fits well with the 2012 State of Florida HB 599 requirement for a statewide *Freight Mobility and Trade Plan* to be developed by July 1, 2013, and the State requirement to emphasize freight issues and needs in all transportation plans, including the *Florida Transportation Plan* and the *Strategic Intermodal System Plan*.

Harbor Maintenance Trust Fund – Provision is made for the full expenditure of all funds collected in the trust fund for the operation and maintenance of the nation's federally maintained ports. A goal is established of 95 percent availability of the nation's ports and waterways within 3 years and requires the Administration to provide annual estimates towards achieving this goal.

- This fits well with the 2012 State of Florida HB 599 which calls for a statewide *Strategic Port Investment Initiative* that includes funds of $35 million per year.

MAP-21 also includes some provisions to enhance transportation planning at the local, regional, and state level. With the passage of MAP-21, the Miami-Dade MPO has the advantage of some certainty in knowing the requirements it will be following as it prepares for the upcoming LRTP process. To that point, some requirements are included in the new bill along with a new focus on performance measures that will sharpen the focus on results that reflect national priorities.

Performance Management. MPOs must establish performance targets for safety and state of good repair, including a periodic reporting of system performance outcomes to the U.S. DOT Secretary. While the concept of performance management is simple, the rulemaking to implement the establishment of performance measures and targets for reporting will be more complex, involve extensive coordination, and take considerable time to fully implement. The U.S. DOT Secretary will promulgate a rulemaking within 18 months of MAP-21 in consultation with State DOTs, MPOs, and other stakeholders concerning the types of performance measures set forth in 23 U.S.C. 150(c) for the highway and interstate programs, collectively referred to as the "National Highway Performance Program." One year following this rulemaking, including time for public review and comment, States shall set performance targets to reflect these measures. MPOs must then set consistent targets for their transportation plans and Transportation Improvement Plans within 180 days of State adoption of performance targets. These targets must also be coordinated with transit providers. To this end, MPOs are required to appoint transit providers to their Board no later than September 30, 2014, two years after the enactment of MAP-21. A possible timeline is illustrated in **Exhibit 3-1**. Note that timeline is shown by quarter of fiscal years beginning October 1 of each year. MAP-21 is effective 10/1/12 .

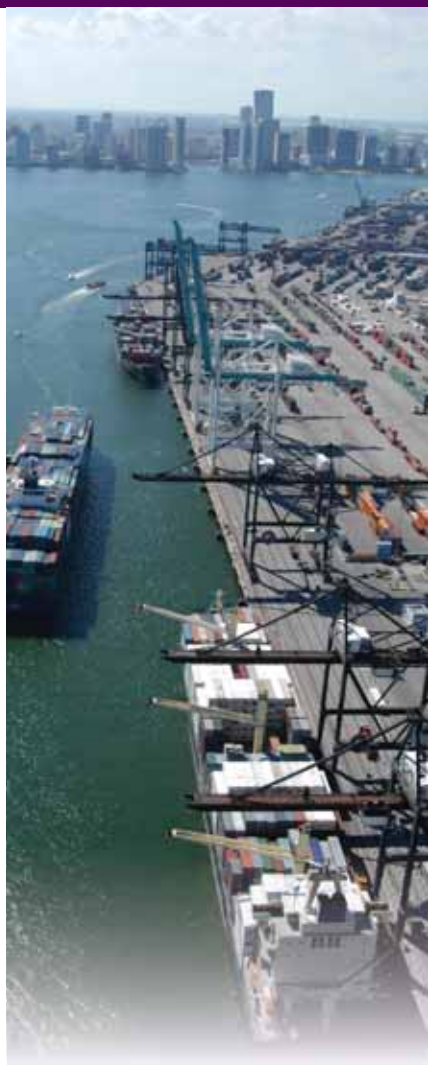
No later than October 1, 2017, U.S. DOT must submit a report to Congress evaluating the effectiveness of performance-based planning and assessing the technical capacity of MPOs in small areas to undertake performance-based planning.

Different targets may be established for urban and rural areas. No later than four years after MAP-21 is enacted and every two years thereafter, states shall report to the Secretary proscribed aspects of conditions, effectiveness of investment strategies, progress in achieving targeted outcomes, and how congestion at freight bottlenecks is being addressed. Four programs will require the establishment of standard measures and targets.

EXHIBIT 3-1: Schedules for MAP-21 Performance Measures Compared with South Florida Plan Schedules (Fiscal Year)

		FY 2013				FY 2014				FY 2015				FY 2016			
ACTION	**DATE**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
MAP-21 Effective Date	10/01/12	●															
DOT Performance Measures	04/01/14																
State Performance Targets	04/01/15																
MPO Performance Targets	10/01/16																
State Reports to DOT	10/01/17																
Miami-Dade LRTP	10/29/14																
Regional LRTP	04/01/15																
Regional Freight Master Plan	09/30/13																
Southeast Florida Partnership Regional Vision and Blueprint	12/31/14																

Source: MAP-21 Subtitle B-Performance Management, Sec. 1201 Metropolitan Transportation Planning.



- **National Highway Performance Program:** Will require minimum standards for bridge and pavement management systems, performance measures related to the Interstate and National Highway systems, and data elements necessary for collection and reporting. Separate measures for states to use will be established for condition of pavement and performance on each and condition of bridges on the National Highway System only.
- **Highway Safety Improvement Program:** Will require the measurement of serious injuries and fatalities in terms of an absolute number and per vehicle miles traveled.
- **Congestion Mitigation and Air Quality Program:** Will require the measurement of traffic congestion and on-road mobile source emissions.
- **National Freight Movement:** Not yet determined, subject to rulemaking.

In conjunction with the rulemaking concerning the National Highway Performance Program, MPOs are required to coordinate the establishment of performance measures outlined above for highways with transit providers to ensure consistency with 49 U.S.C. 5326(c) *Transit Asset Management System* and 5329(d) *Public Transportation Agency Safety Plan*.

Metropolitan Planning Requirements. In addition to the transformational focus on performance measures and reporting, the plan contents must now include a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities.

The MAP-21 planning process must consider all modes of transportation including accessible pedestrian walkways and bicycle transportation facilities in a manner that is continuing, cooperative, and comprehensive to the degree appropriate, based on the complexity of the transportation problems to be addressed.

Scenario development is optional. This approach has been used by many MPOs across the U.S. with good success and will continue to be. For those regions that elect to develop multiple scenarios, certain factors are encouraged for consideration:

- Investments strategies
- Population distribution and employment
- A baseline scenario for the reporting of performance (which will be required for those that voluntarily develop scenarios)
- A scenario that improves on the baseline for as many of the performance measures as possible
- A revenue-constrained scenario(s), and
- Estimated costs and potential revenues available to support each scenario

Planning factors established by SAFETEA-LU remain unchanged. However, a new set of national goals is established relative to the Federal-aid highway program. These goals must also be applied in a performance-based approach to metropolitan transportation planning and decision making.

Other important features of MAP-21 include:

- The structure of all MPOs, designated as Transportation Management Areas, must include officials of public transportation agencies (including transit agencies) that administer or operate major modes of transportation in the metropolitan area.
- A pilot program is established to fund planning efforts for Transit-Oriented Development (TOD) projects. The pilot is funded at $10 million in each of fiscal years 2013 and 2014.
- Consultation requirements in the development of long-range transportation plans are expanded to include state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation. Comparison with state conservation plans or maps, if available, is recommended.
- Methods employed in ensuring participation by interested parties shall, to the maximum extent practicable, include visualization techniques to describe plans, and be made available in electronically accessible format and means such as the worldwide web.

FHWA Regulatory Reviews. FHWA provides guidance to MPOs during regularly scheduled certification reviews. However, in no event do they dictate decisions made at the local level or determine how a region should qualify what revenues are reasonably expected to be made available to carry out the plan. MPOs, the transit operation, and the state shall cooperatively develop estimates of expected funding levels.

The federal requirements for the transportation planning process, public involvement, and transportation plan content that MPOs must meet in the development of LRTPs are described in 23 CFR 450.306 (transportation planning process), 450.316 (public involvement), and 450.322 (transportation plan content).

State planning requirements are described in the *Florida Community Planning Act*, Chapter 2011-139 Laws of Florida. State of Florida emphasis areas, priorities, and other transportation planning requirements are described in the Florida House Bill 599, *Transportation and Mitigation Programs* and the Florida Senate Bill 1998, *Transportation Budget Conforming Bill*. Other statewide priorities are included in Governor Rick Scott's *Florida Transportation Vision for the 21st Century* dated August 5, 2011.

FHWA, in cooperation with FTA, developed a summary called *"FHWA's Strategies for Implementing Requirements for LRTP Update for the Florida MPOs."* This report

MAP-21 NATIONAL GOALS

1. **Safety**:
   To significantly reduce traffic fatalities and serious injuries on all public roads.
2. **Infrastructure Condition**:
   To maintain the highway infrastructure asset system in a state of good repair.
3. **Congestion Reduction**:
   To achieve a significant reduction in congestion on the National Highway System.
4. **System Reliability:**
   To improve the efficiency of the surface transportation system.
5. **Freight Movement and Economic Vitality:**
   To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
6. **Environmental Sustainability:**
   To enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. **Reduced Project Delivery Delays:**
   To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

is often called the "expectations letter." The summary report was distributed as a draft document to the Florida Metropolitan Planning Advisory Council (MPOAC) staff directors meeting on June 15, 2012. The draft document has had substantial review from FDOT and MPO Advisory Council staff in the spring of 2012; however, additional comments are being compiled for a final document not available at this writing.

The general observations from MPO and FDOT staff were that "the tone and language of the expectations letter implies the recommended strategies are requirements; however, none of the draft strategies are required by law or rule." The review comments said that some of the recommended strategies do not add value to the LRTPs and will instead produce inaccurate, misleading information. There is also concern that the federal requirements do not clarify what requirements are for FHWA projects and what requirements apply to FTA projects or both. For example, the expectations for operations and maintenance and revenue sources may be different for transit. A summary of the FHWA expectations letter is provided in **Appendix B**. The expectations letter, comments and conclusions reached will need to be reviewed in light of MAP-21 for which federal guidance is currently being drafted. Policy guidance development is expected to occur incrementally with time for public and agency review and comment.

New Starts/Small Starts Regulations. In the same year Congress passed MAP-21, FTA is considering sweeping revisions to the Major Capital Investment project funding program commonly referred to as New Starts and Small Starts. The program began as a means of funding the nation's heavy rail program. It has since evolved into a program that funds both light rail transit and bus rapid transit. An extremely complex set of criteria and thresholds have been established that many say favors long-haul trips. The nation's priorities have changed to favor less expensive bus and streetcar projects that serve smaller, shorter trips traveling within transit-oriented land use corridors. FTA has been responsive to input from the industry and is evaluating comments received from a Notice of Proposed Rulemaking (NPRM) issued in January 26, 2012. The New Starts process will be defined by the recently enacted MAP-21, which directs the Administration to formulate guidance according to enacted law. Some recommendations in the NPRM are inconsistent with MAP-21. Other provisions will require yet additional guidance following the final rulemaking process.

Two broad goals are provided in FTA's proposal. First, FTA seeks to evaluate a wider range of transit benefits suggested by Secretary LaHood's 2010 announcement. Second, FTA seeks to streamline the New Starts/Small Starts process to eliminate a requirement of a "medium" rating for cost effectiviness. Future guidance is expected to be issued with an additional 60-day comment period once released. Below are some highlights of proposed changes by FTA, many of which are supported and have been advocated by the industry.

- Cost-effectiveness is substantially simplified to be annualized cost per trip with extra weight given to transit dependent trips (a multiplier of two is proposed).

"We are making this change (to eliminate the "medium" cost-effectiveness rating requirement in the New Starts policy) in order to give meaningful consideration to full range of benefits that transit can provide. These include not only mobility-oriented benefits such as transit travel time, but also important economic development, environmental, social, and congestion relief benefits."

Secretary Ray LaHood, January 13, 2010

Cost-effectiveness is focused on mobility benefits, or the number of trips, rather than the current multi-faceted calculation of user benefits.

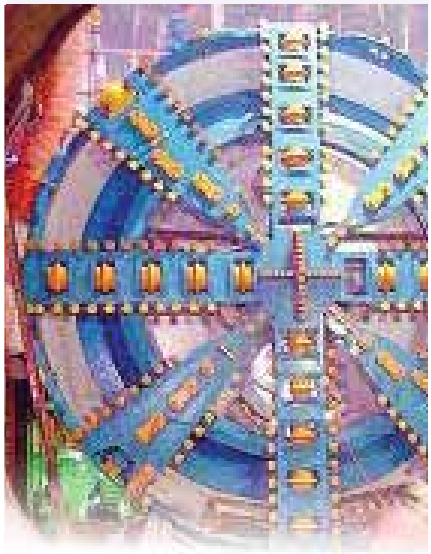
- Operational effectiveness would be a measure of cost per "place-mile," defined as seated plus standing capacity of vehicles multiplied by annual revenue miles for those vehicles.
- Cost would exclude proposed expenditures for "betterments" that are not necessary to deliver mobility benefits or operational efficiencies. Betterments could include aesthetic enhancements, accessibility to adjacent land use, Leadership in Energy and Environmental Design (LEED) certifications, Federal policy-driven enhancements, and more.
- The Transportation Systems Management, or Baseline Alternative, is eliminated in favor of comparison to an existing, or No Build Alternative, or a scenario with and without the project.
- Travel demand modeling is no longer a requirement. More simplified forecasting methods, such as the Aggregate Rail Ridership Forecasting Model (ARRF) or spreadsheet tools, are now accepted means of projecting ridership. More complex, four-step modeling may be projected to a future horizon year at the project sponsor's option.
- Pre-qualifications or warrants for projects that meet certain threshold measures based on the corridor or project characteristics would eliminate further technical analysis.
- Environmental benefits will include measures that reflect livability principles such as public health, noise pollution, and reductions in local infrastructure cost related to more compact land use development.
- Economic development would include an additional assessment of impacts on affordable housing and equity issues. As an option, project sponsors may calculate favorable outcomes from an agglomeration of land uses within the project area measured as monetized environmental benefits (pollutant emissions, energy use, accidents, and fatalities) compared to changes in vehicle miles traveled (VMT).

Final guidance is still pending. New Starts applications for the 2014 budget and annual recommendations to Congress are being processed using 2009 evaluation criteria.

On December 27, 2012, FTA unveiled a Final Rule for it Major Capital Investment Program for New Starts and Small Starts. Although future guidance is required to implement all of the streamlining features of MAP-21, the Final Rule is a major step forward. Two broad goals are:

1. *Measure wider range of benefits, and*
2. *Support streamlining in new measures.*

The Final Rule will be published in early January 2013.



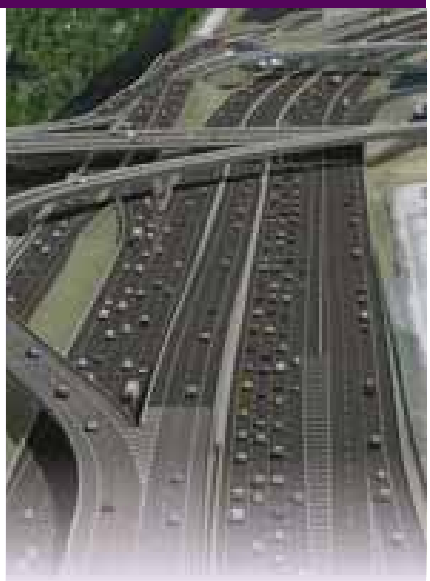
STRATEGIC USE OF PUBLIC PRIVATE PARTNERSHIPS (P3) FOR TRANSIT AND TOLLING. P3 arrangements are playing a larger role in the delivery of transportation infrastructure projects in the United States as state and local governments address ways of dealing with growing infrastructure needs amidst shrinking budgets. It's important to understand what P3 arrangements can accomplish and in what circumstances they are most successful. In its truest form, a P3 consists of a design-build arrangement whereby the contractor assumes financial and performance risk associated with project implementation and operation. The contractor is then rewarded in return for financing some of the up-front development costs and funding charges and for insuring a pre-

determined level of performance in the delivery and operation of the project. These contractual arrangements between a public entity and the private sector involve reimbursement for all or some of the cost through payments typically secured through future revenue streams associated with toll or congestion pricing charges or through funds secured through issuance of bonds.

P3s have historically been used more extensively worldwide than they have in the United States, owing largely to public policies in the United States that have discouraged toll roads. However, this is changing given the increasing budgetary pressures faced by most infrastructure providers. Reliance on the 1993 gas tax based on a flat rate per gallon is limiting revenues generated by more fuel-efficient vehicles. Policies and regulations regarding P3s have evolved over the course of the last two decades. Beginning in Virginia and California, some 30 states and Puerto Rico have adopted enabling legislation that allows for P3 project delivery arrangements. Most P3 projects in the United States involve highway investments owing to the reliability of future revenue streams from users of the facilities and taxpayers. In the past 20 years, only one half of one percent of total transportation infrastructure investment was delivered through P3s. That trend is changing with $10 billion in major projects underway in Florida, California, Texas and Virginia. (Source: Congressional Budget Office, January 2012)

South Florida is no stranger to P3s and currently is delivering the Port of Miami Tunnel and the I-595 Managed Lanes project through P3 arrangements involving private investment equity/total cost of $80/1,073 and $208/1,834 million, respectively. Both consortiums are compensated through availability payments based on keeping the facility available at agreed-upon service levels. Both lease terms are for a period of 35 years. The popular 95 Express managed lanes project (now in operation on I-95 from Glades Road Interchange to downtown Miami with extensions underway to Broward Boulevard and points north) is being delivered through design-build-finance contracts, but without a private equity position and operations responsibility from the contractor. 95 Express does involve an ongoing contribution to transit service and operations cost as part of the Urban Partnership Agreement with the U.S. DOT and the Miami-Area Urban Partners. Both the 95 Express and the I-595 Managed Lanes projects provide for free use by buses and registered high occupancy vehicle users. In the case of the I-95 managed lanes, projections for revenues generated by users of the system do not fully cover operations and maintenance cost of the facility and transit service over the long term; however, they make a substantial contribution.

The ability to advance projects earlier than public funding availability may allow is a significant benefit to public agencies and the system users as earlier implementation can provide improvements sooner and reduce the ultimate cost of construction. Efficiencies introduced by the private sector can lead to additional value-engineered cost savings provided by more experienced project delivery teams. Further, secondary development is also a big winner where accessibility and mobility improvements encourage adjacent private sector development.



I-595 Managed Lanes project provide for free use by buses and registered high occupancy vehicle users.

In addition to accelerating project timing, P3 arrangements can be attractive to the private sector when the business case offers them an opportunity to profit from ongoing operations, as is the case in certain tolled facilities, rail transit, and station area development projects. In most cases, the projects are large-scale and have sufficient income-generating potential to offset the risk that the private sector would be assuming. The upside to a P3 arrangement from the perspective of the public agency is that they can reduce some of their risk associated with the construction and operations of the project and typically reduce their overall cost. The downside to the public agency entering into such arrangements is that they must give up some degree of control, and while they may realize service and revenues at an earlier date, the level of return is lower because they must share the revenues with the private party or pay interest charges in return for the contractors absorbing some of the financial risk. Another deterring factor is the fact that the cost of private borrowing can be more expensive than public financing options.

The benefits associated with early implementation are clearly demonstrated in Los Angeles where transit projects are being implemented in 10 years with bond funds drawn over the next 30 years. With the enactment of MAP-21 this year, the America Fast Forward (AFF) element provides for this type of project acceleration through available funding of $1 billion per year through fiscal year 2014. This nine-fold increase from the previous annual funding of $122 million per year for the Transportation Infrastructure Finance and Innovation Act (TIFIA) program will help to accelerate many more projects. TIFIA has been involved in most of today's large-scale highway P3s. Senator Barbara Boxer (D-CA), the proponent of AFF, estimates that the increased level of funding could leverage $30 billion a year in private investment.

Exemplary P3 Projects. A review of the P3 approach to transit by the Denver Regional Transportation District (RTD) and a discussion of congestion pricing and tollways follows.

DENVER RTD'S EXPERIENCE. The Federal Transit Administration's Public Private Partnership Pilot Program, known as Penta-P, allows for private participation in the financing of public transit infrastructure. The Denver RTD Eagle P3 Project, the first such pilot project, consists of two east-west electrified commuter rail lines (the Gold and East lines) with 13 stations, including the Denver Union Station hub and a commuter rail maintenance facility.

On August 31, 2011, FTA announced award of a $1.03 billion Full Funding Grant Agreement (FFGA) to RTD, and on that same day, RTD issued a Notice to Proceed to Denver Transit Partners (DTP), the Eagle P3 Project concessionaire, under a design-build-finance-operate-maintain (DBFOM) contract with RTD. The arrangement with DTP calls for repayment of a $398 million tax-exempt private activity bond issue through annual service payments from RTD based on DTP's operating and maintenance performance. DTP's participation in the Eagle P3 includes $450 million in private financing giving DTP an equity position.

"We looked at ways to break down the highway vs. transit rivalry and started looking at mobility... highway and transit as coordinated pieces of a comprehensive strategy to maximize mobility in a project with limited available right-of-way. We set our sights on a project that was a win-win (proposition) for both transit and highway. What emerged was the T-REX project"

Cal Marsella,
RTD General Manager
1995-2009

Denver has a long history with P3 projects, the first with the Transportation Expansion (T-REX) Project to construct a combined light rail and highway expansion project on Southeast I-25 under a design-build approach. T-REX was a top priority in the *Metro Vision 2020* regional transportation plan adopted in November 1998. More recently, the Union Station Neighborhood Company was selected in November 2006 to construct their major transit hub in the heart of Downtown Denver at a historic structure.

RTD's ambitious voter-approved transit program to expand rail and bus service throughout the eight-county Denver Metro Area is well on its way to build 122 miles of commuter rail and light rail, 18 miles of bus rapid transit service, add 21,000 new parking spaces, redevelop Denver Union Station, and redirect bus service.

Denver's RTD has used P3 arrangements to manage the many challenges of major capital projects associated with their FasTracks program. Considerations include:

Schedule: Projects can be advanced more quickly through design-build arrangements that benefit from a single point of responsibility. Integration of risk for design and constructability can result in cost savings.

Budget: Quicker project delivery reduces project cost, and well-crafted performance specifications can help in managing change orders.

Resources: Large-scale projects draw more competitive interest from a larger pool of contractors. Larger teams bring with them greater buying power and economies of scale.

Fiscal Sustainability Task Force (2010/11). In June of 2011, Denver RTD's Board of Directors reviewed results of an eight-month long study undertaken by a Long Range Fiscal Sustainability Task Force to identify creative solutions to address the region's economic challenges of balancing their budget in today's shrinking sales tax revenues and rising operating costs. Potential actions reviewed by the transit property included partnerships-privatization; however, their evaluation of impact and timing was described as "strategic."

Denver's T-REX project

A table of potential actions along with the impact of those actions and the timing of the results are shown in **Exhibit 3-2**.

EXHIBIT 3-2: Denver RTD's Fiscal Sustainability Task Force Recommendations

Potential Action	Impact	Timing
Removing volatility from sales and use tax projections	Stabilizes Budget	Short
Capital replacement funding	Maintains Fleet	Short
Charging for parking	High	Short
Naming rights	Medium	Short
Naming rights	High	Short
Technology and energy innovation	Medium	Short
Service optimization	High	Medium
Self-collect sales tax	High	Medium
Value capture	High	Medium
Paratransit	Medium	Medium
Tolling and managed lanes	High	Long
Fare recovery rate	Medium	Ongoing
Partnerships-Privatization	Strategic	Strategic

Source: Denver RTD, June 16, 2011

The task force review of partnerships included increments of the sales and property tax, development impact fees, and special district taxes. Station development partnerships were also reviewed as a potential way to generate revenues through the sale of air rights, share of proceeds if land is contributed as equity, or the outright sale of the land. In the case of Denver, with an established and growing transit system with numerous stations, it was estimated that a typical station location could generate revenues of approximately $100,000 per station per year.

The task force suggested that a new approach may be to create value at stations by reorienting the use of existing funds programmed for transit stations to maximize development value at those stations through physical improvements (station design and orientation) and through the strategic use of land owned by the RTD.

Transformation through Transportation (T3). On September 27, 2011, the RTD hosted an invitation-only industry forum attended by 240 private sector participants. RTD's board invited members of engineering, construction, financial, technology, and major corporate firms to come forward with innovative solutions for capital programs, operations and maintenance, and technology. The event led to a greater understanding of feasible opportunities and resulted in two unsolicited proposals, one of which was advanced into full solicitation for proposals.

CONGESTION PRICING AND TOLLWAYS. Variable priced lanes or value pricing is a way of using market demand to reduce traffic congestion and increase throughput of vehicles within existing transportation corridors while providing a revenue stream. Managed lanes placed within a toll-free highway by converting existing lanes or adding new lanes are also referred to as Special Use Lanes (SULs) that are used by drivers who choose to pay a toll to avoid congestion. In many cases, transit vehicles use these SULs for free to provide faster alternative modes of transportation and in many cases, carpools (high occupancy vehicles) are allowed to register for toll-free use of SULs. Toll rates can be established for time-of-day (set schedule), congestion pricing (varies with traffic levels), or a flat toll (same price all day). When higher occupancy vehicle use is permitted free of charge in the congestion pricing strategy, the lanes are referred to as High Occupancy Toll (HOT) lanes. Open-road technology provides for toll collection using overhead gantries that electronically trigger payment via devices such as SunPass eliminating the need for traditional toll booths. Variable pricing strategies are often employed in the conversion of High Occupancy Vehicle (HOV) lanes when travel volumes exceed acceptable level of service capacity for these lanes and opportunities for widening to add more travel lanes are limited.

Congestion pricing charges a higher toll during rush hour providing an incentive to travel during off-peak times or use public transit as a means of reducing personal travel cost. By spreading out the traffic volumes over a longer time period, congestion is minimized, traffic speeds are increased, and more vehicles are able to use the same travel lanes. Revenues created by those who are willing to pay to use the SULs to enjoy the time savings during those peak times can be used to fund maintenance and operation of the facilities, and sometimes to fund transit operations and capital cost as well. Revenues can also be used to advance projects earlier than otherwise possible through P3 arrangements whereby contractors agree to receive availability payments.

Initial concerns expressed prior to the implementation of the 95 Express managed lanes on I-95 concerned the belief that the lanes would in effect impose an "environmental tax" because only those in a higher socio-economic class would be able to afford to use them. It is for this reason that many in leadership at the federal and local level have supported SULs for new roadway capacity, as long as the same toll-free capacity for the corridor is maintained. The good news is that managed lanes added to existing corridors afford additional benefits for improved traffic flow on all lanes, and improved transit opportunities with better travel times for those that are transit-dependent. Other means of providing greater equity to all users is the provision for high occupancy use within the managed lanes, exempting the toll charges for HOVs for vehicles carrying more than one passenger.

CONGESTION PRICING STRATEGIES

- Variable priced lanes
- Variable tolls on entire roadway or bridge
- Cordon – congested areas
- Area-wide – all roads

BENEFITS OF CONGESTION PRICING

- Predictable travel time.
- Increased vehicle through-put.
- Reduced fuel consumption and vehicle emissions.
- Excess revenues provide additional funding for other transportation projects

Potential challenges to implementing managed lanes could include:

- Lack of private sector interest
- Willingness of the public to pay tolls
- Right-of-way constraints for additional lanes on existing highways
- Cost escalation and uncertainties of cost estimation
- Financing cost for the project
- High cost to enter market and long-term implementation and eventual return on investment

Florida Statute allows two types of tolling – Turnpike (100.03) and Congestion Pricing (100.04). A High Occupancy Toll (HOT) Lane is a congestion pricing approach to increasing throughput which also incorporates some High Occupancy Vehicle (HOV) use by express buses, carpools and vanpools who use these lanes for free while single-occupant vehicles pay a toll based on real-time level of congestion. Toll revenues typically help pay for operations and maintenance of the facility and sometimes pays for transit service.

In Florida, a number of managed lane projects have utilized concessionaire financing arrangements, including I-595 Express, 95 Express Lanes, Alligator Alley, US-1 Improvements, US19, I-4 Connector, Palmetto Expressway, Port of Miami Tunnel and First Coast Outer Beltway, all of which include concessionaire or builder financing terms. None involve mass transit projects and only I-595 and I-95 involve express bus use and partial funding for transit.

South Florida has two HOT lanes projects in various stages of completion - the 95 Express and the I-595 Express. The 95 Express is being implemented in a phased approach and began initial operations in 2008. Phase I is now operating with good success between Golden Glades and a point just north of I-395/SR-836. Phase 2 will extend 95 Express to Broward Boulevard in Broward County and is expected to open in late 2014. Construction is also underway on I-595 Express for another South Florida managed-lane project which is expected to carry 300,000 vehicles by 2034.

95 Express is an exemplary regional project involving Miami-Area Urban Partners:

FDOT District Six (implementing agency)
Broward County MPO
Broward County Transit
FDOT District Four
Florida's Turnpike Enterprise
Greater Miami chamber of Commerce
Miami-Dade MPO
Miami-Dade Expressway Authority
Miami-Dade Transit
South Florida Commuter Services
South Florida Regional Transportation Authority
U.S. Department of Transportation

SOUTH FLORIDA EXPRESS LANES ENVISIONED

The success of the 95 Express has inspired a plan to use congestion pricing to improve travel speeds and reliability with a network of express lanes in Miami-Dade and beyond. On October 25, 2012, the Miami-Dade MPO endorsed a variable toll express lane concept plan for segments of the Homestead Extension of Florida's Turnpike. In early 2013, the Florida Department of Transportation will complete the first phase of the Regional Transportation Concept of Operations Study as part of its Transportation Systems Management & Operations Strategic Plan. The plan builds on the 95 Express "proof of concept" and recommends a network of connected congestion priced express lanes that offer predictable travel choices. This is a performance-based operations and planning system that links real-time and historical data with future planning.

A Regional Concept of Transportation Operations

Source: FDOT

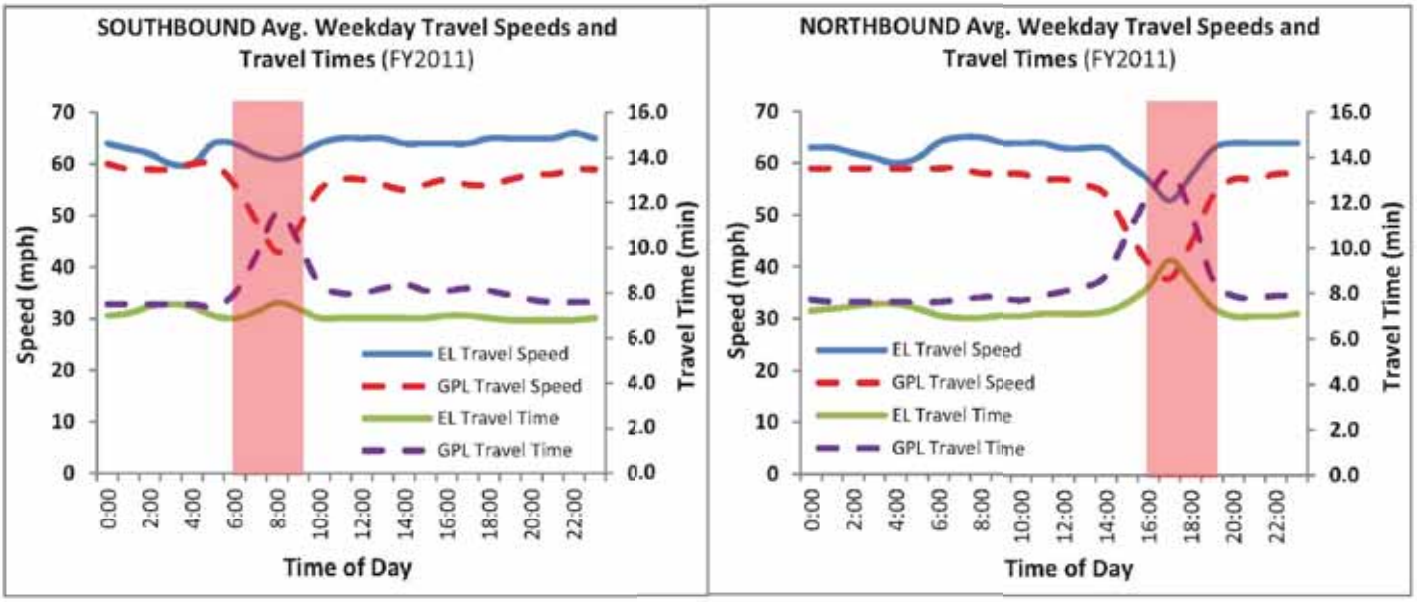
95 Express resulted from the conversion of an HOV lane that was not providing optimum travel speeds. An additional lane was added from the median to provide a two-lane facility in north and southbound directions. The facility does not guarantee travel speeds on the express lanes, but does set a performance standard of average speeds of 45 mph or above. The main goal of the project is to optimize the people-moving capacity by moving the highest number of people possible in the safest and most efficient manner. **Exhibit 3-3** illustrates 95 Express performance in terms of travel speeds and travel times for FY 2011. Buses and registered carpools are exempt from tolls to incentivize high occupancy use. Low-emissions buses were funded by the Federal Transit Administration with a $20 million grant for use on new express bus service between Broward and Miami-Dade counties.

Managed lanes are successful in reducing congestion in many parts of the country including Washington DC, Maryland, Texas, California, and Washington state, in addition to Florida.

REVENUE SOURCES – KNOWN AND POTENTIAL. Funding for transportation plans and projects comes from a variety of sources including the federal government, state governments, special authorities, public or private tolls, local assessment districts, local government general fund contributions (such as local property and sales taxes), and impact fees. Shortfalls in revenue relative to need at the local, state, and federal levels are impacting the Miami-Dade MPO and its local transportation partners by delaying needed transportation improvements. The shortfall particularly impacts operating assistance for transit operations and roadway maintenance.

In today's economic climate, the Miami-Dade MPO is facing a difficult set of choices to fund and prioritize the transportation needs of Miami-Dade County and their

EXHIBIT 3-3: 95 Express Weekday Travel Speeds and Travel Times



Source: 95 Express Fiscal Year 2011 Annual UPA Evaluation Report

respective local governments and transportation partners. Needs assessed for the 2035 LRTP were roughly twice the available funds. The current and projected level of tax revenues, new funding options, and the ability to leverage those funding sources, will be updated with the upcoming 2040 LRTP update. The 2035 "cost feasible" LRTP had fewer committed projects than in previous plans, and many important and popular projects are being delayed or deferred.

Of the $35 billion in total projected revenues identified in the currently adopted Miami-Dade MPO 2035 LRTP, approximately $25.5 billion, or 72 percent, is generated locally. (These amounts are expressed in year of expenditure dollars; total revenues are $19.5 billion expressed in 2008 constant dollars.) Revenues consist of transit fares, People's Transportation Plan (PTP) surtax revenues, county general funds, fuel taxes (includes the County's local option gas taxes and Miami-Dade's County's share of state gas taxes), road impact fees, Miami-Dade Expressway (MDX) revenues, and the County's share of the Florida's Turnpike Enterprise revenues. The remaining $10 billion in revenues, or 28 percent of the total, comes from either federal or state funding sources, including FDOT, FTA, and FHWA programs.

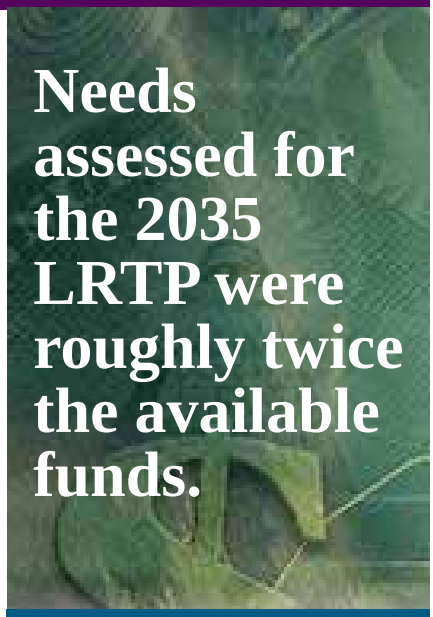
A comprehensive set of revenue options has been developed by the MPO Advisory Council (MPO AC) Revenue Study Commission for legislative consideration in 2013. The work completed by the Center for Urban Transportation Research (CUTR) analyzed fifty-six revenue options, later reduced to 14 of the most promising revenue options for state legislative consideration in 2013.

The primary criteria used to evaluate funding options adopted by the MPO AC were:

- Restoration of funds to the State Trust Fund
- Increased flexibility for local government
- Indexing (all local and state) gas taxes
- Protection of existing funds
- New/additional revenue sources

The MPO AC has since prioritized these revenue options to the top six highlighted in **Exhibit 3-4** along with potential revenues. Additional considerations for the remaining eight, items 7 through 14 are also shown.

The MPO AC recommendation is centered on the belief that by offering a cafeteria of choices there is a better chance of legislative success. The thinking is that a better economy and a new legislature elected in November 2012 will come to the conclusion that the gas tax is not a sustainable funding source for the state transportation program. The goal is to keep most revenue options on the table for now that could potentially bring in from $1 to $6 billion in new revenues per year. Statewide shortfalls are estimated to exceed $74 billion in unfunded transportation needs over the 20 year horizon for the next LRTP update. (Source: CUTR)



Miami-Dade 2035 LRTP Cost Affordable Plan ($YOE)

$35 billion total projected revenues

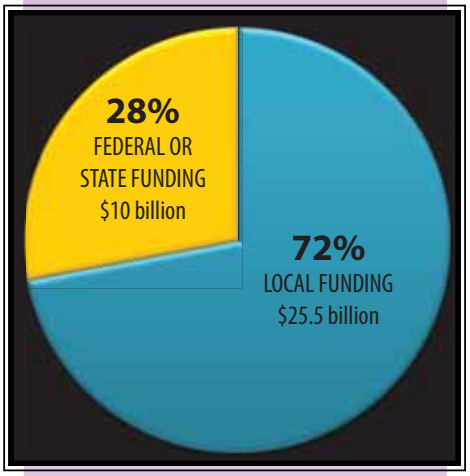


EXHIBIT 3-4: MPO Advisory Council Revenue Study Commission Recommendations

	Revenue Option	8-year Total ($ millions)	Annual Average ($ millions)
1	2-Cent Fuel Tax Increase per Year – 5 Years (10 cents) Indexed - *State Transportation Trust Fund (STTF)*	6,424	803
2	Index All Fuel Taxes not Currently Indexed – *Local*	918	115
3	1-Cent Municipal Optional Sales Tax – *Local*	6,637	830
4	VMT Study	-	-
5	5-Cent Local Diesel Tax - *Local*	576	72
6	Return MVL, Registration, Title Increases to STTF *(From General Revenue to STTF)*	3,301	413
7	State Sales Tax at 6% in Lieu of Fuel Taxes, with floor – STTF	1,087	136
8	Toll Rate Making	-	-
9	Regional Transportation Financing Authority at $100 Million/Year	3,200	400
10	Sales Tax on Motor Vehicle Parts & Services *(From General Revenue to STTF)*	5,331	666
11	Sales Tax on Battery Electric Vehicles (BEV) *(From GR to STTF)*	73	9
12	County $10 Registration Fee - *Local*	1,242	155
13	Alternative Fuel Decal Expansion - *STTF*	204	26
14	$100 Million in New Toll Projects	2,450	306

Source: MPO Advisory Council, June 2012

Florida 2012 Legislature. In 2012, the Florida Legislature passed House Bill 599 *Transportation and Mitigation Programs* and Senate Bill 1998 *Transportation Budget Conforming Bill* that significantly affects all modes of transportation. First, the Office of Transportation, Tourism, and Economic Development road project fund is transfered from Department of Economic Opportunity to FDOT. Second, it increases (up to $200 million annually) the amount of fees deposited into the State Transportation Trust Fund (STTF) from the proceeds of fees for original and duplicate certificates of title for motor vehicles. Funds provided are as follows:

- Beginning in 2013-2014 and annually for up to 30 years:
  - $10 million to fund any seaport project indentified in the adopted work program for the Seaport Investment Initiative,
  - $35 million transferred to Florida's Turnpike to be used, to the maximum extent feasible, for feeder roads, structures, interchanges, appurtenances, and other rights to create or facilitate access to the existing turnpike system.

- Beginning in 2013-2014 and annually thereafter:
  - $10 million transferred to the Transportation Disadvantaged Trust Fund,
  - $10 million to the Small County Outreach Program,
  - Remaining funds (up to $135 million) for transportation projects within the State for existing or planned strategic transportation projects, which are projects that connect major markets within the State or between Florida and other states that focus on job creation and increase the State's viability in national and global markets.

Senate Bill 1998 also requires FDOT provide a summary of a proposed public-private proposal to the Governor and authorizes the FDOT to proceed with a project upon approval by the Governor.

Leveraging Local Funds. Economic recovery has been slower in coming about since the 'technical' end of the recession in June 2009. Maximizing local resources by partnering with the federal government, the State of Florida, or with the private sector all provide a means to leverage a finite revenue base into greater returns. Funding opportunities through federal sources continue to tighten as the push to reduce the national debt looms large in Washington DC. Reduced availability of funds for major capital investments and steeper competition for those funds leads to the need to increase local and state participation in the overall cost. Private sector involvement and ways to take advantage of incremental improvements in the economy through value capture and public private partnerships are expected to take on more importance for successful system expansion. Expanded use of TIFIA funds provides the ability to advance projects sooner, but at some point the funds will need to be paid back. TIFIA is a financing solution, not a funding resource.

Innovative Policies/Incentive Programs. The need for a more sustainable funding mechanism to support transportation infrastructure and alternative modes of transportation is a common theme in transportation plans. Leadership in Washington DC has been very focused on reducing the national debt while maintaining a lower tax burden for the American public. As noted earlier, the single most difficult hurdle for a long-term transportation bill is funding. Yet, any attempts to propose solutions to the ill-funded gas tax, or in seeking alternative funding sources such as the VMT Tax, are met with bipartisan objections. On June 28, 2012, the House eliminated $300 million in study funds and added language to preclude the federal government from engaging in any study concerning VMT Tax. Although the FY 2013 budget made some progress through committees over the summer of 2012, a Continuing Resolution was passed on September 13, 2012 to extend the current spending levels through March 27, 2013 beyond the November elections, and into the new terms of office for new and returning elected representatives.

Increase of any form of tax has been considered a non-starter with Congress, yet 70 percent of all sales tax initiatives across the U.S. in the last decade have passed. A three-year opinion poll conducted by Mineta Transportation Institute completed in June 2012 revealed relatively favorable attitudes when the tax options are linked to benefits (maintenance, safety, or environmental). Given that only half of our highways are in a state of good repair, and an aging infrastructure, Americans may be more willing to change the way they pay for transportation.

Closing the funding gap. The use of congestion management and toll lanes is becoming more prevalent and is increasingly popular with the public. Two other revenue-generating systems that expand on the congestion pricing experience and are showing promise in other areas include:

- Mileage Based User Fees (MBUF)
- Congestion Parking Strategies

A discussion of each and examples in other parts of the country follows. Because it is doubtful that a single solution will be enough, it will be important to look into multiple ways to close the funding gap.

MILEAGE BASED USER FEES. A mileage-based charging system that taxes users of transportation systems is gaining more interest nationwide as a means of paying for our transportation infrastructure needs. The current system of charging a flat rate gas tax of 18.4 cents on each gallon of gas sold was established two decades ago. As fuel efficiency of our national fleet is improving, this system is failing to account for the full cost of the transportation system. In 2016, tighter fuel economy standards will go into effect to require an average of 35 miles per gallon. This increased fuel efficiency will further erode the ability of the flat gas tax to keep pace with the cost to maintain and expand our transportation system to meet state-of-good-repair requirements and growth in population and the resulting increase in vehicle miles traveled. And, since roughly 20 percent of the gas tax collected is applied to the new and existing transit projects, the ability to reduce congestion through travel options to the single-occupant automobile will be diminished, and quality of existing service will deteriorate. Recent proposals in Congress to raise the gas tax rate have not been well-received. Today's fragile economy and anti-tax political climate do not favor a tax proposal of any kind. At the same time, lack of funding continues to be one of the biggest hurdles to reauthorization of a long-term transportation program. In spite of increased population and travel, gallons of gas consumed are on a steady and sizable decline.

The majority of the cost of the transportation system (pavement damage, congestion, accidents, noise, and vehicles emissions) is more closely related to miles traveled than fuel consumed. Types of fuel-related costs include truck emissions, climate change, and dependence on foreign oil. The Congressional Budget Office concluded in a March 2011 report that our current fuel-based collection of revenues falls far short of estimated cost of highway use.

The American Petroleum Institute reports that in January 2011, combined federal and state fuel taxes were 48 cents per gallon for gasoline and 53 cents per gallon for diesel fuel on average. On a per-mile equivalent basis, these taxes were 2 and 10 cents per mile on average, respectively, for passenger vehicles and trucks traveling in urban areas. Yet the total cost is closer to 15 cents for passenger vehicles and over 80 cents for trucks.

Mileage-based charging system is gaining interest nationwide as a means of paying for transportation infrastructure needs.

Location and time of day also play a big part in determining the cost of our transportation system with urban travel creating a high cost burden for congestion, pavement damage, noise, and air pollution. Urban travel by passenger vehicles represents about two thirds of all vehicle miles traveled is the greatest contributor to congestion. Rural travel represents a relatively higher accident cost owing to high speeds. Another variable in cost is associated with the vehicle type. Passenger vehicles travel 90 percent of all miles traveled on our roadways but most of the pavement damage is caused by heavy trucks.

The idea of charging users for the cost of a transportation system based on mileage traveled in certain locations and during certain times of the day has been studied since 2005 in the U.S. Some of this research has been funded by programs within SAFETEA-LU. Study, research, and pilot tests have been conducted in numerous locations across the U.S. to assess various aspects of mileage-based user fees.

- In Puget Sound, Washington, a user-pays financial strategy was included in the region's most recent LRTP, *2040 Transportation*. It was informed by a 2008 *Traffic Choices Study* which assessed behavioral, policy, and technological aspects of variable road-tolling and also included a pilot test of 500 vehicles.
- Oregon's *Mileage Fee Concept and Road User Pilot Program* conducted in 2006 demonstrated the feasibility and reliability of technologies, cost of implementation, and public acceptance of fees based on miles driven.
- Portland, Oregon also conducted a pilot study of 260 vehicles. Half of the participants were charged a flat rate of 1.2 cents per mile for travel within Oregon. The other half were charged based on two rates – 10 cents per mile for peak-hour travel within a Portland area and 0.43 cents per mile for non-peak travel or anywhere outside Portland. Peak-hour pricing showed a 22 percent reduction in participants' peak-hour Portland travel.
- A pilot test called *Commute Atlanta* was conducted to assess the effects of converting fuel tax, registration fees, and insurance costs to variable costs. The first part of the study collected baseline data on 475 vehicles in 273 households, and then tested travel behavior using a mileage-based program charging 5-15 cents per mile with incentives such as rebates if they reduced mileage.
- The University of Iowa conducted a nationwide study in 2009/2010 which reviewed technical feasibility and public acceptance of a mileage-based road user charge involving 2,700 vehicles in 12 locations. This study collected over 23 million miles of travel in 48 contiguous states, many traveling through several local taxing jurisdictions.
- Minnesota DOT has conducted a number of surveys and focus groups, and created a task force to prepare for a road use test now being conducted. It is due for completion by December 2012.

The Congressional Budget Office concluded in a March 2011 report that our current fuel-based collection of revenues falls far short of estimated cost of highway use.

- Colorado has long expressed interest in the concept of mileage-based fees. Colorado Department of Transportation is currently conducting a study with the Transportation Research Board to evaluate policies and implementation implications in preparation for a pilot test.
- Nevada Department of Transportation is nearing completion of a three-phase study of a VMT road user fee which includes a public participation and outreach component. The study is addressing privacy policies, comparing fuel versus mileage-based fee collection, and conducting a pilot study over a period of two years.
- Texas Transportation Institute is conducting an assessment of technology issues for a range of possible mileage-based user fee system architectures, their ability to meet policy objectives, and the ability to provide a platform for other value-added services. Implementation policy questions will also be identified.
- Secretary Ananth Prasad, Florida Department of Transportation, has indicated that fuel taxes are unsustainable and alternative sources of revenues, such as toll roads, congestion pricing, and/or VMT tax, need to be identified.

London has implemented a cordon-pricing system that charges for travel in its city center resulting in a drop for congestion delays.

Although systemwide road pricing has not been implemented in the U.S., it has been used in other countries with success. London has implemented a cordon-pricing system that charges for travel in its city center resulting in a 15 percent decrease in traffic volumes and a 30 percent drop in congestion delays. Stockholm and Singapore also charge to enter their city core with a toll charged when drivers pass gantries on roads that enter the cordoned area. User charges for trucks based on weight and distance are in effect in Germany, Austria, Switzerland and the Czech Republic. The Dutch are phasing in a system to implement a MBUF system for all vehicles by the year 2016 based on a Mobility Plan developed in 2008 for passenger and freight vehicles.

Clearly, interest is building across the nation in the potential for a mileage-based system of charging for the use of the transportation system. Nonetheless, a number of issues still need to be resolved. At this juncture, it appears that much of the momentum exploring ways to implement an alternative tax structure is at the local, regional, or state level. Much can be learned from these efforts. Some of the key issues being addressed are highlighted below.

Privacy. Recognized as an issue by all areas considering its implementation, a number of pilot studies address ways to resolve concerns about the use of a global positioning system (GPS) or global navigation satellite system (GNSS) receivers. Ways to meet the need to gather information about travel location and time of day to be applied to variable charge rates without compromising privacy have been identified. Ways to restrict the types of information collected and limiting access to certain data have been recommended to address these concerns. The level of information provided to users is also important in discouraging travel on congested roads. The University of Iowa study showed that test users preferred the option

of having more detailed information in their invoicing. The added information about their travel charges increased their confidence in the ability to audit their charges compared to when a single-mileage number was reported. Before and after opinions of the concept of mileage-based user fees resulted in 60 percent of users expressing a negative or neutral opinion upon entering the study, and a 70 percent favorable rating at the close of the study. Participants in the Puget Sound study also rated lower privacy concerns at the conclusion of the study. However, many participants in these studies are volunteers and may not be representative of all highway users. Colorado and Oregon found that survey participants indicated a greater comfort level with a mileage-based system that offered options. One of those options could include an opt-out provision to allow for a flat tax, an annual fee, or self-reporting methods that would not require electronic information gathering.

GPS can be used to monitor mileage traveled by the time of day and by place of travel.

Technology. An approach of using GPS to monitor mileage traveled, the time and place of that travel, and potentially other charging information could be handled by on-board equipment; however, not all vehicles currently have that equipment installed. While newer vehicles come with on-board units equipped with GPS or GNSS, some older vehicles in the nationwide fleet are not fully equipped. Waiting until newer vehicles that have this technology come into service and older cars are retired could take 15 to 20 more years. Retrofitting older cars with meters and antennae that can track location and time information is an option, but it comes at a cost. Installation of on-board computers can be problematic and some are incompatible with today's equipment. Potential for evasion of the system and tampering with equipment would need to be checked and controlled. The nationwide pilot study conducted by the University of Iowa had good success with the prototype road use charging system. Over 92 percent of all driven miles were successfully measured and assigned to jurisdictions. Minor communications problems were resolved for close to seven percent of unassigned mileage through interpolation. Less than one percent of travel miles could not be reliably assigned.

Implementation and Role of the Private Sector. Currently, the collection method for fuel taxes is with the fuel distributor. In 2008, there were 8,000 fuel distributors and 114,000 fueling stations in the U.S. Cost of collection is low. This is not the case in a MBUF. Various methods of collection have been explored and tested. One method is to continue to assess the charges at the gas pump with a download of mileage and charging data from the on-board computer systems to equipment on the gas pump. Information could be collected by private vendors and incorporated with other services. This could greatly increase the number of collection points compared to today's system.

Existing Pricing Systems. As designed, toll charges only collect for a specific road segment; however, the mileage-based approach would charge for the roadway network. There are distinct similarities between congestion pricing and mileage-based fees in that they both charge for use based on the distance traveled. However, how they are collected is quite different. Open road tolling has

been installed on most of Florida's tolled or congestion managed roadways. No such system exists for systemwide charges tracked by on-board units. How these two types of charging mechanisms may co-exist and work together needs to be explored. A systemwide pricing mechanism may need to account for offsets for corridor-specific charges to avoid double-charging for the same travel miles, especially where no alternate corridor exists, as is the case for many tolled bridges. Florida's financial strategy and local implementation goals may vary from those tested in other states.

Open road tolling has been installed on most of Florida's tolled or congestion managed roadways.

Cross-Jurisdictional Issues. Many of the pilot tests are conducted for specific regions within a single state. Where travel crosses into multiple jurisdictions, there may be issues if one jurisdiction charges for miles traveled and another doesn't. Who oversees the fee collections and the distribution of those collections needs to be resolved.

Although there are many unanswered questions as to how best to implement a MBUF system, work is underway to resolve those issues and identify solutions for a number of locations nationwide. The body of information and public knowledge and awareness of the issues leading to the need for an alternative revenue source is growing. As technologies advance, the feasibility of implementing a MBUF becomes clearer and introduces opportunities for private sector involvement. More closely matching the cost of our transportation systems with the ability to generate revenues directly tied to their operation, maintenance, and expansion will increase the sustainability of the system. Increased equity and the ability to provide data collection to measure and monitor other transportation performance objectives provide additional benefits of a MBUF.

Congestion Parking Strategies. All major cities have parking problems to some degree. Surface lots take up a lot of prime real estate and parking garages are costly to construct. A typical downtown garage can cost from $20,000 to $50,000 per space. Everyone wants to park by the front door, but those spaces are usually taken. Time spent circling for the perfect spot cost us in other ways such as loss of productivity and emissions. Knowing where the best available parking spot can save a lot of aggravation and extra time stuck in traffic. More efficient use of available parking is made more feasible today with smart phone apps. The private sector can also play a big role in implementation. As with MBUF, there are many ways to solve this problem, and generate revenues in the process.

- Oak Park, Illinois: In 2008, tiered demand zones were established during the daytime through trial-and-error to find the best pricing structure to balance the inventory of parking spaces. By charging higher metered parking in the heart of the commercial area, many employees either take public transit to avoid the cost of parking or park in long-term parking lots and garages. Sales tax has increased because of improved access for customers, and overall parking revenues have grown by 37 percent.

- Washington DC: Since 2008, this fast-growing metropolitan area has experimented with pricing pilots in two neighborhoods – adjacent to a 500,000 square foot Columbia Heights retail center and the new Washington Nationals baseball stadium on the southeast waterfront. Resident-only restrictions and reinvestment stipulations made these pricing mechanisms work well for both the neighborhoods and visitors.

- Chicago turned to the private sector in 2009 when budget deficits led city leaders to lease the parking spaces to a consortium willing to pay a large up-front fee to close the budget gap. Chicago Parking Meters, LLC, a consortium led by Morgan Stanley paid the city $1.15 billion for a 75-year lease to manage the city's parking problems. The city was divided into zones based on historical demand and new solar-powered meters were installed that service multiple parking spaces with multiple pay options. Parking rates were adjusted upwards to some of the highest rates in the country with the downtown Loop currently getting $5.75 per hour and the central business district getting $3.50 per hour. People are both complaining, and paying. Parking is still a problem in Chicago and the price is slated to rise again next year.

- San Francisco, California: Smart parking is being implemented in multiple areas throughout the city through a Federal Urban Partnership Program grant. Known as *SFpark*, the San Francisco Metropolitan Transportation Agency rolled out this cutting-edge program in 2010 and 2011. Wireless parking sensors provide real-time information about parking availability and pricing that allows drivers to use online maps and smart phone apps as well as parking availability signs to get information and reserve their parking space. The program uses the latest technologies to manage 7,000 on-street spaces in eight pilot districts and 12,250 off-street spaces to manage public parking as an integrated system. Parking managers can adjust rates through remote sensors to meet occupancy targets. Payment can be made with coin, credit and debit cards, or pay-by-phone technology. The program is currently revenue-neutral, but has met the program goals of establishing a rules-based, fair pricing approach to parking that has reduced parking fines and traffic congestion.

- Los Angeles has begun a downtown demand-responsive pilot project known as *LA ExpressPark*, using a $15 million grant. Associated with *METRO ExpressLanes*, a regional congestion pricing project, goals of the parking pilot are to increase parking availability, reduce congestion and air pollution, and encourage alternative travel modes. Parking pricing were introduced in 2012 in Chinatown and the Fashion District and plans are to expand the real-time parking information to 13,000 public on- and off-street parking spaces. Similar to *SFPark*, parking availability and payment options will be provided through websites, mobile phones, and on-street dynamic message signs.

These strategies were developed to address various needs ranging from growth management, reducing traffic congestion, and generating revenues to fund

Chicago Parking Meters, LLC paid the city to manage parking problems in exchange for future revenue streams.

LA ExpressPark is a grant-funded project that manages the demands of downtown parking.

revitalization in core destinations. Indirect benefits of managing parking include improved economy through higher customer activity and a reduction in the need to construct additional parking by increased efficiency through systemwide management of both on-street and off-street parking spaces. A lesson learned from other areas is that parking strategies are most successful when communities are involved in their planning. Private sector can also play a role in covering some of the upfront cost and in maintaining the systems.

Miami-Dade may benefit from similar congestion parking strategies not only in downtown Miami, but in South Beach and adjacent to the new Marlins Stadium.

IMPLEMENTATION ASSISTANCE. A plan is only as good as its outcomes. The new emphasis on performance measures is well placed to ensure that the priorities are carried out, and that the projects implemented bear the desired results. Most of the actions identified in any LRTP will fall outside of the MPO's area of responsibilities. After all, an MPO is a planning organization, not an implementing organization. Yet, many of the budget-strapped jurisdictions do not have the capacity or staff to carry out new and challenging projects. To that end, the MPO can provide guidance and technical support to ensure that the tenants and programs are in fact implemented, and are designed in a manner that achieves the desired result. It may also provide funding resources and act as a grants administrator.

The Miami-Dade MPO currently provides considerable planning support to various Miami-Dade departments that implement many of the projects identified in the LRTP. Other regions have developed incentives, grant programs, and tools to build capacities across their regions. A few notable examples include:

- *New Jersey Urban Transit Hub Tax Credit Program:* Under this program, New Jersey has awarded nearly a billion dollars to 18 companies and developers since 2010 and generated over 6,000 jobs in the process. The program was created as an incentive for capital investment in targeted transit-oriented areas for companies with projects of $50 million or more that chose to locate within one mile to a half mile of a train transportation center in nine cities. Project sponsors must pledge to create or save 200 jobs and generate 10 percent more in new tax revenue over and above the amount of the subsidy. Residential projects that create fewer jobs may also be eligible but for smaller awards.

- Delaware Valley Regional Planning Council provides grant funding and planning or marketing capacity-building programs to further the goals of their most recent LRTP. Notable programs include:
  - *Transportation and Community Development Initiative* which grants funds to communities to improve the overall character and quality of life to retain and attract business and residents.
    - *Efficient Growth for Growing Suburbs (EGGS)* recognizes today's suburban challenges and grants funds to municipalities for growth management and community design to optimize efficiency of existing and planned transportation networks through improved linkage of land use and transportation.

- *Classic Towns* initiative is a marketing program that promotes developed municipalities and neighborhoods as great places to live, work, and play. An outgrowth of the *Strategies for Older Suburbs* program, this campaign includes a promotional video, website, and targeted forums on public relations, marketing, and other means to attract investment in older communities.

- *San Diego Community-Based Outreach Mini-Grant Program* was developed with a primary goal to engage and encourage diverse, inclusive, and active public participation from traditionally underserved stakeholders who may not have been involved in regional public policy planning processes. Funding awards go to eight community-based organizations in a competitive bid process for those who commit to actively engage in the conduct and design of the public participation activities, participate on a Regional Planning Stakeholders Working Group, and produce a final report to describe how grant funding was used, demographics of participants, and benefits of the outreach activities.

- *San Francisco FOCUS* – This incentive-based program is intended to provide funding for capital infrastructure, planning, and technical assistance to communities. The *Transportation for Livable Communities* program was established with $2.2 billion for a 25-year period to advance focused growth and support Priority Development Areas.

More than a buzzword, capacity building is a requirement for public agencies in this time of declining budgets and revenues. Collaboration will be needed on many fronts to bring about a lasting restoration of the prosperity we all desire. Much of this innovation will come from local and metropolitan leadership embodied within the Miami-Dade MPO. Transportation planning best occurs in tandem and within the context of regional economic development plans involving collaboration and innovation from public and private sectors including ports, airports, freight, and mobility.

The Teachers Village project in Newark, NJ is a recipient of the Urban Transit Hub Tax Credit for developing housing near transit hubs.

San Francisco FOCUS unites the efforts of four regional agencies into a single program that links land use and transportation by encouraging a complete community promoting transit and conservation.

EMPHASIS AREAS – REGIONALISM

Although the Miami-Dade MPO serves the single county of Miami-Dade, it works closely with a number of regional entities. In addition to the County departments for Miami-Dade Transit, Miami-Dade Aviation, Miami-Dade Port Authority, and Miami-Dade Expressway Authority, other key regional planning entities and the counties they cover are as follows:

- South Florida Regional Transportation Authority (Miami-Dade, Broward, and Palm Beach)
- Southeast Florida Transportation Council (Miami-Dade, Broward, and Palm Beach)
- South Florida Regional Planning Council (Monroe, Miami-Dade and Broward)
- South Florida Regional Partnership (Monroe, Miami-Dade, Broward, Palm Beach, Martin, St. Lucie, and Indian River)
- Florida Department of Transportation District 6 (Miami-Dade and Monroe)
- Florida Department of Transportation District 4 (Broward, Palm Beach, Martin, St. Lucie, and Indian River)

The South Florida Regional Transportation Authority (SFRTA) provides Tri-Rail service to Miami-Dade, Broward, and Palm Beach County.

REGIONAL PLANNING. Regional planning is not a federal or State of Florida requirement, although both do suggest that planning should be performed on a regional scale *wherever practical*. Consolidation of MPOs, transit operators, and expressway authorities has been discussed in past Florida legislative sessions, and will likely be discussed again in the upcoming 2013 Session scheduled to begin March 5, 2013.

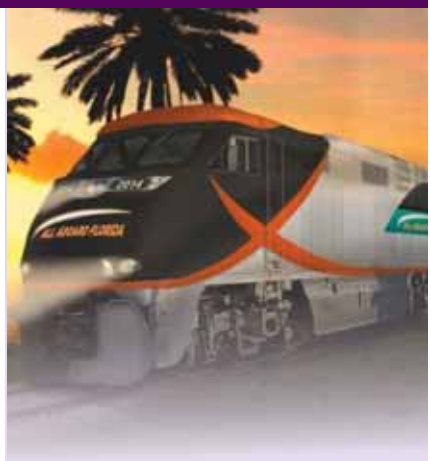
MAP-21 requires LRTPs to address all modes of transportation including major roadways, transit, transportation facilities, and intermodal connectors. The scope of the planning process must provide for consideration of projects and strategies that will enhance the integration and connectivity of the transportation system, across and between modes, for people and freight. Planning content is proscribed by legislation, but how the minimum requirements are met is up to the individual regions. Consistency in regional transportation plans with priorities established at the national and statewide level is mandatory. Considerable coordination is needed to ensure that national and statewide goals, planning factors and objectives, initiatives, guidelines, principles, and directives are in sync with local plans.

Even though the Miami-Dade urbanized area, defined by federal law and the U.S. Census Bureau, covers parts of Broward and Palm Beach counties in addition to Miami-Dade, metropolitan planning is done separately for each unique county due to the size, complexities, and variable goals and objectives. Regional planning is also recognized as a critical component of our overall success, and to that end, the Southeast Florida Transportation Council (SEFTC) was established by Florida Statute Chapter 334. SEFTC oversees the Regional LRTP and has provided a forum for policy decisions since its formation in 2005.

Regional transportation corridors and freight lines cross county boundaries. Inter-county travel is a daily occurrence with many of our citizens living in one county and working in another. Interstates and Tri-Rail have made travel between counties seamless and the boundaries between counties inconsequential to our daily travel patterns. Other regional issues such as mobile source air quality emissions and economic vitality know no boundaries. An integrated transit fare collection system that would simplify how we pay and transfer from one system to another is also a worthy regional goal.

Tolling and managed lanes are becoming more of a focus for the State of Florida, particularly in South Florida where the success of 95 Express and managed lanes on other interstate highways are being studied. FHWA has published guidance for MAP-21 on tolling (Section 129), managed lanes (Section 166), pilot projects, and implementation assistance. How the revenue streams are allocated to benefit each county (as well as inter-county transit service operating on these managed lanes) is an important equity consideration. All of today's tollways and managed lane corridors serve travel between counties. Forty percent of the revenue streams from 95 Express are dedicated to transit in accordance with the federal Value Pricing Pilot Program requirements and the Miami Urban Partnership Agreement Project. It is anticipated that future managed lanes revenue streams would be made available to support transit capital and operations. Recent changes in the federal law (MAP-21 Section 129 General Tolling Program) and state priorities increase the feasibility of tolling and managed lanes for revenue-generation alternatives.

The private sector is getting involved in regional transportation. The Florida East Coast Industries (FECI) is implementing *All Aboard Florida*, an intercity passenger rail service from Miami to Orlando. The southern terminus for this intercity rail is planned for a nine-acre parcel owned by FECI adjacent to the future Intermodal Center in downtown Miami. The Florida Chamber of Commerce, Miami Chamber of Commerce, and other non-governmental organizations also have a stake in the viability and performance of our transportation systems.



The Florida east Coast Industires (FECI) is implementing "All Aboard Florida" an intercity passenger rail service.

HARMONIZING MASTER PLANS. The LRTP for Miami-Dade coordinates with master plans developed by seaports, airports, freight operators, and pedestrian and bicycle facilities. These master plans provide input and help inform the transportation initiatives and goals established for the long range transportation plan. Some have been completed recently and others are just beginning.

2040 Miami-Dade Freight Master Plan Update - The last *Miami-Dade Freight Master Plan* was completed in 2009 and is scheduled for update in fiscal year 2013 concurrent with the LRTP. The countywide plan will also provide input to the *2040 Regional Freight Master Plan* to be conducted during the 2040 LRTP update for Miami-Dade and the tri-county region. The statewide *Intermodal Logistics Center Infrastructure Support Program* to be conducted by FDOT will require consistency and coordination of simultaneous efforts.

Strategic Airport Master Planning Study (SMP 2015-2050) is currently in the final phase of the three-plus year process and is scheduled for completion by year-end 2012. The plan identifies and assesses the future air transportation needs of the County's System of Airports and takes into account airport-system expansion and enhancement now underway and provided for in the ongoing Capital Improvement Program. This plan covers a broad range of aviation activities including cargo intermodal connections with rail freight, truck freight, and seaports. All of the Miami-Dade County Airports are included:

- Miami International Airport (MIA)
- Kendall-Tamiami Executive Airport (TMB)
- Opa-locka Executive Airport (OPF)
- Homestead General Aviation Airport (X51)
- Dade-Collier Training and Transition Airport (TNT)

Key emphasis areas for aviation planning include increasing security requirements, the effect of volatile fuel prices on airline service patterns and market demand, balancing land use needs with land use compatibility, preparing for transportation capacity improvements in and out of the MIA, and financing.

A bright star in Miami-Dade's near-term is the opening of the Miami Intermodal Center (MIC) at the MIA. This massive $2 billion transportation hub being implemented by FDOT will provide unprecedented safe, efficient, and seamless intermodal connectivity. The MIC facility contains a major Rental Car Center; Miami Central Station with bicycle/pedestrian-friendly connections between Metrorail, Tri-Rail, and Amtrak; and future joint development opportunities now being negotiated. The MIA Mover provides an elevated people mover connection between the MIA and the MIC. Airport Link, an extension of Metrorail, was operational on July 28, 2012 setting the stage for the launch of the Orange Line Metrorail service which today provides airport connections between new transit markets in south Miami and the existing Metrorail system. When fully developed, the MIC will provide a hub of connectivity among various modes of transportation between Palm Beach County, Fort Lauderdale, Miami, and the Florida Keys, making regional travel easier for residents and visitors. The direct connection between the rental car facility and the MIA has already reduced curbside traffic in the vicinity of the airport by 30 percent.

Port of Miami 2035 Master Plan – The latest master plan for the Port of Miami was completed in late 2011. Operator of the world's leading cruise port and the largest container port in the State of Florida, the Port of Miami prepared a master plan that looks to the future for initiatives with an overarching theme of sustainability. Cargo, cruise, and commercial initiatives are defined for a capital improvement element totaling $2 billion over 25 years. Two major projects are underway that will forever change the Port of Miami. First, the Port of Miami Tunnel, an outgrowth of the *2020 Master Plan*, will connect Port truck traffic directly to the Interstate system. Secondly, the deep dredge project on the South Channel will allow for

Miami-Dade County's Airports are one of Florida's largest economic generator:

- $26.7 billion annual economic impact
- 37,000 employees
- $6.2 billion in capital investments since 1994
- 282,043 jobs locally
- 35.6 million annual passengers
- 2.0 million U.S. tons of cargo

Source: Miami International Airport

a 50-plus foot draft for the larger cargo vessels anticipated after the completion of the widening of the Panama Canal. These key projects are scheduled for 2014 completion to coincide with the Panamax Canal improvements. A statewide *Strategic Port Investment Initiative* was created by the 2012 Florida Legislature and an Office of Freight, Logistics and Passenger Operations (FLP) was created within the Florida Department of Transportation. The FLP will address some of the regional implications to the Port of Miami and other ports within the state. A new strategic element of the *Port of Miami Master Plan* is the introduction of revenue-generating commercial projects to its business portfolio through the sustainable development of commercial property on land they currently own. Development is envisioned for office and hotel space, as well as a mega-yacht marina complex, complete with a waterfront promenade with retail and restaurant areas. Transit and wayfinding signage projects are also envisioned to provide better access and efficient flow of traffic and people on the island.

Miami-Dade Countywide Bike/Pedestrian 2040 Master Plan – Another important master plan for incorporation and consideration in the 2040 LRTP is the plan to address human-powered transportation and connectivity to transit. This update will occur simultaneously with the 2040 LRTP.

STATEWIDE STRATEGIC PLAN UPDATES. In August 2011, FDOT's Secretary Ananth Prasad announced *Florida's 21st Century Vision* which promotes a transportation system that maintains Florida's competitive edge by meeting today's needs as well as our needs for decades to come. Drawing from the *2060 Florida Transportation Plan* and the *2006 Future Corridors Action Plan*, Governor Scott's vision considers future growth and development throughout Florida, and reaffirms the need to consider potential new transportation corridors. Study areas have been identified where FDOT could explore potential new or transformed corridors. Potential new corridors could link Tampa Bay to Northeast Florida, Central Florida to Tampa Bay, US 27 Multimodal Corridor to seaports, and Southwest Florida to Central Florida. Transformed corridors include I-10, I-75, I-4, I-95, and US Highway 27. Next steps include supporting ongoing visioning efforts throughout Florida such as the Florida's Chamber of Commerce *Six Pillars of Florida's Future Economy*, coordinating with major state agencies such as the Department of Environmental Protection, outreach to major land owners and development interests, outreach to intergovernmental partners, and advancing existing studies or initiatives.

2060 Florida Transportation Plan. A driving policy for the Miami-Dade and regional LRTP is the statewide *2060 Florida Transportation Plan* (FTP). The plan identifies future transportation vision, goals, objectives, and strategies to guide transportation decisions over the next 50 years. A committee of 29 people worked together throughout 2010 to develop the 2060 FTP. The committee represented all levels of government and transportation, business, economic, community, environmental, military, and private interests in the State of Florida. The FTP establishes the policy framework for expenditure of state and federal funds flowing through the FDOT Work Program and offers guidance to all other transportation

Governor Rick Scott's 2012 Job Creation and Economic Growth Agenda includes greater opportunities for project planning and funding:

- Florida Seaport Transportation and Economic Development program – increased from $8 to $15 million.
- Strategic Port Investment Initiative - $35 million annually in new funds
- Intermodal Logistics Center Infrastructure Program -funding of up to $5 million annually.

partners as they develop and implement future policies, plans, and projects toward a common transportation vision in the State of Florida.

The FTP is organized in three main sections including 1) key trends, opportunities, and issues; 2) goals, objectives, and strategies; and 3) key actions required to implement the 2060 FTP. The FTP has six goals:

- Invest in transportation systems to support a prosperous, globally competitive economy
- Make transportation decisions to support and enhance livable communities
- Make transportation decisions to promote responsible environmental stewardship
- Provide a safe and secure transportation system for all users
- Maintain and operate Florida's transportation system proactively
- Improve mobility and connectivity for people and freight

Florida's Strategic Intermodal System (SIS) was established in 2003 by the Governor and Legislature to develop a priority network of transportation facilities in the interest of economic competitiveness and quality of life. SIS facilities encompass all modes of travel - airports, seaports, rail, highways, transit, and spaceports. A facility that is designated as a SIS facility receives the highest priority for transportation capacity improvements.

The SIS has objective criteria and thresholds based on recommendations by a statewide transportation partnership to designate a transportation system comprised of facilities and transportation services of statewide and interregional significance. This system also improves the movement of goods into and through the State. Designated SIS or Emerging SIS facilities include interstate highways and portions of the state highway system, transportation hubs such as ports and terminals, rail lines, waterway corridors, and intermodal connectors. The *2010 SIS Strategic Plan* provides guidance for more than $9 billion in funding prioritized for the 2011-2015 Work Program.

SIS projects of note in the Miami-Dade area are 95 Express ($92.7 million), SR826/SR836 Interchange ($560 million), NW 25th Street Viaduct Freight Connector to Miami International Airport ($115 million), Port of Miami Tunnel ($610 million), Miami Intermodal Center Central Station ($1.7 billion), and Port Miami Harbor Dredging Phase III ($150 million). Designated SIS and Emerging SIS facilities are inventoried in **Exhibit 3-5**.

EXHIBIT 3-5: Designated SIS and Emerging SIS Facilities

Facility Type	SIS	Emerging SIS
Commercial service airports	7	10
General aviation relievers	1	-
Spaceports	2	-
Deepwater seaports	7	4
Passenger terminals	26	9
Rail freight terminals	5	2
Rail corridors (miles)	1,700	420
Waterways (miles)	1,950	312
Highways (miles)	3,603	762
All connectors (miles)	542	-
Urban fixed guideway corridors (miles/stations)	-/-	-/-

Source: FDOT 2010 SIS Strategic Plan brochure

2012 Legislative Session. The Florida Legislature further defined and funded the transportation vision with House Bill 599, "*Transportation and Mitigation Programs*." Key features of the bill are summarized below:

- Section 9 (s.311.07,F.S.) revises provisions for the financing of port transportation or port facilities, increases funding for the *Florida Seaport Transportation & Economic Development* (FSTED) *Program*, directs the FSTED Council to develop guidelines for project funding, and requires that the FSTED Council, FDOT, and the Department of Economic Opportunity work with each other to review projects and allocate funds. The legislation requires the *FSTED Program* to be funded a minimum of $15 million per year from the State Transportation Trust Fund. Eligible projects include seaport master plans or strategic plan development or updates. The projects will be evaluated for consistency with the *Florida 2060 Transportation Plan*, the *Statewide Seaport and Waterways Plan*, and the State's adopted work program.

- Section 11 (creates s.311.10, F.S.) establishes the *Strategic Port Investment Initiative* within FDOT and provides for a minimum of $35 million dollars per year in funding. It calls on FDOT to work with the State's deep water ports to develop and maintain a list of eligible projects to meet the State's economic development goal of becoming a hub for trade, logistics, and export-oriented activities by improving access, increasing port-capacity capital improvements, and leveraging funds through local and private partners.

- Section 12 (creates s.311.101, F.S.) establishes the *Intermodal Logistics Center (ILC) Infrastructure Support Program* within FDOT, provides criteria for selecting projects for state funding and provides for up to $5 million dollars in annual State funding. The ILC includes "inland port" intermodal facilities serving transport, logistics, goods distribution, consolidation, and value-added activities and services designed to support shipping through seaports. The program allows funding at 50 percent.

- Section 14 (s.311.14) directs FDOT to develop a *Statewide Seaport and Waterways System Plan* consistent with the *2060 Florida Transportation Plan*. The legislation considers individual port master plans and those from the seaport strategic plans for 5-year, 10-year, and 20-year needs for the seaport system. It considers seaport, waterway, road, and rail projects needed to ensure the success of the system as a whole to support state economic development goals.

- Section 23 requires FDOT develop a *Freight Mobility and Trade Plan* by July 1, 2013 to include proposed policies and funding recommendations for consideration by the Governor and the Legislature. Freight issues must also be emphasized in State, regional, and local transportation plans. The goals of the *Freight Mobility and Trade Plan* are:
  - Promote increasing the flow of domestic and international trade through the State's seaports and airports including plans to recapture cargo currently being shipped out of State.

The Florida Legislature is seated at the Florida State Capitol in Tallahassee.

- Increase the development of intermodal logistical centers (ILCs) in the State that capitalize on the empty backhaul trucking and rail market in the State.
- Increase manufacturing facilities in the State.
- Increase the implementation of compressed natural gas (CNG), liquefied natural gas (LNG), and propane energy policies that reduce energy costs in the State.

AIR QUALITY STANDARDS AND COMPLIANCE. All the metropolitan statistical areas in the State of Florida are currently compliant with National Ambient Air Quality Standards (NAAQS). Proposals to strengthen health-based, ground-level ozone standards were recommended in a Notice of Proposed Rulemaking by the Environmental Protection Agency (EPA) in January 2010, and later withdrawn in the fall of 2011. New proposals are expected late in 2013 according to the regular schedule for updates provided for in the Clean Air Act. Revisions to the NAAQS are highly controversial, particularly in areas where point sources are a big contributor such as Los Angeles and Houston. South Florida's contributions to ground-level ozone are largely from mobile sources. In Florida, our attainment status may once again be called into question, especially if the ozone standard falls below 75 parts per million. Gaining compliance with the Clear Air Act attainment standards after being designated non-attainment status can be an arduous task; however, non-attainment status is a pre-requisite of eligibility for federal Congestion Mitigation and Air Quality (CMAQ) funding in the amount of $2.26 billion and $2.28 billion in fiscal years 2013 and 2014, respectively.

REGIONAL ACTIVITY-BASED MODELING. The tri-county region of Miami-Dade, Broward, and Palm Beach counties has elected to use a new activity-based model for the 2040 LRTP update. The FDOT Central Office is building an activity-based model for use by the region. This past year, FDOT District 4 completed a model update for the Southeast Florida Regional Planning Model (SERPM).

The classic four-step model was first developed in the 1950s for the Detroit Area Transportation Study and Chicago Area Transportation Study. The model begins with land use forecasts of population and employment for transportation analysis zones (TAZ). Given the static pre-determination of socio-economic projections, the four steps of the model are sequential as follows:

1. *Trip generation*: Frequency of origins and destinations that occur within each TAZ.
2. *Trip distribution*: Matches origins with destinations using a gravity model.
3. *Mode choice*: Computes the proportion of trips for each modal choice.
4. *Route assignment*: Allocates trips from each origin and destination by a mode to a transportation route.

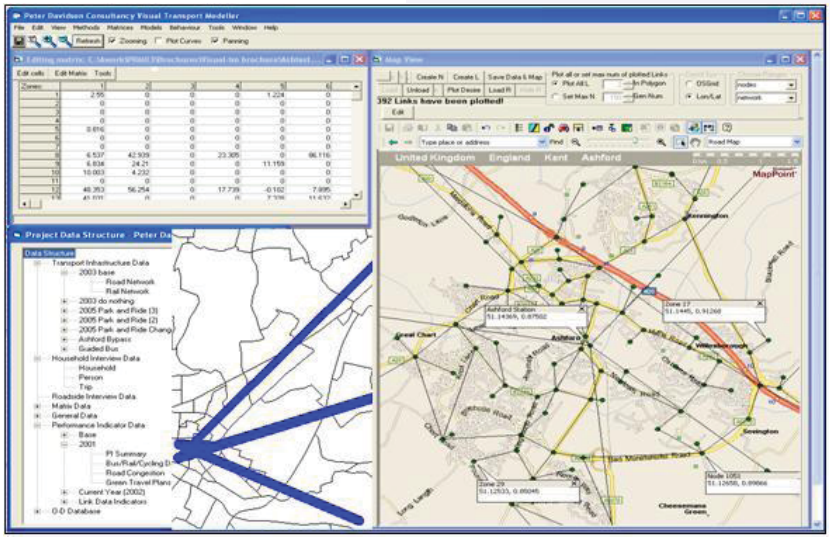
Activity-based models focus on the behavior of individuals and the prediction of where and when types of activities (work, leisure, shopping, etc.) occur, taking into account the replication of the travel decisions and scheduling involved. They can

also take into account interactions among households based on the number of cars and the types of trips, or tours, taken. The model is very data heavy and involves much smaller zones. In addition to socio-economic data, home and journey interview surveys and special trip attraction surveys are applied to the model.

Activity-based models attempt to overcome an inherent limitation of gravity-based models in that the four-step model is deterministic with point-estimate forecasts of population and employment that do not provide the ability for land use to change in relation to transportation investment plans. While excellent for determining how many lanes should be added to a freeway, the ability of the gravity-based model to take into account more variables of interest, more disaggregation of time, space and types of activities, and the supply-side effects of traffic operations is limited. In other words, the activity-based model considers travel to be a demand created from the activity itself. By focusing the model on the decisions about how we travel, rather than the trip itself, policies and performance can be tested over time.

The accuracy of travel forecasts resulting from the four-step model that has been used in planning for transportation infrastructure projects has been called into question by the fact that projections either over-estimate or under-estimate projected transit ridership or traffic volumes by significant margins. Another benefit of the activity-based model is that it provides better outputs regarding air pollution emissions and exposure levels. This information is useful in evaluating compliance with regional and national air quality objectives and in providing baseline data for performance measures and monitoring. They can also provide a better way to measure public health exposure for activity patterns and help policy-makers target specific programs to address improvements for target population groups.

Activity-based models are on the leading edge of technology for travel demand modeling and are desired by many regions across the country. The ability to build accurate activity-based models depends on the integration of multiple models such as a land use model, truck model, commercial vehicle model, emissions factor models, and border crossing models. An accurate model is also dependent upon the relevancy of the surveys taken. In San Diego for example, multiple surveys were taken over the course of six years to gain information about household travel, transit origins and destinations, air passengers, parking inventory and behavior, border crossing, visitors, and special events. To complete the picture, U.S. Census data, American Community Survey data, toll transponder ownership data, land use data, built environment data, and traffic counts and transit boardings are added.



Activity-based modeling is a tool for better understanding the travel demand analysis of the behaviorally-oriented individuals.

The San Diego region has transitioned from their enhanced four-step model to an activity-based model. They describe their activity-based model process in six steps:

1. *Synthesize a representative population:* A land use model forecasts socio-economic and housing characteristics to a zonal level. TAZs used in the gravity-based model are superseded by Master Geographic Reference Areas (MGRA) which are smaller and typically five times the number of TAZs. Typologies are established for populations based on a person's age, work and school status, household incomes, and activities.

2. *Assign workers and students to a work/school location:* This step predicts where individuals will go to work or school taking into account factors such as occupation, number of employees in an area, ease of travel, school policies and boundaries, distances, etc.

3. *Determine mobility characteristics:* This step predicts the number of automobiles by household, whether the household has a toll transponder, whether parking is covered by employers, household size, income, and other factors such as ease of travel.

4. *Schedule the day:* Each activity pattern is determined by type purpose (work, school, social, etc.) which is classified according to whether the activity is mandatory, maintenance, or discretionary, and the person types who are eligible for that purpose. Based on these activity pattern characteristics, scheduling is predicted for a "tour" (rather than a single trip) which includes chained trips or additional trips taken during the tour. A tour may consist of going to work and making an intermediate stop to the grocery store. During the day, a work-based tour may include a lunch or business trip to and from the work place. The dynamics of the decisions made and the reasons for travel are more clearly discernible for a tour than for each trip that occurs within a tour.

5. *Fill in tour and trip-level decisions:* Characteristics of each tour such as the primary mode, stops along the way, side-trips from the primary destination to other destinations during the tour, and parking considerations if an automobile is the mode used are considered.

6. *Assign trips to the network:* In this final step, the model sums all the travel details about trips within tours at the regional level and adds them to trips generated by other models (trucks, commercial vehicles, special events, air passenger, cross-border, visitor, etc.) not determined by the activity-based model. The aggregated trip data is arranged by the MGRA zones from step one. Outputs are applied to performance measures. Traffic assignments are made within six time-of-day periods. From this point, the modeling validation and calibration is very similar to the classic four-step model.

In addition to San Diego, activity-based models are currently developed for San Francisco, Sacramento, Denver, Columbus, and New York City. MPOs in Seattle, Portland, Los Angeles, Chicago, Atlanta, Ohio, and Philadelphia are also developing an activity-based model for their regions. In Florida, Jacksonville and Tampa are developing activity-based models.

Typical San Diego traffic gridlock as the highways continue to get congested.

EMPHASIS AREAS – SUSTAINABILITY

The subject of sustainability is prominently displayed in most LRTPs across the country, including Miami-Dade's 2035 LRTP. The counties of Miami-Dade, Monroe, Broward, and Palm Beach in Southeast Florida entered into a *Climate Change Compact*. They are working cooperatively to adapt to sea level rise and have adopted a climate resiliency action plan. Coastal areas, especially in low-lying areas of Monroe and south Miami-Dade, understand the importance of planning for adaptation and have begun a process of identifying adaptation action areas. Sustainability has many facets, and sea level rise is but one. Study Advisory Committee participants also stressed the importance of sustainable transportation systems and economic means of maintaining and operating our investments over long periods of time. This section covers key emphasis areas related to the larger role of sustainability.

TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS.

Delays spent in traffic cost everyone in terms of time and fuel wasted. SAFETEA-LU required MPOs develop a Congestion Management Process in carrying out its transportation planning duties. In MAP-21, the focus shifts from the requirement and certification of a process to the reporting of the effectiveness of the performance-based planning process. The process must provide for effective management and operation of new and existing transportation facilities eligible for federal funding through the use of travel demand reduction and operational management strategies.

This approach is consistent with Florida's statewide *Transportation Systems Management & Operations* (TSM&O) *Strategic Plan* completed March 2012 that uses a full spectrum of tools to improve capacity, increase safety, and reduce vehicular delays.

The Miami-Dade MPO used an integrated planning approach to consider TSM&O in their 2035 LRTP and has long sought to implement the four complementary and synergistic "four Ts" to relieve urban congestion, namely: Tolling, Transit, Telecommuting, and Technology. The Congestion Management Process (CMP) was last updated in 2009 in conjunction with the LRTP. ***An update of the CMP may be called for given the enactment of MAP-21 which requires new performance measure targets and reporting requirements.***

Miami-Dade is making considerable progress implementing a number of Transportation Demand Management (TDM) strategies. The 2040 LRTP update will consider progress made and expand on those strategies. Intelligent Transportation Systems (ITS) continue to be an effective tool, and as technology advances, the performance of these systems and strategies improves. Several projects are underway in the Miami-Dade area, and the new update will need to examine the role of technology advancements in project design and operations, particularly in communications and the use of Smart Phones or other electronic payment systems.

District 6 TSM&O Toolbox Examples

- Incident Management
- Transportation Management Center Operations
- Traveler Information
- Traffic Monitoring
- Demand Management
- Traffic Signals
- Managed Lanes/ Dynamic Pricing
- Express Bus/Transit
- Ramp Signaling
- Other Near/Mid-Term:
  - Speed Harmonization
  - Lane Management
  - Transit Signal Priority
  - Connected Vehicles

FDOT's *TSM&O Strategic Plan*, dated March 2012, lays out a living document that provides guidance and a planning framework for the State of Florida. The primary goal of the plan is to set forth an integrated approach to maximize utility of existing infrastructure by preserving and enhancing safe, reliable movement of people and goods through operational strategies. These strategies include: demand management, freeway and arterial management, travel information, and transit operations and management.

LAND USE AND TRANSPORTATION CONNECTION. Connecting land use and transportation planning ensures the integration of transportation, land use, economic development, and environmental goals. It is about making a strong connection between plans and implementation programs, maximizing investments, and improving quality of life. It is also about promoting transit, bicycle and pedestrian-friendly neighborhoods and linking housing with jobs, commerce, cultural attractions, education, and entertainment.

In 2011, the Miami-Dade MPO conducted a study to investigate sustainable transportation strategies and their effect on travel behavior. One of the three scenarios reviewed was a "linkages" scenario which minimized travel needs by reallocating population and job growth based on smart growth and transit oriented development principles. In addition to adjusting the jobs-housing balance, the "linkages" scenario included implementation of Complete Streets. While the study concluded that vehicle miles traveled (VMT) reductions at the county level are difficult, it does recommend that study results inform future planning efforts, such as the *Southeast Florida 2060 Vision Plan* and the *Seven50* comprehensive plan that was kicked off on June 27, 2012.

LIVABILITY PLANNING. On June 16, 2009, U.S. Secretary of Transportation Ray LaHood, U.S. Secretary of Housing and Urban Development Shaun Donovan, and U.S. Environmental Protection Agency Administrator Lisa P. Jackson announced an interagency *Partnership for Sustainable Communities* to help improve access to affordable housing, provide more transportation options, and lower transportation costs while protecting the environment in communities nationwide. The *Partnership for Sustainable Communities* established six *livability principles* that will act as a foundation for interagency coordination.

1. **Provide more transportation choices.** Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.

2. **Promote equitable, affordable housing.** Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.

3. **Enhance economic competitiveness.** Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services, and other basic needs of workers, as well as expanded business access to markets.

"Creating livable communities will result in improved quality of life for all Americans and create a more efficient and more accessible transportation network that serves the needs of individual communities. Fostering the concept of livability in transportation projects and programs will help America's neighborhoods become safer, healthier, and more vibrant."

Ray LaHood,
Secretary - Department of Transportation

4. **Support existing communities.** Target federal funding toward existing communities – through such strategies as transit-oriented, mixed-use development and land recycling – to increase community revitalization, improve the efficiency of public works investments, and safeguard rural landscapes.

5. **Coordinate policies and leverage investment.** Align federal policies and funding to remove barriers to collaboration, leverage funding, and increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally-generated renewable energy.

6. **Value communities and neighborhoods.** Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods – rural, urban, or suburban.

Locally developed goals and objectives included in the Miami-Dade MPO *2035 Long Range Transportation Plan* support the livability principles established for creating sustainable communities.

In planning for transportation and transit projects, housing development and redevelopment, and incremental congestion management improvements, the concept of "complete streets" has been used to ensure that all modes of travel are served and connected. Livability is a major component of the complete streets design concepts. Transportation corridors in South Florida are challenging. Designed primarily for automobile use, the human-scale functionality for pedestrians and bicycles is severely limited. Alternative modes are unattractive in these auto-centric settings characterized by multiple-lane roadways with many turning movements and signal phases, as well as disconnected sidewalks separated from transit stops by ditches with destinations separated from travel corridors by large parking lots and driveways. Right-of-way constraints along corridors leave little space to provide bus shelters, bikeways, and sidewalk widths are narrow. Competition along our transportation corridors for utilities and drainage further complicate our ability to improve upon these conditions. Planning for our cities in past centuries and decades did not contemplate the transportation demands and population growth our metropolitan areas have seen. *And yet, many urban corridors have been transformed. Planning for complete streets takes compromise based on local priorities.*

A model used by FDOT is the Q/LOS, or the Quality/Level of Service designed to facilitate better decisions about multimodal roadway environments in the early planning and preliminary engineering stage of project development. While not intended to replace the rigorous traffic modeling required in detailed design, this tool can provide insights as to how to accommodate compatible uses in the early stage of planning so that considerations may be made for all modes before the design is locked down. These types of modeling tools are typically used in

applying complete street solutions. In many cases, it is not always about having all features on all streets. Rather, it is about prioritizing types of uses on a given corridor and channeling certain uses to more appropriate streets where they can be better accommodated. For example, a corridor with heavy traffic may not be the best bicycle route. Matching types of traffic with street types and balancing uses on alternate streets better suited for the mode of travel is a common approach to complete streets.

In understanding that transportation projects can have various effects, conducting a Community Impact Assessment is an effective tool for addressing quality of life issues such as mobility, safety, and environmental and economic impacts, and shaping the outcome of a project. The goal is to help promote livable communities by working to enhance community character and neighborhood cohesion, responding to community concerns, improving coordination among agencies and jurisdictions involved, and avoiding disproportionate adverse impacts on specific populations. Engaging in an informed dialogue with the public is necessary to understanding community values and improving the quality and equity of public decision making.

Sustainability and context-sensitive solutions continue to gain importance in providing transportation mobility solutions that are integrated with appropriate community design. Innovative approaches to address land use and urban design issues in transportation corridors are context zone analyses, urban design and form implications, and sustainability applications for all elements. Innovative livability programs consider design, governance, finance, and policy. Implementation plans may consider unconventional land use and urban design solutions for mobility hubs that promote transit and economic development, bicycle/pedestrian modes, and car-share/bike-share programs.

The Miami-Dade MPO has a long history of working with local jurisdictions to understand local comprehensive plans, land development regulations, economic development objectives, environmental initiatives, and complete streets programs.

PUBLIC HEALTH. A number of MPOs have identified the need to address public health in their LRTPs. The FTA identifies the need to include public health considerations in evaluation criteria determining the worthiness of a proposed New Starts transit project. In air quality non-attainment areas, the connection between air quality improvements and reduced exposure to harmful pollutants is clearly established and can be readily quantified based on modeling projections and results tied to emissions factors. Other considerations that affect health are more directly related to livability and accessibility factors, such as healthy foods, parks, pedestrian-friendly communities, bikeways, and less commuting time among others. Many of these considerations are affected by transportation and its link to land use.

The U.S. Centers for Disease Control and Prevention (CDC) maintains a *Behavioral Risk Factor Surveillance System* that uses body mass index (BMI) to group people into three classifications – healthy, overweight, and obese. The most recent data set reports that 35 percent of America's population is obese and another third are above a healthy weight. A number of studies link healthier weights to communities that have infrastructure that encourages walking, biking, and the use of public transit. These CDC reports legitimize and spur MPOs and other planning agencies to develop a number of healthy lifestyle initiatives in direct response to these alarming statistics. One recent neighborhood study published by the American Journal of Preventative Medicine (AJPM) concluded that obesity levels were lowest in neighborhoods with a closer proximity to healthy food outlets, lower density of fast food restaurants, and streets that are more conducive to non-motorized travel and access to parks.

The National Association of Regional Councils (NARC) published a report in June 2012 that examined how select regions are integrating public health into transportation planning. A few examples of how this is being addressed include:

- The Nashville MPO is a leader in integrating public health into transportation planning by forming policy, directing funding, and conducting research that facilitates positive health outcomes. When Tennessee ranked fourth highest in the nation for obesity, the MPO developed a transportation plan that included a "Health and Environment" section to evaluate projects based on their ability to increase accessibility for low-income and minority communities, transportation choices for disabled and the elderly, promotion of physical activity, transportation choices in health impact areas, and the ability to reduce vehicle emissions to name a few. They also funded $2.5 million in walking, bicycling, or transit-support projects through an *Active Transportation Program*.

- The Mid-America Regional Council in Kansas City, MO found that 57 percent of their population was overweight or obese and integrated public health as a goal in their *Transportation Outlook 2040*. They created development standards that support active modes of transportation, designated physical health as a performance factor in project development, and directed funding to programs that reduce exposure to harmful vehicle emissions. They also maintain *MetroGreen*, a Greenprint for a network of urban and rural metropolitan green corridors that double as environmental corridors and absorb floodwaters.

- The Wasatch Front Regional Council (Salt Lake City, UT) formed an *Active Transportation Committee* to ensure that public health was considered following development of a vision statement for its *Wasatch Choice for 2040*, which includes improved public health and more active neighborhoods as benefits of its transportation plan.

- The Boston Region MPO's central vision statement supports a healthy environment and is aligning transportation planning activities with its *Massachusetts Healthy Transportation Compact* that aims to "achieve positive health outcomes through the coordination of land use, transportation, and public health policy."

- The Washington Council of Governments (Seattle, WA) is establishing performance standards with measureable safety and health outcomes.

In NARC's review of MPOs that incorporated public health in their transportation, they note that many of these MPOs are also Council of Governments with responsibilities that extend beyond transportation. For example, in Philadelphia, PA, the Delaware Valley RPC and in Columbus, OH, the Mid-Ohio RPC evaluate the state of local and regional food systems and are developing plans to address the integration of land use planning that preserves farmland and strengthens food production as well as its processing and distribution, with transportation planning to ensure safe transport from the farm to the consumer.

In spite of the overwhelming reaction to the need to include public health in transportation planning considerations, this is a relatively new area that is yet to be fully integrated into transportation planning.

EQUITY: ACCESS AND AFFORDABLE HOUSING. Transportation policies have a direct impact on the availability of and access to affordable housing. Transportation decisions can also contribute to economic and racial segregation. According to the American Public Transportation Association, persons who use public transit can save on average $9,743 per year. Not everyone can afford to own a car and must depend on public transportation. Access to job opportunities is limited for those with limited transportation choices. Washington-based Center for Housing Policy and the Center for Neighborhood Technology in Chicago conducted a study of transportation and housing costs within 25 large metropolitan areas (*Losing Ground*, October 2012). The Miami-Dade urbanized area ranked 22 out of 25 for affordability. For moderate-income households in South Florida with incomes of $25,444-50,888 per year, the cost of housing and transportation is roughly 72 percent of their total income – 32 percent for transportation and 40 percent for housing. Other parts of the country pay an average of 59 percent.

The Leadership Education Fund issued a report that examines the key role transportation and mobility play in the struggle for civil rights and equal opportunity (*Getting Home: Transportation Equity and Access to Affordable Health Care*, July 2011). Reasons cited as to why transportation projects have a profound impact on housing and mobility include:

- Transportation policies directly affect the availability of and access to affordable housing.

Measures that Promote Affordable Housing

- Promote transportation alternatives to the automobile (transit, bicycle, pedestrian, carpooling, etc.),
- Reduce suburban sprawl,
- Develop housing near jobs as well as promoting jobs near housing,
- Revitalize older communities,
- Promote urban infill development, and
- Promote affordable housing in new developments to avoid adverse effects of gentrification.

- Policies and plans that prioritize highways and new suburban-style development have created a landscape where transportation costs due to long commutes to work become unaffordable.
- Housing and transportation costs are interrelated. Many people make their housing decisions based on the cost of housing alone. When the true transportation costs of suburban choices are factored in, inner city housing can be more affordable than suburban housing choices.
- Transportation has played a strong role in segregating and dividing communities by race and income.
- Transit oriented development provides opportunities for affordable housing.
- Transportation policy can make a positive impact on affordable housing.

SAFETY AND SECURITY. Increasing transportation safety for motorized and non-motorized users continues to be one of the eight planning factors for consideration in LRTPs. Safety and security have been, and continue to be, of great concern not only to the emergency management agencies that provide emergency relief, disaster, and preparedness planning, but they are a major concern for transportation planning agencies and providers as well. Federal planning regulations elevate the importance of highway safety by establishing highway safety improvement as a core program, tied to strategic safety planning and performance; creating awareness for increased safety on our highways infrastructure; and requiring strategic highway safety planning, focusing on performance results. MAP-21 targets specific areas of concern such as work zones, older drivers, and pedestrians, including children walking to school. Many transportation plans broaden the *Safe Routes to Schools* to *Safe Routes to Transit* programs.

The Miami-Dade MPO is committed to coordinate and provide support to emergency agencies by integrating safety and security planning into their transportation planning process. It is a priority for the Miami-Dade MPO to ensure transportation facilities and technologies are in place to assist emergency agencies in carrying out their safety plans for hurricane evacuation and other emergencies. Existing crash data can help prioritize transportation improvements and safety measures in the *2040 LRTP Update*.

The Miami-Dade MPO has made important strides integrating safety into the LRTP by looking at strategies that provide an efficient, safe transportation network for drivers, pedestrians, and bicyclists. Safety in roadway planning (identifying high accident locations and their contributing factors) and education continue to be a high priority as evidenced in Miami-Dade County MPO *Bicycle and Pedestrian Action Plans*. Users of the system also tend to be actively involved in the development of the LRTP.

SUSTAINABILITY AND SEA LEVEL RESILIENCY. Sustainability has generated a lot of interest across the U.S. and is covered in many LRTPs in addressing various livability objectives, and many coastal areas address sea level rise. Miami-Dade County has initiated extensive sustainability planning efforts through *GreenPrint, Our Design for a Sustainable Future* released in December 2010. The Miami-Dade Board of County Commissioners committed to the *U.S. Cool Counties Program* that greenhouse gas emissions would be reduced by 80 percent from 2008 levels to 2050 levels. This plan culminates in the *Climate Action Plan* for Miami-Dade County that includes a number of initiatives, including transportation projects and programs, to achieve these goals. Since adoption of the plan, more than 100 legislative actions have been taken in furthering the following goals:

- Leadership, Connections, and Commitment
- Water and Energy Efficiency
- The Environment
- Responsible Land Use and Smart Transportation (numerous fuel and energy initiatives and development of a voluntary green rating system for roads and neighborhoods)
- Vibrant Economy
- Healthy Communities (Bike Facilities Plan, Street Tree Master Plan, and green infrastructure)
- Climate Change

Performance is measured annually against 2015 targets through a *GreenPrint Scorecard* and published on the website along with an Implementation Table. Of the 137 initiatives identified, 52 involve all modes of transportation and land use. The Miami-Dade MPO made sustainability an emphasis area in their *2035 LRTP* and dedicates a chapter to this regionally important subject.

Sea level rise is a growing concern in Southeast Florida, owing to its vulnerable populous coastal communities, subtropical climate, porous geology, and low topography. Opinions vary widely as to how accurate the predictions about climate change relative to increased greenhouse gases are and which prediction to believe. What we can all agree on is recorded history. Since 1880, sea level has risen roughly eight inches, and the rate is increasing in recent years. Recent publications by the Intergovernmental Panel on Climate Change (IPCC), National Academies and American Meteorology Society consider what is known about climate change and sea level rise. Miami-Dade County and Southeast Florida is regularly affected by the interactive forces of heat waves, tropical storms, heavy rains, and coastal flooding. Climatologists at Climate Central have published a peer-reviewed report and set of interactive maps that show sea level rise across the U.S. (*Surging Seas*, March 14, 2012) The study analyzed 55 sites in the U.S. to evaluate the level at which the "storm of the century" normalizes. In other words, most of the major storms would occur at least four feet above the high tide line. Of the vulnerable populations in the U.S., half of those exposed live in Florida and eight of the top ten cities determined to be the most vulnerable are in Florida. Miami-Dade and Broward

*The science committee of the Miami-Dade Climate Change Advisory Task Force tell us it's not **whether** sea level rise will occur, but **when**.*

counties each have more people living on land that is below 4 feet than in any state other than Louisiana. It's no wonder that this issue has been an emphasis area for South Florida's leadership.

In South Florida the growing concern of elected officials and the public has led to an annual *Climate Leadership Summit*. The fourth such event is scheduled for December 6-7, 2012 in Palm Beach County. The impact of sea level rise projections were explained in detail and spurred four counties of Southeast Florida (Miami-Dade, Broward, Palm Beach, and Monroe) to enter into the *Southeast Florida Regional Climate Change Compact* (the Compact) to work cooperatively to address climate and sea level rise concerns. Compact work group participants included representatives of the Miami-Dade County Climate Change Advisory Task Force, the U.S. Army Corps of Engineers, the Broward County Climate Change Task Force, the South Florida Water Management District, the University of Miami, the National Oceanic and Atmospheric Administration, and Florida Atlantic University.

According to best practice research developed by the FHWA, many MPOs across the country of various size and complexity are addressing sustainability and climate resiliency through existing planning processes, while other MPOs - like the Miami-Dade County - place climate resiliency prominently at the top of their list of priorities. Some MPOs are studying the impacts of sea level rise and stormwater management, and how this impacts infrastructure (roads, bridges, railroads). MPOs are participating in a variety of climate change programs and initiatives ranging from establishing formal greenhouse emissions baseline data and mitigations plans to more simple ad hoc efforts. (*Climate Change Adaptation Peer Exchange Summary Report*, FHWA, August 29, 2012)

The Compact was cited by FHWA as an example of strong local leadership to proactively addressing sea level rise vulnerability and risk. California is at the forefront of the climate change issue in large part due to statewide requirements to incorporate greenhouse gas reduction targets and reporting of compliance with a goal of reducing statewide greenhouse gases to 1990 levels by 2020. The Boston Region MPO was recognized for their long range planning efforts to include hazard mapping to identify vulnerable transportation infrastructure and to inform the security evaluation of any proposed transportation projects. Other regions and MPOs embrace sustainability planning for multiple reasons based on a desire to improve the livability of their region and the quality of life for its residents.

Effective communication of sea level rise issues and climate change adaptation was also addressed in the FHWA peer review. It is common for the public to confuse these issues with the politics of climate change mitigation that is perceived to be costly and unfounded based on disagreements in the scientific community. Peer exchange participants recommended using terms such as "extreme events," "event management," "multi-hazard management," and "resilience" in communications. Others recommended that the simplicity and good business practice nature of sustainability be stressed in messaging these topics.

Planning for sea level rise complements natural hazard and evacuation planning. Assistance with evacuation planning has several facets: agency coordination, identification of improvements, and vulnerability assessments. Coordination with local officials including Miami-Dade County Public Safety and Metro Dade Police are needed to expand sheltering options and access, and to provide better public transportation for special-needs populations. This will reduce clearance times and the need for costly future transportation improvements. Improved infrastructure may include new facilities for alternative hurricane evacuation routes to I-95 and I-75, better east-west mobility, and options for mono-directional traffic flow during evacuations.

Coordination with the Southeast Florida Regional Planning Council and using the *Statewide Regional Evacuation Study Program* and other data sources can help determine likely trouble spots in the future. The *Joint Unified Local Mitigation Strategy* for Miami-Dade County and the *Climate Change Vulnerability Assessment* can help identify problem areas and guide future transportation investments.

Studies that share data sources on future trouble spots in the Southeast Florida region.

EMPHASIS AREAS – ENGAGING THE PUBLIC

A common challenge for any long-range planning public involvement effort is making the planning horizon relevant to the general public. For some, there is a belief that the end of the 20-year horizon period is beyond their lifetime and therefore is not anything they should worry about, let alone engage in a discussion about. For others, there are more immediate and pressing needs that demand their attention. But for many who do engage in long-range planning processes, it is about the next generation and there is a feeling that what we do today is critically important for our children and grandchildren.

The Miami-Dade MPO updated their Public Participation Program (PPP) on February 23, 2012, consistent with the federal requirement for updates at least once every four years. The PPP addresses overall outreach strategies and goals for the full range of MPO activities, including the LRTP. The PPP outlines when and how the public should be engaged in the MPO planning process. It also outlines evaluation methodologies that measure performance against established targets at each project milestone to identify strategies to enhance participation and outreach strategies incrementally. Overall performance and lessons learned are then recorded for reference in future outreach efforts. Each LRTP update requires development of a Public Involvement Plan (PIP) for outreach activities associated with the transportation planning process consistent with the PPP.

Federal law requires the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) jointly certify the transportation planning processes of Transportation Management Areas at least once every four years. In November 2011, the FHWA/FTA issued a certification report for the MPOs within the Miami Urbanized Area which includes Palm Beach and Broward counties in addition to Miami-Dade County. The 2011 Certification Report identifies noteworthy practices, corrective actions, and recommendations. The Miami-Dade MPO was commended for the following exemplary activities:

- Web-based interactive tools such as the *Transportation Outreach Planner*
- Visualization techniques and methods for capturing public engagement activities and results
- Increased outreach to traditionally underserved and minority populations through *Community Action Agency Centers* throughout the County
- Regional coordination success was cited as exemplary for both MPO staff and Miami-Dade Transit in working closely with agencies throughout South Florida

ENVIRONMENTAL JUSTICE. The FTA issued Circular 4703.1 on August 15, 2012 which addresses the integration of Environmental Justice principles in transportation planning, including methods of achieving meaningful engagement with persons typically not involved in transportation planning activities. Regulations adopted jointly by the FTA and FHWA in 23 CFR part 450 details a process of collaborative transportation decision making. MPOs that lead the process are required to provide meaningful and frequent opportunities for community members and decision makers to voice future visions of their communities. Traditional means (websites, newspapers, radio, television, and signs on transit vehicles and at stations) and non-traditional means (informal group meetings, partnerships, community led events, and social media) are identified to help meet requirements to seek out and consider transportation needs of those traditionally underserved by the existing transportation systems, particularly low-income and minority households challenged with job access. MPOs must also engage transit agencies early to address transit needs as part of the multimodal scope of the long-range planning process.

The first step to meaningful engagement is to understand the residential demographic profiles for the populations within the "planning impact area." Our demographics are changing. World views and how we communicate with one another are evolving. It's important to know who we are trying to reach. In the past decade, people over 45 years of age represent the fastest growing age group with a 47 percent increase. People between 25 to 44 years of age declined in number by 3 percent. Miami-Dade by contrast saw an increase of 28.6 percent of persons between the age of 25 and 44 from 2000 to 2010, a big difference compared to the rest of the country. In Miami-Dade, persons of Hispanic descent represent the majority, or 65 percent, of the total population. Black or African American ranks second at 17 percent of the total population. Another distinction for Miami-Dade is a high number (52 percent) of people that are foreign born, up two percent in the last decade. Limited English Proficiency (LEP) is also high for Miami-Dade residents with half of the population above 5 years of age who speak a language other than English at home and who speak English less than "very well."

Travel behavior, flows, and mode choice are also important characteristics to understand in developing appropriate outreach strategies. Miami-Dade Transit boasts a robust transit system with close to 400,000 riders each day, 17 percent of total daily trips.

The Miami-Dade MPO has taken an innovative approach to identifying and disseminating information about community characteristics through their on-line *Transportation Outreach Planner*. This interactive tool utilizes maps and statistics from the 2010 U.S. Census data and the 2009 American Community Survey not only for Miami-Dade, but for Broward and Palm Beach counties to the north. This exemplary tool was the result of a recommendation made in the 2003 FHWA Certification which identified the need to incorporate "sociocultural

effect" features in its transportation planning process to ensure community values and concerns are addressed. Public outreach strategies are also identified for various demographic categories and target groups. Types of outreach listed in this interactive tool vary widely and include traditional, non-traditional, and new technologies. Lessons learned and case studies are also included.

FTA's Circular on Environmental Justice also addresses the fundamental importance of visioning for future transportation to the planning process, particularly the inclusion of broad community goals. They recommend engagement of Environmental Justice populations on issues of mobility, accessibility, community, environment, and any other goals that may help identify unmet transportation needs. In prioritizing projects, it is important to weigh equity in new or expanded transit services to ensure the needs of all communities are addressed proportionately by projects within the cost constrained transportation plan for the 20-year horizon.

INTEGRATING EMERGING TECHNOLOGIES. The specific components and elements of an LRTP are important, but a critical factor in a successful planning process is the ability to engage the public and stakeholders in its development. Techniques may include market research involving questionnaires, community values and opinion surveys, focus groups, and online interactive input techniques. The goal in using new and emerging technologies for gaining input is to obtain a broad-based, accurate reflection of public opinion concerning Miami-Dade transportation plans, policies, priorities, and potential funding sources.

There are many different ways to reach the public today. Traditional townhall meetings or open houses are a good idea. Nothing replaces the importance of face-to-face communications or the power of the human voice in connecting with one another. In today's busy world, not everyone can come to the same place at the same time. Electronic townhall meetings open up a new arena for public participation. Busy people can tune in and make comments or ask questions by telephone while they take care of dinner or relax in the comfort of their home. Television and the internet are common tools used in broadening outreach to larger numbers of participants in a cost-effective manner.

VISUALIZATION TECHNIQUES. Visualization is an effective way of illustrating a plan or displaying a process. Graphics and other visualization techniques can help simplify the communication of complicated planning concepts and terminology. Visualization techniques can also help illustrate how a community may be affected by a proposed project or plan. Visualization can come in a number of different styles – in animated videos that incorporate sound or music, digitally enhanced or altered photographs, or in guides or pamphlets that illustrate a range of different options or "levels" of development.

How we explain and illustrate geographic-based information has become more and more sophisticated. In the *2035 LRTP*, the Miami-Dade used a visualization technique known as "blocks and ribbons" which provided a visual means of demonstrating various possible outcomes of a course of action represented in a long range transportation plan. It provides a way for attendees to actively participate in developing project priorities and to really see the effects of development on transportation infrastructure.

Another useful innovation in visualization is through interactive websites. The Miami-Dade MPO is a leader in the use of these interactive tools which are becoming more and more user-friendly. The lay person is able to dig deeper into the details of a plan, while directing their search to their particular area of interest more quickly and efficiently. New technologies and communications tools that make it easier for the general public to understand and contribute to the long-term vibrancy of their regions will play an increasingly vital role in long range planning.

Scenario planning is gaining popularity with a number of MPOs, particularly in the exploration of the link between transportation and land use. Many tools are available today that make use of Geographic Information System (GIS) platforms combined with visual imagery that illustrates possible future outcomes of policy and plan changes in a way that the public and decision-makers can quickly understand. MAP-21 provides for scenario planning as an optional way for MPOs to consider alternative future demographic growth and revenue options.

MAP-21 requires *"In carrying out public participation of interest parties for transportation plans, the metropolitan planning organization shall, to the maximum extent practicable, employ visualization techniques to describe plans, and make public information available in electronically accessible format and means, such as the World Wide Web."*

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CHAPTER
4

PERFORMANCE MEASURES BY EMPHASIS AREAS

This chapter will discuss performance measures and their use in preparing multimodal LRTPs and other related planning processes. The science and application of performance measures is now in the national spotlight with new MAP-21 requirements to be further defined by ongoing rulemaking. Chapter 3, Policy and Funding, addresses the MAP-21 requirements and the schedule for rulemaking and establishing targets at the state and local level. Metrics used by peer MPOs in evaluating prospective performance and monitoring actual results for comparison with goals and objectives established in a long-range transportation plan process are reviewed.

Performance measures to be developed by the Secretary of Transportation over the next 18 months will support the six National Performance Goals and be developed in partnership with stakeholders. FHWA began their development of performance measures with an online dialogue in September 2012. More than half of the input they received related to highway system performance and traffic congestion; over 30 percent addressed infrastructure condition of our highways and safety. FHWA also held a national listening session on October 25, 2012 to gather more input on specific questions.

Transportation planning agencies are well-prepared for the implementation of performance-based planning because this has been a planning focus of MPOs across the country for some time, including the Miami-Dade MPO. As planners approach transportation issues from a broader perspective to incorporate environmental, economic, equity, and public health considerations in the context of mobility needs, performance takes on a new dimension. There is a desire among community leaders to incorporate more quality of life considerations in measuring outcomes from our investments.

REGULATORY FRAMEWORK

Under MAP-21, performance measures are now required to be developed by the Secretary of Transportation for the National Highway Performance Program through a rulemaking process. *(MAP-21, Section 1203, National Goals and Performance Management Measures)* States will then be required to adopt targets in collaboration with their regional MPOs. Measures will be established to support national goals as outlined in §150(b) of MAP-21 that address:

- ***Safety*** – To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- ***Infrastructure condition*** – To maintain the highway infrastructure asset system in a state of good repair.
- ***Congestion reduction*** – To achieve a significant reduction in congestion on the National Highway System.
- ***System reliability*** – To improve the efficiency of the surface transportation system.
- ***Freight movement and economic vitality*** – To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- ***Environmental sustainability*** – To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- ***Reduced project delivery delays*** – To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

For LRTPs prepared under MAP-21, MPOs are required to use a performance-based approach to decision-making *[§134(h) Scope of Planning Process, (2) Performance-Based Approach, MAP-21]* that supports these national performance goals. Public transportation performance targets will also be developed by MPOs in collaboration with public transportation providers to ensure consistency with Transit Asset Management *[49 U.S.C. §5326(c) and MAP-21 Section 20019]* and Transit Safety & Oversight *[§5329 and MAP-21 Section 20021]*.

MAP-21 grants FTA new authority to establish and enforce a comprehensive framework to oversee public safety relative to heavy rail, light rail, buses, ferries and streetcars. Interim safety criteria will be established by FTA no later than December 31, 2012 to be followed by formal rulemaking with a public comment period. FTA will also establish state-of-good-repair standards pursuant to MAP-21 section 20019 by October 1, 2013. MPOs must coordinate performance targets used in their LRTPs with their States to ensure consistency.

Performance measures will have broader applications in the future extending beyond the development of a cost feasible plan. Their importance will transcend project prioritization and move into the setting of targets to be used in evaluating whether plans are implemented, and whether they are achieving the desired outcomes. The national results could be used to monitor performance and prompt corrective actions during implementation. They could also be used to determine whether national program funding goals are being achieved across the board, or whether the performance measures employed need to be adjusted to better capture results.

It should be noted that MAP-21 only specifies what performance measures are established for highways and interstates. Specific measures will be established at a national level to guide minimum standards for bridge and pavement management systems, measures to assess condition and performance of highway and interstate systems, safety improvements, congestion mitigation and on-road mobile source emissions, and freight movement. The states will then establish targets relative to these performance measures. Biennial reporting will be required with the first report due from the Secretary of Transportation five years after the October 1, 2012 effective date of MAP-21.

CHARACTERISTICS AND USES OF MEASURES

Planners have used performance measures in various forms and purposes in the context of transportation plans. Some relate to expectations of performance and are derived from modeled projections. Monitored performance relies on the ability to measure or count results. Applications of how we measure performance for consideration in decision making include:

- ***Measures of effectiveness*** (MOEs) are frequently used in LRTPs to evaluate and compare project or program performance. MOEs have typically been used to prioritize projects that may be deemed to provide the greatest return on investment and contribute the most desired results based on regional priorities reflected in goals and objectives of an LRTP. Often, these MOEs are weighted to take into account local and regional priorities in addition to ultimate outcomes. Although many MOEs are quantitative and can be measured or modeled, additional qualitative measures may be needed to account for characteristics that are necessary to ensure objectives are met. An example of a qualitative measure would be the level of investment in park-and-rides or sidewalks. Another may be the degree to which a plan element is consistent with other plans and initiatives, or whether it promotes the use of alternative fuels. The answers to these more qualitative measures may be a simple yes/no response, or a more subjective (but consensus-driven) measure of good/better/best.

- ***Scenario plans*** (which consist of a package of projects with an exaggerated leaning towards a mode or investment type) are often used to compare desired targets to determine which approach is more consistent with funding levels or objectives established by leadership.
- ***Corridor studies*** use performance measures in the form of "New Starts" criteria to substantiate project justification and rank projects competing for federal funding for new fixed guideway projects. Composite performance measures that incorporate multiple measures (cost-effectiveness or benefit-cost ratios) may also be used as "benchmarks" for evaluation of projects.
- ***Grants applications and TIP programming*** often include performance criteria or "making the case" requirements to rank and prioritize capital investments.
- ***Environmental assessments*** often establish impact thresholds or levels of impact to measure whether a project requires specific mitigation for a specific impact types such as noise, displacements, or wetlands; and serves as the basis for an environmental finding or a record of decision.
- ***Performance monitoring and implementation*** tracking is another popular mechanism employed voluntarily in recently completed LRTPs by regions to ensure that spending priorities are enforced and that projects are delivering the desired results. In other cases, performance monitoring is required by state laws, or by agreement to ensure accountability for excise tax funding mechanisms. MAP-21 requires MPOs use a performance-based approach to transportation planning, including certain performance management and reporting requirements.
- ***Comprehensive regional plans*** include performance targets to monitor strategic outcomes for multiple planning areas such as regional economic prosperity, public health, housing, climate resiliency, land preservation, and mobility among others. These targets may be monitored using a scorecard, dashboard, or thermometer to graphically display relative achievement of the desired outcomes and communicate the plan results in a manner that is easy to understand.

It has been observed that once this type of information is provided, the public comes to expect reporting regularity and successful achievement of established goals. Accountability is an important factor of public acceptance and willingness to fund public transportation projects. Performance measures foster that accountability and provide a means for reporting progress towards achievement of established performance goals and objectives.

Inventory of Peer Performance Measures. Performance measures compiled for the peer MPOs reviewed in this study are shown in full in **Appendix C** categorized by type. A discussion of observations about measures within each type of measure follows:

- **Bicycle/Pedestrian** – Several, but not all MPOs reviewed bicycle/pedestrian as a separate category. Oregon Metro has the most extensive set of measures for bicycle/walking trips, and they monitor system implementation. Miami-Dade measured the percent increase in the number/mileage of facilities, but not use.
- **Economic** – Measures included comparison of travel time to capital investment and benefit/cost ratios. San Diego has a number of measures that focus on per capita expenditure distribution in environmental justice communities, and they also focus on output and payroll impacts in addition to user costs. MetroPlan Orlando measures the cost of congestion, economic activity generated, and jobs/housing ratio. Miami-Dade measures a number of factors relative to participation by the private sector, travel time savings relative to various expenditures (capital, operating and the People's Transportation Plan), and levels of federal and State investment.
- **Environmental** – Most measures relate to air emissions by pollutant. MetroPlan Orlando measures fuel use and Wasatch Front measures 49 categories of natural and urban resources. Miami-Dade also measures impacts to wetlands.
- **Land Use** – Most of this measurement focuses on proximity of households and jobs to transportation facilities or destinations in terms of travel time and distance. Oregon Metro measures the number and percentage of jobs and households within 30 minutes from key destinations. As with economic measures, San Diego focuses measures on percentages of environmental justice populations within a half mile of transit stops and within 30 minutes for work trips in peak hour. Miami-Dade inventories highway lane miles and transit route miles within a half mile of key destinations and emphasis areas such as freight routes, redevelopment areas, tourist attractions, urban infill and regionally significant corridors.
- **Multimodal** – Travel time and hours of delay without respect to mode are included here. Boston measures the backlog in state-of-good-repair projects and bridge repair. They also measure the number of visits to the MPO or DOT websites. They also measure projects that close gaps in the transportation system. ARC utilizes a Multimodal Accessibility measure to evaluate job accessibility in the Atlanta region by car, transit, and walking.
- **Roadway** – This is the category with the greatest number of measures. For the most part, the measures focus on travel time, speeds, congestion, vehicle miles traveled, vehicle hours traveled, and lane miles. The Metropolitan Council for the Twin Cities, Minnesota focused on carpool attractiveness, vehicle miles traveled, and vehicle throughput. Boston and Chicago focused on the condition of their transportation systems in addition to congestion.

- **Safety** – Crashes and fatalities top the list of performance measures related to safety. Miami-Dade measures the level of investment in safety projects in addition to the number of accidents. ARC also measures percentage of transportation projects in high crash locations.
- **Transit** – Transit boardings, ridership, trips, route miles, and numbers of facilities dominate the list. Puget Sound has a number of separate measures for demand-response and fixed route boardings. Miami-Dade's focus for transit is on coverage of service and use. Boston includes measures of ADA-compliant stations, mean miles between breakdowns, and on-time performance.

Our first observation is that although many MPOs measure the same types of performance, they seldom measure performance by the same metrics or use the information in the same manner, resulting in a wide array of unique measures. These measures are typically used in performance-based funding practices noted earlier as MOEs. In many cases, project selection is where performance ends. Actual results for activity levels may not be easily measured, and the true focus of the MOEs is project prioritization under a set of assumed future conditions. Whether or not the individual projects attain the desired results has not been a broadly applied focus of performance measurement. What does get measured is regional performance under the Congestion Management Process which has been a long-standing federal requirement for MPOs.

HOW WILL PERFORMANCE MEASURES EVOLVE UNDER MAP-21?

Under the performance-based planning approach, monitoring and reporting of results will be required. Although many LRTPs discuss progress made in achieving goals and objectives since the last LRTP, they don't always measure that progress through performance metrics against established targets.

Many MPOs have used MOEs geared to goals and objectives to ensure they select the most effective projects for funding and implementation. MOEs address a variety of factors including: placement of facilities in relation to land uses, funding allocations, and inventories of types of facilities. Some of these measures are derived from model outputs or composite ratings and may not lend themselves to future counts or monitoring in real terms.

With the newly established national goals, it will be important to apply performance measures consistently across the country while maintaining the regional focus on what is important to the locale preparing the plan. Boston MPO for example has a keen focus on state-of-good-repair for their transit system, roads and bridges. A significant portion of what they spend is consumed in keeping what they have functioning, with little monies left for new expansion. San Diego places a priority on how investments are distributed among environmental justice populations. In Denver, Orlando, and Portland, land use and development patterns are key

performance strategies. Miami-Dade County measures the extent of facilities and services, as well as benefits and use relative to investment.

Another aspect of tying performance-based planning to the national goals is the cross-cutting nature of the measures themselves. **Exhibit 4-1** shows the relative implication for each of the types of measures inventoried for this review upon the national goals as having a direct or indirect influence. Direct relationships are those that can be measured against established targets. System reliability for roadways and transit can be readily measured in terms of travel times and on-time performance, respectively. Indirect relationships recognize the importance of the national goal to the facility or factor, but may be harder to establish a meaningful target that can be monitored. For example, infrastructure condition can affect safety but a performance measure would need to tie accidents to the cause as it relates to rough pavement or potholes. Relating the cause to an outcome or event may be difficult to measure.

EXHIBIT 4-1: National Goals and Performance Measures

National Goals	Bicycle/Pedestrian	Economic	Environmental	Land Use	Multimodal	Roadway	Transit	Safety
Safety	D	I	I	D	D	D	D	D
Infrastructure condition	I	I	I	I	I	D	D	I
Congestion reduction	D	D	D	D	I	D	D	I
System reliability	I	I	I	I	I	D	D	I
Freight movement and economic vitality	n/a	D	I	I	n/a	D	n/a	I
Environmental sustainability	D	I	D	D	I	D	D	I
Reduced project delivery delays	D	D	I	I	D	D	D	I

(D)irect relationship; (I)ndirect relationship; n/a – not applicable

The national goals certainly add a new dimension to performance-based planning. The goal of reduced project delivery delays recognizes the role that long project implementation schedules play in the economic conditions in the region and rising implementation costs. The focus on freight movement will be especially important to Miami-Dade County which is poised to benefit from improvements to intermodal connections with the expanding Port of Miami.

MPOs will be challenged in their next LRTP updates to develop a framework for performance-based planning that addresses local investment strategies that address national goals in a manner that can readily be monitored and reported. Because of this new requirement, it may be advisable to establish selection criteria

in the form of MOEs separately from performance measures for purposes of project selection within spending categories. And, since many of the MOEs are model-driven or relate to levels of investment, it may be appropriate to develop key performance measures and targets that readily lend themselves to measurement and that have overarching significance to the goals established in the 2040 LRTP.

For example, a key objective in Miami-Dade relates to reductions in travel times between destinations. Much of this is being addressed through congestion management to gain more throughput in existing facilities that also accommodate higher occupancy vehicles and transit trips. FDOT has established a sophisticated monitoring system on major highways and readily provides travel time information in real terms for I-95 and regularly reports performance of the 95 Express project. In October 2012, the Miami-Dade Commission approved the addition of "tolls on tolls" managed lanes in the form of express lanes on the Homestead Extension of Florida's Turnpike. This monitoring system could be used to provide performance monitoring against targets.

Another problem that is being addressed in Miami-Dade County (as well as the counties to the north) is the east-west connection to north-south facilities for Tri-Rail, inter-county express bus, and the future *All Aboard Florida*. Travel time improvements for east-west travel could be monitored by extension of the same monitoring system used on I-95 to establish a travel time improvement for key travel corridors that connect to these major facilities and destinations. Transit properties already measure ridership and other service factors. An overarching goal to reduce travel times for westward populations could also reduce a barrier to efficient connectivity between modes that could improve transit use of regional services.

Much of the work at the national and State level to define performance measures will be in development during the Miami-Dade County LRTP and the Southeast Florida RTP update cycles. During this same planning cycle, the *Seven50* comprehensive regional planning process now underway can provide important strategic support, particularly with the scenario planning data development and regional priority development which includes Miami-Dade County. It will be important for the Miami-Dade MPO staff to maintain involvement and coordination with these multiple efforts to ensure consistency of the 2040 LRTP update with regional, State and national planning work in progress.

CHAPTER 5

RECOMMENDATIONS

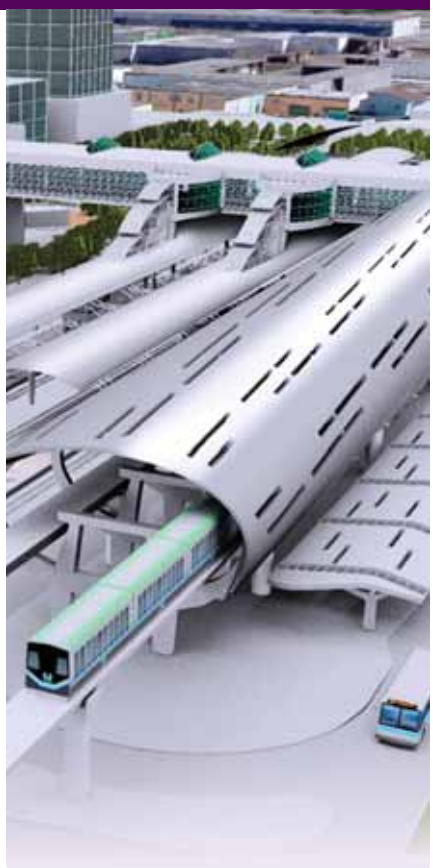
The Miami-Dade MPO has frequently led the way in transportation planning and in making the most of existing resources and infrastructure. Living within a budget is a smart way to do business in any economic cycle. Looking forward, the Miami-Dade MPO is in a unique position to build consensus for ideas that will not only shape the future of important transportation investments, but in leading the way towards new opportunities to leverage available local funds and identify new revenue sources. Put simply, making the best of and building on what Miami-Dade already has is the path to prosperity.

This study reviewed existing and emerging regulations, examined what has been done around the nation in the most recent round of LRTPs, and explored ideas with the Study Advisory Committee. The following recommendations are identified for further consideration in the development of the 2040 LRTP update.

Align with recent and emerging principles and priorities. You might say this is the low-hanging fruit since many of Miami-Dade's goals and objectives align well with other plans. However, it will be important to consider these plans and principles to ensure compatibility and explore additional areas that may lead to new ideas and priorities. Since the 2035 LRTP, a number of plans have been developed or are in the process of being developed within the same timeframe as the LRTP.

- HUD DOT EPA *Livability Principles* (Partnership for Sustainable Communities, September 2009)
- *Governor's Transportation Vision and FDOT Implementation Priorities* (August 2010)
- *Six Pillars of Florida's Future Economy,* Florida Chamber of Commerce (Strategic Plan, October 2011)
- *Seven50 Regional Vision and Blueprint* (In process, scheduled completion in 2014)

Take a fresh look at transit corridors and technology in the needs assessment. A lot has changed since the adoption of the 2035 LRTP in late 2009. Since then, Florida East Coast Industries unveiled their plans for the intercity commuter rail *All Aboard Florida* by the end of 2014, and plans for the expansion of Tri-Rail onto the Florida East Coast Rail Corridor are being refined and advancing towards a new locally preferred alternative. Miami-Dade Transit and MDX are studying a number of managed lanes projects as well as bus rapid transit projects, and FDOT has a number of Project Development and Environmental (PD&E) studies that are progressing and in some cases being coordinated where appropriate. The 2040 LRTP Update is an opportunity to examine how best to provide the needed east-west connections to high capacity north-south regional and intercity connectors to improve needed mobility and jobs access.



Explore new funding opportunities with MAP-21 to leverage local funds. A number of programs have been consolidated with MAP-21. With the demise of earmarks, the majority of federal funding is allocated by formula for State and local decisions on which projects merit advancement.

Public Private Partnerships for Transit - Review potential transit hubs to identify where prospective project partners own property that could be leveraged for joint development to generate future income. Transportation Infrastructure Finance and Innovation Act (TIFIA) or State Infrastructure Bank funds may be available if future revenue streams can be identified to pay back the loans. Miami-Dade has many potential sites that show promise for private-sector involvement with transit hub improvements. Some of the possibilities could include:

- **Downtown Miami Intermodal Center:** The proximity to the future station for the planned *All Aboard Florida* intercity passenger rail being implemented by Florida East Coast Industries (FECI) presents potential opportunities for connectivity and joint development.
- **Golden Glades Interchange:** A study is underway by FDOT for improvements for the interchange to better connect the 95 Express managed lanes with the Palmetto Expressway and Florida's Turnpike. This is also the location of an existing Tri-Rail station and the Golden Glades Multimodal Facility which connects to inter-county transit service.
- **Miami-Dade Transit Joint Development and TOD Projects:** (identified in the July 2012 Transit Development Plan FY2013-2022)
  - o Current: Brownsville Transit Village at the Metrorail Station, NW 7th Avenue Transit Village, Brickell Citicentre, Palmer Lake, Okeechobee Metrorail Station, Northside Metrorail Station, Senator Villas, NW 215 Street Project, Caribbean Boulevard.
  - o Future: Douglas Road (recently replatted), Palmetto, Coconut Grove and South Miami Metrorail Stations.

This past April 2012, with the release of their 25-year Master Plan, the Port of Miami started a conversation about private sector participation in the development of office/hotel retail on the southwest corner of the Port's property in Biscayne Bay. Mobility choices to access this proposed facility could include a transit hub to connect this new use on Port of Miami property to downtown Miami. A study now underway is examining a means of connecting the Metromover to the cruise terminal.

Transit-Oriented Development Planning Pilot – Funding for this program is not included under the Continuing Resolution; therefore, it will only be available after the FY2013 Appropriations Act is approved by Congress, likely in March 2013. The intent of this discretionary program is to appropriate $10 million each fiscal year in 2013 and 2014 to advance planning efforts that support TOD projects associated with new fixed-guideway and core capacity improvement projects. Comprehensive

planning goals must encompass economic development, multimodal connectivity and accessibility, transit hubs for pedestrian and bicycle access, mixed-use development, infrastructure needs, and include private-sector participation. This could be an opportunity for Miami-Dade to work with FECI to plan for the full integration of mobility in downtown adjacent to the Government Center in downtown Miami. Alternatively, many of the projects identified by Miami-Dade Transit could be eligible for planning pilot studies.

Corridor-Based Bus Rapid Transit Projects – MAP-21 opens up new eligibility for BRT projects that have substantial investments in a defined corridor with defined stations, traffic signal priority for transit, and short headway bi-directional service for a substantial part of weekday and weekend service. Corridor-based Enhanced Bus has been an important focus for Miami-Dade Transit as a means of providing the connectivity between modes as well as corridor-based improvements. New Metrobus routes are planned for the following corridors: North Corridor (NW27th Avenue), Palmetto Expressway, East-West (Tamiami Trail and SR-836), Douglas Road, and Northeast (Biscayne Boulevard).

Core Capacity Improvement Projects – The Major Capital Improvements funding known as New Starts and Small Starts is expanded to include projects that increase the capacity of existing transit systems by at least 10%. The corridor must be at or over capacity, or expected to be in five years. It does not include project elements designed to maintain a state of good repair. Eligible costs include property acquisition, double tracking, signalization improvements, electrification, expanding system platforms, new rolling stock for increasing capacity, and infill stations. Miami-Dade's heavy rail service has been in operation since 1984 and continues to expand.

State of Good Repair Program – Facilities operating for at least seven years are eligible for this formula-based program that replaces the Fixed Guideway Rail Modernization Formula Program. Projects must be included in a Transit Asset Management Plan, for which the plan development and implementation is included as an eligible activity. BRT and motor buses that use HOV lanes are included, but the HOV lanes they operate on are no longer a part of the definition for fixed-guideway systems.

Develop and implement new revenue sources. Miami-Dade would be the exception to the rule if new revenues were not among its goals. All the LRTPs reviewed in this study identified the need for additional revenues. The 2035 LRTP identified needs that were twice available funds. While some efficiency can be found, at some point new sources will be needed. Ideas for leveraging local funds are a good plan, but the fiscal pinch is occurring at all levels. The federal gas tax is unsustainable by design. More fuel-efficient cars have tipped the balance against our ability to rely on a flat tax to support our transportation needs.

Explore recommendations for use of the available 2-cent local option gas tax – Miami-Dade County has the ability to increase sales taxes for an additional 2 cents,

but it must develop a plan for consideration of this extension. Given the expected shortfall of funding compared to need defined for the 2040 LRTP Update, perhaps a recommendation for specific high-return investments would be appropriate.

Possible Mileage Based User Fee (MBUF) Pilot Project –A number of locations across the U.S. are exploring the potential for MBUF as a replacement for the flat gas tax, also known as Vehicle Miles Traveled tax. (See Chapter 3 Policy and Funding.) MBUF is viewed by some as the logical next step in the evolution of roadway user fees now applied through congestion pricing and tollways to expand to our entire roadway system. New York City and Puget Sound MPOs have included future revenue streams on the strength of their pilot tests and legislative advances towards reasonably expected revenues for their cost feasible plans. The MPO Advisory Council has recommended further study of MBUF in their report to the 2013 State Legislators and Florida's Secretary of Transportation Ananth Prasad has recommended the State take a closer look at the potential of MBUF to replace our currently unsustainable gas tax system. Miami-Dade has the benefit of multiple pilot studies conducted across the U.S. as a good starting point of information. The University of Iowa study included a test group in their study of consumer behavior and technical feasibility. Miami-Dade leadership will have similar concerns to other areas and pilot studies are needed to fully explore local issues and review revenue potential in light of the planned approach to managed lanes on interstates and most recently on Florida's Turnpike Homestead Extension.

Explore potential for congestion parking strategies – Parking strategies to address growth, manage parking availability, and generate funding are being implemented with good success in San Francisco and Los Angeles, CA, Washington DC and Oak Park, Illinois. Smart phone technologies have made the potential for electronic reservations and payment more attractive to users, and have made it easier for parking managers to respond to changing demand. Improved access to parking has multiple benefits such as less time spent circling for a space, fewer automobile emissions and congestion, better utilization of existing parking space, and deferral of costly parking expansion. Excess revenues can be reinvested in the areas served. (See Chapter 3 Policy and Funding.)

Coordinate closely with the State of Florida in developing MAP-21 Performance Measures. Development has begun for performance measures to be defined at the federal level for the national highways, interstates and bridges. It is expected to take 18 months to complete, at which time, individual states will be tasked with establishing performance targets. States will coordinate with MPOs who will in turn coordinate with local public transportation providers. How these performance measures and targets will be used is not fully understood. Involvement of the Miami-Dade MPO in establishing targets will ensure the relevancy and consistency with local and regional planning. Some of the performance measure goals of MAP-21 include:

- Reduce fatalities
- Improve road and bridge conditions

- Reduce congestion
- Increase system reliability
- Improve the freight network, public transportation, and safety
- Meet "state of good repair"

Analyze and streamline existing LRTP Performance Measures. Miami-Dade has an extensive system of performance measures that are used in the Congestion Management Process and as Measures of Effectiveness (MOEs) for prioritizing projects in its LRTP. One observation is that performance measures vary widely in how they are applied across the country; however, the larger issues noted above will need to be monitored and reported on a system level and rolled-up to a state and national level. Our suggestions are two-fold.

- ***Reportability:*** Miami-Dade will need to report on performance measures that are well-defined, data driven, and implemented in many areas across the country in a manner very different from Miami-Dade. An update of the Congestion Management Process is planned for June 2013. Even though it is not yet known what the performance measures established by the Secretary of Transportation will be, the national goals are known. It will be important for Miami-Dade MPO staff to be actively engaged in the dialogue at the national and State level to ensure compatibility with performance measures identified in the 2040 LRTP Update.
- ***Focus on Person Throughput:*** Performance in a metropolitan area like Miami-Dade is about moving people, not vehicles. How to best measure and monitor that overarching goal will be important to decision makers. Maximizing results from a wide range of mobility options will take a system-wide approach to performance measurement. While fine-grained MOEs by type of neighborhood can be very useful in prioritizing projects within a particular mode, a multimodal approach to system evaluation is needed to evaluate how effective the mix of choices is.

Consider incorporating new Performance Measures in the LRTP.

- ***Multimodal*** - Miami-Dade has many available modes of travel. We count ridership and travel delays, yet a way to evaluate how well the gaps in connectivity are being reduced through multimodal opportunities would be helpful to decision makers in evaluating spending priorities.
- ***Bicycle/pedestrian safety*** - Another important focus of mobility choices in Miami-Dade is for bicycle/pedestrian accessibility and safety. The Miami-Dade urbanized area has made significant progress in improved pedestrian safety, but it still ranks fourth in terms of the pedestrian danger index defined by the Surface Transportation Project. At the same time, the City of Miami is the 8th most walkable large city in the U.S. as rated by Zillow. A way of monitoring or representing levels of use of bicycle/pedestrian facilities in addition to the extent that those facilities are used (in addition to the currently monitored number of

fatalities and the miles of facilities provided) would be a good addition, even if it is self-reporting through voluntary surveys.

- ***Impact of transportation investments to the economy and jobs*** – As Miami-Dade's economy begins to emerge into a newfound prosperity associated with a growing seaport and airport within the next planning horizon, the impact of transportation investments on business and jobs development will be an important consideration for the public and leadership. Means of evaluating and measuring the results of dollars spent in terms of economic activity generating jobs and reducing transportation costs per capita may help shift the focus towards the outcomes. With the prospects of greater participation from the private sector in transportation, the business case for transportation can be a factor in closing the gaps, from a funding perspective as well as from the perspective of mobility connections.

PEER AND EXEMPLARY MPO LONG RANGE TRANSPORTATION PLANS

The following pages provide valued information from leading MPOs.

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Miami-Dade 2040 LRTP Compliance Peer and Exemplary Long Range Transportation PlansAPPENDIX A

MPO	LRTP Title and Adoption Date	Broader Comprehensive Regional Plan	Emphasis Areas	How Were Transportation Needs Identified?	How Were Transportation Investments Prioritized and Selected?	Where Does the Funding Go?	How is Performance Measured? Monitored?	How Was the Public Engaged?
Atlanta Regional Commission (ARC) Atlanta, GA	Regional Transportation Plan, 2011 - 2040, 6/22/11	PLAN 2040 - Blueprint for a Brighter Tomorrow, adopted 7/27/11 (two key members voted against the plan due to too little transit)	RTP emphasizes system modernization, demand management, and system expansion. Managed lanes is a focal point of the plan with $3.2B in private funds identified for these programs.	Growth scenarios (Ultra Sprawl, Concentrated Growth, and Local Policy) were compared to a full build base case and evaluated against four key areas: 1. Congestion Mitigation, 2. Accessibility to Jobs, 3. Land Consumption, and 4. Mode Share. The Local Policy scenario was selected, which focuses on regional centers and concentrates development where infrastructure already exists. This scenario performed the best in time spent traveling and had the lowest congestion cost. It was also considered the most realistic.	Four decision points were used: 1. Conduct program-level scenario analysis to distribute funds among program areas, 2. Apply policy filter based on priority systems such as transit, truck routes, bike/pedestrian, land preservation, safety, and project readiness among others, 3. Project evaluation, which compares against five objectives geared to sustainability, mobility and economic factors, and 4. Project selection based on plan-level performance measures.	70% of available funds of $60.9B is spend on system preservation and optimization, 26% on system expansion, and 4% on demand management (2012 Dollars). Almost half, or $7B, of expansion funds goes towards roadway expansion, $5B towards managed lanes, and $3.5B towards transit expansion. ARC compares per capita funding in Equitable Target Areas (ETA - transportation disadvantaged residents) versus non-ETAs. (See pages 5-10 of plan for funding summaries.)	ARC tracks their performance in delivering projects through a program called "Breaking Ground" which is a response to complaints from leadership that it took too long to get projects implemented. In addition, ARC uses scenario planning to compare plans. This is in addition to federally-required Congestion Management Process (CMP).	Outreach strategies included meetings and mini-retreats, workshops, on-line public meetings, neighborhood forums, stakeholder group discussions, polls/surveys, media outreach, broadcast conversations, focus groups and listening sessions. ARC partnered with the Civic League for Regional Atlanta in series of neighborhood summits. The PLAN 2040 regional plan began with a 2008 visioning process with neighborhood forums and a photo contest.
Boston Region MPO Boston, MA	Paths to a Sustainable Region, 2015 - 2035, 9/22/11	N/A	Seven Vision categories in the plan, including: 1. System Preservation and Modernization, 2. Livability, 3. Mobility, 4. Environment, 5. Transportation Equity, 6. Climate Change, and 7. Safety and Security.	Developed Universe of Projects and Programs in evaluating regional multimodal needs. Priorities were established based on the MPO Vision. Travel demand modeling was used to evaluate projected performance and determine project conformity with MPO policies.	Projects and programs were organized into five Investment Categories: 1. State of Good Repair and Maintenance, 2. Multimodal Traffic Management and Modernization, 3. Management and Operations, 4. Expansion (multimodal), and 5. Clean air and mobility. Projects included in the 2030 LRTP were selected first. Transit priorities established by MBTA for maintaining the existing system were assumed in the LRTP. Needs for each of eight corridors and one central area were prioritized against five MPO visions.	No additional regionally-significant projects were selected in the new LRTP and previous project commitments from the 2030 LRTP were carried forward. In the slightly modified Current Approach, unassigned funds (41% of the total available funds) were allocated as follows: 45% to Roadway Modernization; 42% to Roadway Expansion; 8% to Transit Expansion; 2% to Bicycle/Pedestrian Expansion; and 3% to a Clean Air and Mobility Program.	MassDOT is statutorily required to establish an Office of Performance Management and Innovation. It publishes an annual performance "score card" on all transportation modes and publishes on their website.	Outreach strategies included advisory council, open houses, speakers bureau ("Invite Us Over" sessions), workshops, a Transportation Equity Forum, monthly newsletters, and social media.
The Chicago Metropolitan Agency for Planning (CMAP) Chicago, IL	GO TO 2040: Regional Mobility (chapter of Sustainable Communities Plan)	GO TO 2040 Comprehensive Regional Plan	Three overarching recommendations were developed for Regional Mobility in the GO TO 2040 Comprehensive Plan: 1. Invest strategically in transportation; 2. Increase commitment to public transit; 3. Create a more efficient freight network. Within each of these recommendations, implementation action areas and lead implementers were identified .	Capital projects in the previous plan were used as the starting point supplemented by a call for additional projects for consideration. A total project need of $80B to implement and operate was identified. RTP focused on "high-priority capital projects" with no separation of roads/highways and transit.	Priority projects focus on maintenance, modernization and enhancements to mobility and access. Prioritization process was accomplished in three phases: 1. Evaluate projects based on their support for the Preferred Regional Scenario (calls for compact, mixed-use development with targeted economic growth, environmental protection, and congestion reduction); 2. Develop performance measures with Volpe Center (USDOT's Research and innovative Technology Administration); 3. Review information from other project studies. Projects were selected based on professional judgment and investment strategy themes.	An estimated $385B is available between 2011-2040. Of that, 85% is needed to operate and maintain the highway system and transit to a safe and adequate level. Only 14% is available to scale up existing maintenance cycles to state of good repair, enhance or modernize the system, or construct new major capital projects. CMAP is focused on new revenue generation. Reasonably foreseeable revenues from new funding sources totals $34.6 B. Spending priorities include: Basic Maintenance - $150B; Strategic Enhancements and Modernization - $41.8B; Major Capital Projects - $21B of which $12B is for transit; and $4.5B for managed lanes and multimodal corridor projects.	For each of the recommendations, performance measures were identified and targets were established for near-term (2015) and for the plan horizon of 2040. CMAP is participating in a national council to evaluate performance measures. Beginning in early 2012, Chicago began with a publication to progress towards achieving its goals, *Implementation 2010-11* .	Large-scale public involvement "Invent the Future" was achieved through regional comprehensive plan effort involving nearly 20,000 participants through public workshops, online tools, free-standing kiosks, and fairs/festivals.
Delaware Valley Regional Planning Commission (DVRPC) Philadelphia, PA	Connections 2035, The Regional Plan for a Sustainable Future, 2015-2035, 7/23/09	Connections - The Regional Plan for a Sustainable Future	The Plan is organized around four key Plan principles: 1. Create Livable Communities; 2. Manage Growth and Protect Resources; 3. Build an Energy-Efficient Economy; and 4. Establish a Modern, Multimodal Transportation System.	RTP used three scenarios: 1. Recentralization, 2. Sprawl, and 3. Trend to compare the magnitude of impacts for two extreme settlement patters with a "benchmark" trend scenario. The differences in the scenarios were where people live and work. A needs assessment was also prepared in consultation with partner agencies to review all transportation needs based on an asset management systems analysis. Highway and transit project criteria were established within the context of the four key Plan principles listed as emphasis areas. Ten percent of available highway funding was allocated geographically and the rest were selected based on performance against goals and criteria.	Priority was placed on system maintenance with 72% of the plan's funding categorized as such. Only 12% of the plan's projects were considered new, regional projects.	This region falls within the boundaries of two states - PA and NJ. Funds are identified for regional areas in each state: PA allocates its total funding of $40.6B at 56% to highways ($22.7B) and 44% to transit ($17.9B). NJ allocates its total funding of $24.2B at 61% to highways ($14.9B) and 39% to transit ($9.3B). An assumption is made that $1.2B will be financed through New Start/Small Start funds for each state in the funding period of 2016-25. Bicycle and pedestrian needs are funding through highway funds. Even so, these funding levels fall $45B short of covering all transportation needs. For highways, 70% of each state's funds goes towards maintenance; for transit 55% and 60% goes towards maintaining NJ and PA transit systems, respectively.	DVRPC uses *Tracking Progress Toward 2035*, a web-based effort that tracks four key strategies: 1. Transportation (modernizing the transportation system), 2. Eco-Economy (building an energy-efficient economy), 3. Community (creating livable communities), and 4. Environment (managing growth and protecting our natural resources). Questions are framed for each group with a dashboard icon showing performance trends, linked to a description of each and a pdf download of data.	A multi-state focus was on stakeholders and related groups. Attention was also focused on attracting people and organizations who hadn't previously participated. Outreach began with an online survey to identify priority issues. Then, county-wide workshops in each of the nine counties were held. Outreach was facilitated by a highly graphic and simplified presentation on web and in public documents.

Miami-Dade 2040 LRTP Compliance Peer and Exemplary Long Range Transportation PlansAPPENDIX A

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Denver Regional COG (DRCOG) Denver, CO	2035 Metro Vision Regional Transportation Plan (2035 MVRTP), 2/16/11; 2012-2035	1992 Metro Vision	Centers around regional growth, quality of life, sustainable infrastructure, and regionally-shared funding solutions. Vision elements are built around 14 policy statements.	DRCOG maintained a focus on the growth policies established in Metro Vision, their 1992 plan that has been updated on a regular basis. Projects were evaluated against five targets slated for achievement by 2035, namely: 1. Urban centers with 50% of new housing and 75% of new employment; 2. To increase construction of alternative transportation facilities; 3. To reduce trips to work by single occupancy vehicles to 65%; 4. To reduce regional per capita VMT by 10 %; and 5. To reduce annual per capita greenhouse gas emissions from the transportation sources by 60%.	Visions for 35 individual multimodal corridors helped guide project priorities as well as design attributes. Approximately 40% of available funds were used to maintain roadways and transit base system.	The Denver region has $93.2B in 2008 funds, or $152.64B in YOE, for regional and non-regional facilities, including aviation. Regional Transportation District administers the largest share of revenues totaling $36B YOE, of which $18B is generated by the RTD sales and use tax and $2B is from the fare box. CDOT administers $10.85B and DRCOG administers $1.7B. Roughly 40% of the funds is for transit O&M and TSM&O. Half of the available funds are spent on capacity expansion of all modes.	Performance measures are used to compare the 2035 fiscally constrained RTP against existing conditions.	Many of the development activities occurred early in the visioning update process in association with the development of scenario plans. Two "sustainability café" workshops were held later on in addition to public meetings, hearings, and numerous DRCOG Board and committee meetings.
Maricopa Association of Governments (MAG) Phoenix, AZ	Regional Transportation Plan - 2010 Update; 7/28/10; 2010 - 2031	N/A	RTP has four goals: 1. system preservation and safety; 2. access and mobility; 3. sustaining the environment; 4. accountability and planning.	Arizona statutes directed MAG to develop criteria to establish priority of corridors, corridor segments, and other transportation projects. Required criteria include public and private funding participation, consideration of social and community impacts, and establishment of a complete transportation system for the region.	RTP does not clearly describe how projects meet goals. The focus was on assigning projects within 5-year funding phases.	Total funding resources between FY 2011-2031 for YOE is $29.6B from the following sources: half-cent transportation excise tax ($15.7B), Arizona DOT ($7.8B), federal transit (5307 & 5309 - $3.1B), federal highway (CMAQ & STP - $3.0B). Of this total, 68% goes to highways and 30% goes to transit, with the remainder funding bike/pedestrian and air quality. Excise tax projections for the 2010 update were 22.5% lower than the previous plan.	MAG uses a multimodal, web-based Performance Measures System that is extremely data-heavy and GIS-driven. Easy-to-use links connect the map to the data. It also provides the ability to drill down into user-defined details for each measure. Available information, however, only extends into 2007/08. Links to countywide traffic data systems are also provided for additional source data.	A large effort in 2002-03 (150 public input meetings, 173 stakeholder opportunities, and 117 agency meetings) informed current plan. Visualization techniques involved the integration of web-based GIS map overlays with PowerPoint presentations, aerial photography, photo simulations, technical drawings, charges, and graphics that help residents understand what is included in transportation investments.
MetroPlan Orlando Orlando, FL	2030 Long Range Transportation Plan, 2010 - 2030, 8/12/09	N/A	Transit-oriented development and smart growth development.	An alternative land use forecast examined "How Shall We Grow?" Two-tiered land use scenarios were developed, Trend and Alternative, of which the latter was adopted for the Tier Three, New Revenue, approach to transit-oriented development. Board members guided the plan's direction through supportive policy decisions through a broad stakeholder participation process. Modeling focused on smart-growth land use analysis with lower VMT.	There is a focus on increasing transportation capacity through transit, not roadway capacity. RTP developed project lists based on available funding sources as well as an additional scenario with an additional one cent sales tax.	Funds allocated to highways total $11.9B in YOE; $7.14B in YOE to transit which includes local match for SunRail of $1.5B, $0.7B for Fast Bus, $3.1B for LRT, $1B for commuter rail, and $0.9B for BRT.	CMP includes a Safety Conscious Plan. A Management and Operations Subcommittee was enlisted to serve as the steering committee in the CMP process to develop performance measures and data collection plans.	Extensive outreach through traditional and non-traditional means was achieved through "Community Conversations" (interactive meetings) and "plan cams" used to capture input.
Metropolitan Council (Twin Cities, Minnesota) St. Paul, MN	2030 Transportation Policy Plan, 2010-2030, 11/10/10	N/A	Emphasis is on regional mobility through managing congestion, commuter rail, and aviation.	The strategic plan was developed around 26 guiding policies for all modes of transportation. Highway projects focused on preservation, maintenance, and non-capacity approaches like TDM and signalization. Policies also addressed public involvement, funding, and economic development goals.	Bridge repair was the top priority.	Highways funds are $8-8.7B; Transit totals $1.4B to maintain existing system and $4.7 to $5.4B to expand system plus annual operating cost (net of fare recovery) of $355-$385M (2011-2020) and $475-$515M (2021-2030). Funds received a boost from a 2008 statewide sales tax that initially funds transportation at 63.75%, but phases into 100% by FY2012 with transit receiving 40% of the total funds at total distribution phase-in.	Performance measures and monitoring will drive program and project allocation of funds. Transit performance outcome is a doubling of transit ridership by the horizon year. Specific measures include subsidy per passenger and passengers per in-service hour.	Traditional outreach included forums, workshops, special events, open house meetings, conferences, focus groups, key person interviews, and civic and community meetings. A Report of public comments and staff responses, as well as a plan summary "slide show" was included on their website.
Miami-Dade MPO Miami, FL	Long Range Transportation Plan 2035, 2010-2035, 10/2009	Seven50 includes Miami-Dade (in progress)	Tolling, transit, telecommuting, technology (ex. toll collections), and corridors of regional significance. RTP contains an excellent section on climate change and sustainability that builds on the GreenPrint priorities developed for Miami-Dade County.	Projects were identified based on system deficiencies as defined through measures of volume-to-capacity for the transportation system and forecasted travel markets.	Needed improvements were evaluated for Sociocultural, Environmental, Fiscal, and Practical impacts. RTP used Measures of Effectiveness in prioritization that were tied to goals and objectives used to develop various aspects of a cost feasible plan from both a quantitative and qualitative basis. Funding phases helped determine priorities.	There is only $19.5B in available revenue versus $40.2B in identified needs. Available funds are allocated 67% to transit, 31% to highway, and 1% each to congestion management and bicycle/pedestrian projects. For transit, 53% of allocated funds goes towards operations and maintenance. (State Highway O&M are excluded from total costs.)	Meets CMP requirements.	Extensive outreach was achieved, especially through website efforts, with traditionally underserved populations targeted. Many workshops, including a "blocks and ribbons" game to allocate funding, were conducted for Transportation Planning Areas, or sub-areas, within the county that have similar interests and issues, namely: Beach/CBD, Central, North, Northwest, South, and West.

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New York Metropolitan Transportation Council (NYMTC) New York City, NY	2035 Regional Transportation Plan, 2010 - 2035, 9/25/09	plaNYC 2030, a Greener, Greater New York	Strategic growth management with the use of two regional Desired Growth Areas to promote a correlation between the location of new jobs and residential growth.	Travel demand forecasts for passengers and freight were the baseline starting point for identifying transportation needs to meet demand. Strategic Regional Policy Guidelines drove the selection of investments. Areas of focus included regional decision-making, as well as policies related to the design and operation of the system. Specific objectives are unclear in the plan.	First priority was to maintain the current system in a State-of-Good-Repair, followed by Four Foundation Projects, all transit, agreed on by all members.	NYMTC projects $969.5B in revenues from 2011-2035 plus a potential travel-based revenue of $29B for a total of $998.5B in existing and supplemental fund sources. Of the existing resources, $661B, or 68%, goes towards operating and maintaining their extensive regional transportation system. The largest category of investments in the plan are for State-of-Good-Repair ($290B), and only $35.4B are available for capital investments. NYC is very transit-centric with 80% of available funds going to transit and 18% to highways.	Meets CMP requirements.	Part of a larger sustainable communities visioning and comprehensive plan effort called plaNYC 2030 was utilized. In the most recent launch for the 2040 RTP update, NYMTC launched an interactive website.
Oregon Metro Portland, OR	2035 Regional Transportation Plan, 2010 - 2035, 6/10/10	The Nature of 2040, June 2000 (The 2040 Growth Concept)	Focus is on investments in multimodal "Mobility Corridors," and on a two-step plan that first meets federal requirements and timelines (i.e. SAFETEA-LU), and secondly addresses regional requirements with a freight plan, a climate action plan, a high-capacity transit plan, and performance measures.	The 2040 Growth Concept developed in the late 1990's was used as the guide for developing transportation infrastructure priorities. Regional values played a strong role in development of land use and transportation policies that protect farms and forest while revitalizing downtowns and main streets. Scenarios were tested against a base case - A: Growing out, B: Growing up, and C: Neighboring cities. In the transportation plan, each project's purpose is identified on the project list as well as its primary and secondary modes and the future land use.	Investment strategies followed two tracks: 1. mobility corridors and 2. community building (focused on place making). Community building projects comprised about 60% of funding pool allocations with the rest going towards specific corridor projects. Transportation funds were allocated separately by funding source within each of the two investment strategy tracks.	Of the $20B in total transportation investment through 2035, transit received 32% of plan funding, highways 23%, roads and bridges 34%, and bike and pedestrian 5%. the focus of all modes is to complete gaps and preserve existing system. Transit funding includes expansion.	The 2035 RTP is the first plan to use an outcomes-based planning approach. Ambitious targets were established for transportation investments against regional targets for reducing greenhouse gas emissions and VMT; increasing safety, equity and active transportation; and improving the reliability of freight movement.	Large visioning process was used to achieve the 2040 Growth Concept. The RTP is a section of the growth concept. They still maintain an online opinion panel called "Opt In."
Puget Sound Regional Council (PSRC) Seattle, WA	Transportation 2040, 2010 - 2040, 5/20/10	VISION 2040	Freight, ferry, sustainability, preservation of system, and connecting land use and economic development. RTP is one of the few to focus on environmental benefits and impacts.	Needs were identified based on three key strategies: 1. improving mobility; 2. protecting and enhancing the environment; 3. identifying sustainable funding.	In Transportation 2040, PSRC established a hierarchy of priorities: 1. investments in preservation, maintenance, and operation of existing transportation system; 2. safety and security improvements; 3. projects that improve the efficiency of existing infrastructure; and 4. strategic capacity projects. This plan directed the region to change how investments are evaluated and prioritized. On June 28, 2012, the Executive Board directed staff to test a newly defined Prioritization Evaluation Framework developed over the past two years since the plan was adopted. Projects will be evaluated within four investments categories (transit, highway, arterial, and bicycle/pedestrian) and evaluated around nine measures ranging from air quality to travel. Weighting may be applied at the discretion of the PSRC boards. How these measures are to be used will be reviewed for implementation purposes in the spring of 2013.	The Puget Sound region has concluded that "traditional tax-based financing measures will not, by themselves, be sufficient to solve our transportation problems." Transportation 2040 sets out a new approach that "moves the region towards a sustainable future in which investments can be made when needed, in a predictable manner, with revenues generated from those who benefit from the investments." Approximately 60% of planned investments goes towards maintaining what is already in place. PSRC is transitioning a phase-in of user fees, including variable tolls. In the early years of the plan, traditional funding sources beginning with HOT lanes and tolling of individual highways and bridges. It then transitions into unprogrammed or illustrative projects. Total constrained plan funds of $189.3B from 2010-2040 consist of $125.2B (based on current law revenues) and $64.1B (based on new revenues).	By state law, Puget Sound evaluates the effectiveness of their LRTP on a biennial basis, and reviews performance from a variety of strategic perspectives: financial, mobility, and environmental. They use the results of their biennial review to adjust their plan and establish a ten-year investment program. PSRC also conducts an environmental impact statement for their LRTP to determine environmental effects (positive and negative) at a regional (non-project) level.	A large visioning effort in 2008, VISION 2040 focused on land use and transportation connections, regional growth centers, and transit oriented communities.
San Diego Association of Governments (SANDAG) San Diego, CA	2050 Regional Transportation Plan, 2012 - 2050, 10/28/11	Sustainable Communities Strategy (Senate Bill 375 2009 requires MPOs to prepare an SCS as an integrated element of the RTP)	Sustainability, social equity, active transportation, and expanding investment in transit.	The San Diego regional needs were identified through a systems-based approach that sought to offer more travel choices and make better use of what they have. In addition, they are developing a demand management strategy to provide incentives for taking the path less traveled through a regional iCommute program that offers multimodal solutions and includes telework and alternative work schedules.	In developing the 2050 RTP, an ad hoc multimodal working group was formed to review and update the Transportation Project Evaluation Criteria (TPEC). Updated criteria were organized into three major categories: 1. Serves Travel Needs, 2. Increases Network Integration, and 3. Addresses Sustainability. The same three criteria were used for transit services, highway, freeway connector, and HOV connector criteria with some variation. Weighting for each criteria was also determined.	A total constrained plan of $213.8B in YOE dollars is prioritized 50% for transit, 24% for highways, 17% for local street/road improvements, 4% for systems and demand management and active transportation programs, and 5% for debt service and non-highway goods movement. Of the total funds available, 29% goes towards system preservation and safety. Local funds make up 55% of the total revenue; state and federal funds contribute 28% and 17% respectively. Unconstrained needs exceed available revenue by 40%.	Regional performance measures were established for the following goal categories: system preservation and safety, mobility, prosperous economy, reliability, healthy environment, and social equity. Caltrans developed a Performance Measurement System (PeMS) that uses urban freeway data. SANDAG is working with U.C. Berkeley and Caltrans to extend the capabilities of PeMS to include ramp metering devices, and other means to help transportation operators manage the network using real-time data.	SANDAG used a comprehensive outreach plan which included a Community-based Outreach Mini-Grant program to engage and encourage diverse, inclusive, and active public participation from stakeholders not traditionally involved from low-income households, minorities, seniors, and people with disabilities. In addition to public workshops and hearings, SANDAG conducted a public opinion survey and public input questionnaires. Visualization tools included an interactive web-based visualization tool called Envision 2050, launched on the heels of the Draft 2050 RTP and associated SCS. Over 4,000 comments were received on the plans.

MPO	LRTP Title and Adoption Date	Broader Comprehensive Regional Plan	Emphasis Areas	How Were Transportation Needs Identified?	How Were Transportation Investments Prioritized and Selected?	Where Does the Funding Go?	How is Performance Measured? Monitored?	How Was the Public Engaged?
Wasatch Front Regional Council (WFRC) Salt Lake City, UT	Wasatch Front Regional Transportation Plan, 2011 - 2040, 5/26/11	Wasatch Choice for 2040	"Draw a stronger link between projected population growth, regional travel demands, targeted transportation improvements, and local land use planning."	Based on a regional visioning exercise: Wasatch Choice for 2040. selected a preferred alternative, consisting of separate core highway and transit systems, and then added high-performing individual projects that came from the visioning process. Selection was based on technical merit and public input.	A list of projects was identified through refinement of the Preferred Alternative from the Wasatch Choice for 2040. CMP applied a level of service approach to defining highway capacity needs, with Transportation System Management improvements given first priority. Transit projects were ranked separately through an evaluation process for seven measures: 1. travel time reduction, 2. ridership, 3. safety, 4. economic development, 5. multimodal corridors, 6. cost benefit, and 7. project preparation. Projects were then placed in construction "time frames" for implementation. Non-motorized projects were prioritized where they connected to fixed guideway transit stations. Finally, available funding determined what project could be included in the cost affordable plan.	The financial plan is presented for each mode and each funding source within that mode. No summaries are available as to how much total funding is available or how much is programmed by category. A summary of RTP recommendations includes 1,071 lane miles of new capacity improvements to the highway system, 296 miles of major public transit improvements (12 miles of LRT, 6 miles commuter rail transit, 161 miles of BRT, 106 miles of enhanced bus, and 11 miles of streetcar lines), and a 25% increase in the bus route service.	Meets CMP requirements.	Extensive outreach was achieved through the visioning process (Wasatch Choice for 2040) that connected land use and transportation.

APPENDIX
B

FHWA EXPECTATIONS LETTER

Miami-Dade 2040 LRTP Compliance
Highlights from FHWA's Strategies for Implementing Requirements
LRTP Update for the Florida MPOs

Following is a summary of expectations reviewed with the MPO Advisory Council on June 15, 2012. Since the release of the expectations letter, MAP-21 was enacted which may change some of the assertions. Known changes are noted within the content where MAP-21 changes apply.

Projects in the LRTP: All projects in the Transportation Improvement Program (TIP) are required to demonstrate planning consistency with the LRTP. Because of this, the requirements for project inclusion in a TIP must also be considered when developing a LRTP. Projects that need to be included in a TIP include all projects utilizing FHWA and/or FTA funds; all regionally significant projects requiring a FHWA or FTA action regardless of funding source; regionally significant projects funded with federal funds other than those administered by FHWA or FTA; and regionally significant projects funded with non-federal funds (23 CFR 450.324(d)). The requirement applies to capacity (new travel lanes) and non-capacity projects (ferry terminal or intermodal center).

The expectations summary describes what projects must be included in the LRTP as stated in 23 CFR 450.322(f). They are "projected transportation demand in the planning area, the existing and proposed transportation facilities that function as an integrated system, operational and management strategies, consideration of the results of the Congestion Management Plan, strategies to preserve the existing and projected future transportation infrastructure, pedestrian and bicycle facilities, and transportation and transit activities."

As noted in 23 CFR 450.104, regionally significant projects include those that are on a facility which serves regional transportation needs. Project may include access to/from the area outside the region, major activity centers in the region, or major planned developments such as new retail malls, sports complexes, employment centers, or transportation terminals. These projects would typically be modeled in the transportation network for the region. At a minimum, this includes all principle arterial highways and all fixed guide way transit facilities that offer a significant alternative to regional highway travel.

Federal regulations allow a specifically defined type of project(s) to be grouped in the LRTP. However, the ability to group projects depends on the regional significance of the project(s). Classifications of these grouped project types are listed under 23 CFR 771.117(c) and (d) and/or 40 CFR part 93. Examples can include planning and technical studies; construction of non-regionally significant bicycle and pedestrian projects; transit amenities; pavement markings; ridesharing activities; and highway safety and traffic operations improvements. Where projects are grouped, the groups need to be specific enough to determine consistency between the LRTP and the TIP.

Fiscal Constraint: For operating and maintenance (O&M) costs, FDOT currently provides information to the MPOs showing maintenance costs for state-maintained facilities for

inclusion in the LRTP, *and this requirement will not change*. However, there is an additional requirement that O&M costs and sources of funding be provided in LRTPs for locally-maintained facilities covered in the LRTP for each of the first ten years in the LRTP. The expectation is that a clear separation of O&M costs and revenues be provided for other grouped and/or regionally significant projects to demonstrate fiscal constraint. (23 CFR 322(f)(10)(i)).

Total Project Costs: All phases of a project must be described in sufficient detail to estimate total project cost and explain how and when a project will be implemented. The costs of work and phases beyond the horizon year of the plan (2040 in this update) must be estimated using Year of Expenditure (YOE) methodologies and expressed for the time band 2040-2045. Total project costs must be shown for capacity expansion projects. System operations and management strategies (ITS projects) should also show total project costs.

If the LRTP assumes a new funding source in the cost-affordable plan - for example a one-cent sales tax for transportation through a future referendum - the source must be clearly explained to include why it is considered reasonably available, what actions need to be taken for the revenue to be available, and what would happen if the revenue source did not become available because of a failed referendum or political inaction.

The MPOs present at the meeting expressed concern that FHWA/FTA may require the MPOs to make a plan amendment in the mid-cycle of a LRTP if a referendum fails. FHWA representatives indicated that is not the intent as long as the MPO can explain in detail the next steps that will occur to hold another referendum at some near-term date. This applies to all revenues in the LRTP (i.e. federal, state, local, private, etc.) According to FHWA, the financial guidelines for LRTPs prepared by MPOs are anticipated to require a base year of 2014 with a horizon year of 2040. These horizon dates appear to be different for certain parts of the state including south Florida.

MPOs expressed concern that the requirements for justifying new revenue sources are unreasonable for transit projects expected to be funded through FTA discretionary funds. Given the expectations, transit projects that do not have a Full Funding Grant Agreement (FFGA) cannot be shown in the cost-affordable plan because funding has not been assured. That could limit the ability of regions to consider major capital investments for transit as alternative to highway projects in their LRTPs. This may present an incongruity with the NEPA requirement that a project be included in a plan and TIP to be eligible for environmental clearance. Transit projects that are in the preliminary engineering stage but do not have a FFGA can be included as illustrative projects, but not in the cost affordable plan.

Environmental Mitigation: According to FHWA, highway projects in the LRTP "must include a discussion on environmental mitigation that is developed in consultation with Federal, State, and Tribal wildlife, land management, and regulatory agencies" pursuant to 23 CFR 450.322(g). MPOs expressed the belief that environmental mitigation consultation is better handled at the "project-specific" level as is typical of the State of Florida Efficient Transportation Decision Making (ETDM) process that is typically reported in LRTPs in Florida. A requirement that environmental mitigation consultation occur at the "system-wide" level for the LRTPs is beyond their comfort zone with the well known and proven ETDM process.

LRTP Amendments: There are an increasing number of plan amendments to LRTPs occurring in "mid-cycle" between the years of the LRTP updates that are causing concern to the MPOs and FDOT. The plan amendment process is time-consuming, staff-intensive, and costly. There is also concern with the level of detail that is required.

Emerging Issues: FHWA and FTA have identified topics and encouraged MPOs to consider including their consideration in their LRTPs however, these topics were not a requirement in SAFETEA-LU. ***Since the date of this expectations letter, MAP-21 has been enacted. Notation is made below where the topic has been included in MAP-21 and is currently a requirement.***

Performance Measurement - FHWA and FTA encourage the MPOs to consider ways to incorporate performance measures/metrics for system-wide operation, as well as more localized measures/metrics into their LRTPs. As funding for transportation capacity projects becomes more limited, increasing emphasis will be placed on maximizing the efficiency and effectiveness of our current transportation system. ***New MAP-21 requirement.***

Climate Change - FHWA is supportive of efforts exploring the effects of climate change on transportation, as well as limited environmental resources and fuel alternatives. In Florida, state legislation now encourages MPOs

consider strategies that integrate transportation and land use planning in their LRTP to provide for sustainable development and reduce greenhouse gas emissions, as well as include energy considerations in all state, regional, and local planning. As a result, FHWA is encouraging MPOs include discussions and strategies aimed at addressing this issue. ***MAP-21 requires performance measures relative to the national goals of congestion management and environmental sustainability. Performance measures will be established by rulemaking at the federal level with determinations of statewide targets and local MPO targets over the course of the next four years. Biennial reporting will be required beginning in the fifth year following enactment.***

Freight - The planning process is required to address the eight planning factors as described in 23 CFR 450.306(a). The importance of freight to the nation's economic well-being and global competitiveness, as well as for job creation and retention, has increased the awareness of freight in the LRTP. Florida has also adopted statewide initiatives to support freight and intermodal facilities at ports. ***New MAP-21 requirement.***

Sustainable Transportation and Context Sensitive Solutions (CSS) - FHWA encourages MPOs to identify and suggest contextual solutions for "appropriate transportation corridors" such as historic parkways, historic districts, town centers, dense walkable neighborhood areas, arterial gateways, greenway trails and pedestrian ways, environmentally sensitive areas, and where right-of-way is constrained. There may be benefit to suggest special treatments and alternative mode solutions such as transit/bike/pedestrian or traffic calming. Other livability goals can be addressed such as preserving affordable housing, reducing parking to encourage alternative modes, and reducing the number of transportation trips to reduce greenhouse gas emissions. ***MAP-21 remains neutral on specific solutions or projects, rather performance measures will measure outcomes from these types of projects.***

Scenario Planning - Although not currently required, many MPOs are considering scenario planning alternatives as a way of visioning possible future changes and different policy and investment options. The key elements include the use of scenarios to compare and contrast interactions between multiple factors and goals, such as land use, demographic, economic and other factors. The process utilizes a strong public and stakeholder participation process and often uses visuals. ***MAP-21 allows MPOs to voluntarily conduct multiple scenarios "while fitting the needs of the complexity of its community." They make recommendations as to the components of the scenarios. If scenario planning is used in LRTPs, an analysis of how the preferred scenario has improved conditions must be included in the system performance report.***

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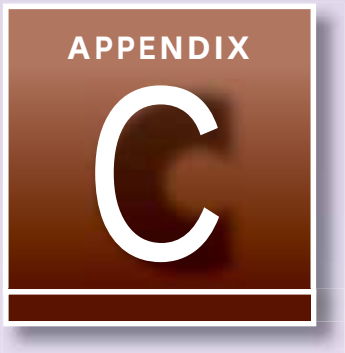

PEER MPO PERFORMANCE MEASURES INVENTORY

The following pages provide an inventory of various measures used by peer and exemplary MPOs pertaining to:

- Bicycle/Pedestrian
- Economic
- Environmental
- Land Use
- Multimodal
- Roadway
- Safety
- Transit

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Miami-Dade MPO - 2040 LRTP Compliance Study:

Peer MPO Performance Measures

PERFORMANCE MEASURE	QUALIFIER	Miami-Dade MPO	Atlanta Regional Commission (ARC)	Boston Region MPO	The Chicago Metropolitan Agency for Planning (CMAP)	Delaware Valley RPC	Denver Regional Council of Governments (DRCOG)	Maricopa Association of Governments (MAG)	METROPLAN Orlando	Metropolitan Council	New York Metropolitan Transportation Council (NYMTC)	Oregon Metro	Puget Sound Regional Council (PSRC)	San Diego Association of Governments (SANDAG)	Wasatch Front Regional Council (WFRC)
BICYCLE/PEDESTRIAN															
Annual Bicycle Trips	N/A					X									
Annual Pedestrian Trips	N/A					X									
Average Daily Bicycle Volume	Across a Region-Wide Set of Count Locations												X		
Miles of Bicycle Facilities	N/A										X				X
Number of Daily Bicycle Trips	Region-Wide, by Mobility Corridor, and for Individual Regional Centers											X			
Number of Daily Walking Trips	Region-Wide, by Mobility Corridor, and for Individual Regional Centers											X			
Percentage Increase in the Number/ Mileage of Non-Motorized Facilities	N/A	X													
Percentage of Regional Bicycle System Completed	Region-Wide and by Mobility Corridor											X			
Percentage of Regional Pedestrian System Completed	Region-Wide, by Activity Centers, and by Transit/ Mixed-Use Corridors											X			
Share of Daily Bicycle Trips	Region-Wide, by Mobility Corridor, and for Individual Regional Centers											X			
Share of Daily Walking Trips	Region-Wide, by Mobility Corridor, and for Individual Regional Centers											X			
Status of Bicycle and Pedestrian Network	Within 0.5-Mile of Transit Stations			X											
Total Bicycle and Walking Trips	N/A					X								X	
ECONOMIC															
Annual Congestion Cost Savings	N/A		X												
Annual Cost of Congestion	User Costs in Billions of Dollars								X						
Average Household Cost	Of Combined Housing and Transportation											X			
Benefit/Cost Ratio	N/A													X	
Capital Expenditure/Travel Time Savings Benefit Ratio	N/A	X													
Change in GDP and Jobs for the Region Resulting from Travel Time (Delay) Savings	N/A		X												
Cost Effectiveness	N/A									X					
Cost Effectiveness	Trips Served per Dollar Invested							X							
Cost of Delay	Per Capita Dollars, Per Day								X						
Distribution of RTP Expenditures	Per Capita in Low-Income Communities													X	
Distribution of RTP Expenditures	Per Capita in Minority Communities													X	
Distribution of RTP Expenditures	Per Capita in Non Low-Income Communities													X	
Distribution of RTP Expenditures	Per Capita in Non Minority Communities													X	
Dollar Amount of Private Sector Funding	As a Proportion of Total Cost of Plan	X													
Dollar Amount of State and Federal Funding	N/A	X													
Economic Activity Generated	As a Result of Transportation Investment								X						
Financial Feasibility	N/A								X						
Freight Volume	By Mode										X				
Job Impacts	Average Number per Year													X	
Job/House Ratio	N/A								X						
Jobs Created	As a Result of Transportation Investment								X						
Number of Private Sector Funded Projects	N/A	X													
O&M Expenditure/Travel Time Savings Benefit Ratio	N/A	X													
Output Impacts	Average Gross Regional Product per Year													X	
Payroll Impacts	Amount per Year													X	
Percent of State and Federal Funding Sources	N/A	X													
Percentage of Transportation Investments	Toward Maintenance and Rehabilitation													X	
Percentage of Transportation Investments	Toward Operational Improvements													X	
Project Costs	N/A														X
PTP Expenditure/Travel Time Savings Benefit Ratio	N/A	X													
User Costs	Out-of-Pocket per Trip													X	

Miami-Dade MPO - 2040 LRTP Compliance Study:

Peer MPO Performance Measures

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ENVIRONMENTAL															
Emissions	CO	X							X			X			X
Emissions	CO2													X	X
Emissions	GHG		X												
Emissions	HC								X						
Emissions	NOx	X	X						X						X
Emissions	Ozone											X			
Emissions	PM 10											X			
Emissions	PM 2.5		X												X
Emissions	Smog-Forming Pollutants for All Vehicle Types													X	
Emissions	VOC	X	X												X
Environmental Impacts	Natural and Urban Resources (49 Categories)														X
Gallons of Fuel Use	Per Capita, Per Day								X						
Percentage Increase in Fuel Use	From a Specified Baseline								X						
Surface Coverage	Of Transportation System on Acres of Wetlands	X													
LAND USE															
Activity/Employment Center Travel Shed (within 45 Minutes)	N/A		X												
Average Commute Time	Transit Commutes of 20-Minutes or Less to Activity Centers during Peak Hours														X
Average Travel Time	For Transit between Key Origin-Destinations during Mid-day											X			
Average Travel Time	For Transit between Key Origin-Destinations during PM Peak											X			
Highway Lane and Centerline Miles	Within 1-Mile of Major Healthcare, Recreation, Education, Employment, and Cultural Facilities	X													
Highway Lane Miles	Within 1-mile of Major Activity Centers	x													
Highway Lane Miles	Within 1-Mile of Major Freight Origins and Destinations	X													
Highway Lane Miles	Within 1-Mile of MIA, Opa Locka, HGAA, and Port of Miami	X													
Highway Lane Miles	Within 1-mile of Redevelopment Areas	X													
Highway Lane Miles	Within 1-mile of Tourist Attractions	X													
Highway Lane Miles	Within Urban Infill Area	X													
Highway Miles	In Corridors of Regional Significance	X													
Number of Households	Within 0.25-mile of Transit Service							X							
Number of Households	Within 30-Minutes of Central City, Regional Centers, and Key Employment/Industrial Areas for PM Peak											X			
Number of Households	Within 5-Miles of Park-and-Ride Lots or Major Transit Centers							X							
Number of Households	Within 30-Minutes of Central City, Regional Centers, and Key Employment/Industrial Areas for Mid-day											X			
Number of Jobs	Within 0.25-mile of Transit Service							X							
Number of Jobs	Within 30-Minutes of Central City, Regional Centers, and Key Employment/Industrial Areas for Mid-day											X			
Number of Jobs	Within 30-Minutes of Central City, Regional Centers, and Key Employment/Industrial Areas for PM Peak											X			
Percentage of Employment	Within 0.25-mile of Transit Service								X						
Percentage of Employment	Within 30-Minute Commute from International Airports								X						
Percentage of Households	Of Low-Income Population within 0.5-Mile of a Transit Stop													X	
Percentage of Households	Of Minority Population within 0.5-Mile of a Transit Stop													X	
Percentage of Households	Of Non Low-Income Population within 0.5-Mile of a Transit Stop													X	
Percentage of Households	Of Non Minority Population within 0.5-Mile of a Transit Stop													X	
Percentage of Households	Within 30-Minutes of Central City, Regional Centers, and Key Employment/Industrial Areas for Mid-day											X			
Percentage of Households	Within 30-Minutes of Central City, Regional Centers, and Key Employment/Industrial Areas for PM Peak											X			
Percentage of Jobs	Within 30-Minutes of Central City, Regional Centers, and Key Employment/Industrial Areas for Mid-day											X			
Percentage of Jobs	Within 30-Minutes of Central City, Regional Centers, and Key Employment/Industrial Areas for PM Peak											X			
Percentage of Non Work-Related Trips	Accessible within 15-Minutes by Mode													X	
Percentage of Population	In Low-Income or Minority Areas with Good Transit-Job Accessibility						X								

Miami-Dade MPO - 2040 LRTP Compliance Study:

Peer MPO Performance Measures

PERFORMANCE MEASURE	QUALIFIER	Miami-Dade MPO	Atlanta Regional Commission (ARC)	Boston Region MPO	The Chicago Metropolitan Agency for Planning (CMAP)	Delaware Valley RPC	Denver Regional Council of Governments (DRCOG)	Maricopa Association of Governments (MAG)	METROPLAN Orlando	Metropolitan Council	New York Metropolitan Transportation Council (NYMTC)	Oregon Metro	Puget Sound Regional Council (PSRC)	San Diego Association of Governments (SANDAG)	Wasatch Front Regional Council (WFRC)
LAND USE (CONTINUED)															
Percentage of Population	Living within 0.25-Mile of Transit Service								X						
Percentage of Population	With Good Transit-Job Accessibility						X								
Percentage of Population	Within 10-Minute Travel Time of Activity Centers								X						
Percentage of Population	Within 30-Minute Travel Time of Employment by Mode							X							
Percentage of Population	Within 5-Minute Commute of Intermodal Stations								X						
Percentage of Work and Higher Education Trips	Accessible within 30-Minutes in Peak Periods by Mode													X	
Percentage of Work Trips	Accessible to Low-Income Communities within 30-Minutes during Peak Periods by Mode													X	
Percentage of Work Trips	Accessible to Minority Communities within 30-Minutes during Peak Periods by Mode													X	
Percentage of Work Trips	Accessible to Non Low-Income Communities within 30-Minutes during Peak Periods by Mode													X	
Percentage of Work Trips	Accessible to Non Minority Communities within 30-Minutes during Peak Periods by Mode													X	
Percentage of Workforce	That Can Reach Their Workplace by Transit within 1-Hour with No More than 1 Transfer							X							
Transit Route Miles	Within 0.5-mile of Major Activity Centers	X													
Transit Route Miles	Within 0.5-mile of Major Healthcare, Recreation, Education, Employment, and Cultural Facilities	X													
Transit Route Miles	Within 0.5-Mile of MIA, Opa Locka, HGAA, and Port of Miami	X													
Transit Route Miles	Within 0.5-mile of Redevelopment Areas	X													
Transit Route Miles	Within 0.5-Mile of TAZs with a High Proportion of Elderly Population	X													
Transit Route Miles	Within 0.5-Mile of Tourist Attractions	X													
Transit Route Miles	Within Urban Infill Area	X													
MULTIMODAL															
Average Commute Time	N/A		X												
Average Home-Based Work Travel Time	N/A	X											X		
Average Travel Time	All Purposes	X													X
Average Travel Time	Between Selected Origins and Destinations							X							
Average Travel Time	To/From TAZs with a High Proportion of Elderly Population	X													
Average Trip Length	By Mobility Corridor											X			
Backlog in State-of-Good-Repair Projects	N/A			X											
Delay	Peak Period by Facility Type and Geographic Location							X							
Delay Reductions	Peak Period in Managed Lanes									X					
Hours of Delay	Annual Hours during Peak Periods														X
Hours of Delay	N/A	X				X	X								
Hours of Delay	On Highway Facilities with Transit Service	X													
Hours of Delay	Per Capita					X									
Hours of Delay	Total Daily Vehicle Hours								X			X			
Miles of Co-Incident Projects	N/A														X
Minutes of Delay	Per Capita, Per Day								X					X	
Number of Inter-County Travel Trips	N/A										X				
Number of Projects	That Close Gaps in the Existing Transportation System			X											
Number of Visits	To MPO or DOT Website			X											
Opportunity for Implementation	N/A									X					
Percentage of Bridges	That are "Functionally Obsolete"			X											
Percentage of Bridges	That are "Structurally Deficient"			X											
Person Throughput	N/A									X					
Total Person Trips	N/A						X								
Total Trips	Per Day										X				
Travel Time	To Work in Minutes										X				
Travel Time Savings	N/A									X					
Work Trip Share	During Peak Periods by Mode													X	

Miami-Dade MPO - 2040 LRTP Compliance Study:

Peer MPO Performance Measures

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ROADWAY															
Annual Vehicle Trips	N/A					X									
Average Change in Vehicle Travel Time	Across Set of SMART "Trips"												X		
Average Commute Time	Auto Commutes of 20-Minutes or Less from Areas w/High Concentrations of Disadvantaged Populations during Peak														X
Average Commute Time	Auto Commutes of 20-Minutes or Less to Activity Centers during Peak Hours														X
Average Daily Traffic	On Freeways/Highways and Arterials							X							
Average Incident Duration	On Throughway System											X			
Average Roadway Speed	N/A						X								
Average Roadway Speed	Peak-Hour By Facility Type and Geographic Location							X							
Average Roadway Speed	Peak-Period					X	X								
Average Speed During Congested Times	For All Roadways								X						
Average Speed During Congested Times	For Arterials								X						
Average Speed During Congested Times	For Freeways								X						
Average Speed During Congested Times	For Other Roadways								X						
Average Travel Speed	To Work by Mode													X	
Average Travel Time	For Motor Vehicles between Key Origin-Destinations during Mid-day											X			
Average Travel Time	For Motor Vehicles between Key Origin-Destinations during PM Peak											X			
Average Travel Time	From Freight Centers to Freeways														X
Average Vehicle Miles Traveled	Per Dwelling								X						
Carpool Attractiveness	N/A									X					
Congestion	By Location of Arterials That Exceed Level of Service Thresholds in Mid-day											X			
Congestion	By Location of Arterials That Exceed Level of Service Thresholds in PM Peak											X			
Congestion	By Location of Freight Networks That Exceed Level of Service Thresholds in Mid-day											X			
Congestion	By Location of Freight Networks That Exceed Level of Service Thresholds in PM Peak											X			
Congestion	By Location of Throughways That Exceed Level of Service Thresholds in Mid-day											X			
Congestion	By Location of Throughways That Exceed Level of Service Thresholds in PM Peak											X			
Congestion	Congested Hours of Travel/Day				X										
Freeway Speed	Peak-Hour General Purpose Lanes		X												
Freeway Speed	Peak-Hour HOV Lanes		X												
Freeway Speed	Peak-Hour Managed Lanes		X												
Highway Centerline Miles	On SIS Connectors	X													
Hours of Delay	Total Daily Truck Hours													X	
HOV/HOT Lane Miles	N/A	X													
Incident Clearance Time	N/A			X											
Incident Detection Time	N/A			X											
Level of Service	N/A	X													
Number of ADA-Compliant Intersections	N/A			X											
Number of Calls	To 511			X											
Number of Improvements on Local Facilities	Non-State Highway System	X													
Number of Intersections	With Level of Service "D" or Better			X											
Number of Major Intersections	At Level Service "E" or Worse							X							
Percentage of Infrastructure in Good Condition	Bridge		X												
Percentage of Infrastructure in Good Condition	Pavement		X												
Percentage of Miles	Of Federal-Aid Roadway that are in Fair of Better Pavement Condition			X											
Percentage of Person Trips	By Single-Occupancy Vehicle								X						
Percentage of Vehicle Miles Traveled	By Car in Congestion During Peak Periods													X	
Percentage of Vehicle Miles Traveled	By Car in Congestion Entire Day													X	
Percentage of Vehicle Miles Traveled	By Transit in Congestion During Peak Periods													X	

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Peer MPO Performance Measures

PERFORMANCE MEASURE	QUALIFIER	Miami-Dade MPO	Atlanta Regional Commission (ARC)	Boston Region MPO	The Chicago Metropolitan Agency for Planning (CMAP)	Delaware Valley RPC	Denver Regional Council of Governments (DRCOG)	Maricopa Association of Governments (MAG)	METROPLAN Orlando	Metropolitan Council	New York Metropolitan Transportation Council (NYMTC)	Oregon Metro	Puget Sound Regional Council (PSRC)	San Diego Association of Governments (SANDAG)	Wasatch Front Regional Council (WFRC)
ROADWAY (CONTINUED)															
Percentage of Vehicle Miles Traveled	By Transit in Congestion Entire Day													X	
Percentage of Vehicle Miles Traveled	In Congestion						X							X	
Person Hours Traveled	Not Including Transit						X								
Person Miles Traveled	Not Including Transit						X								
Ratio of Highway Lane Miles	Inside/Outside of UDB Boundaries	X													
Total Freeway Miles	With Level of Service "E" or Worse							X							
Total Lane Miles	Designated for Freight, Goods, and Services Movement								X						
Total Lane Miles	N/A								X						
Total Lane Miles	Of Evacuation Routes Per Thousand People								X						
Total Lane Miles	Of Special Use/Managed Lanes	X													
Total Lane Miles	Per Thousand People								X						
Total Lane Miles	With 3+ Hours of Congestion						X								
Total Lane Miles	Within Evacuation Travel Corridors	X													
Total Roadway Miles	Below Standard								X						
Total Vehicle Trips	N/A						X								
Total Vehicle Trips	Per Day										X				
Transportation System Condition	Percentage of Bridges Found to be in "Not Deficient" Condition				X										
Transportation System Condition	Percentage of Principal Arterials with Acceptable Ride Quality				X										
Transportation System Condition	Percentage of Transit Assets in Good Condition				X										
Travel Time Reliability	On Throughways											X			
Vehicle Hours Traveled	N/A						X					X			
Vehicle Hours Traveled	Per Capita								X			X			
Vehicle Hours Traveled	Per Day										X				
Vehicle Miles Traveled	N/A	X				X	X						X		
Vehicle Miles Traveled	Per Capita						X		X				X	X	
Vehicle Miles Traveled	Per Capita by Facility Type and Mode							X							
Vehicle Miles Traveled	Per Day											X			X
Vehicle Miles Traveled Reductions	N/A									X					
Vehicle Throughput	N/A									X					
SAFETY															
Annual Crashes	N/A			X		X					X				
Annual Crashes	Resulting in Fatality										X				
Annual Crashes	Resulting in Injury										X				
Annual Crashes	Resulting in Property Damage										X				
Average Crash Rate	N/A			X											
Crash Rate	On Roads in which Roadway and Public Transit Projects are Proposed														X
Crash Rate	Per Million Vehicle Miles Traveled							X	X						
Injury/Fatal Crash Rate	N/A		X												
Level of Investment in Safety Projects	N/A	X													
Number of Accidents	N/A	X													
Number of Bicycle Fatalities	Per Year										X				
Number of Crashes	Per-Capita Travel Region-Wide All Modes											X			
Number of Fatalities	Per-Capita Travel Region-Wide All Modes											X			
Number of Pedestrian Fatalities	Per Year										X				
Number of Serious Injuries	Per-Capita Travel Region-Wide All Modes											X			
Number of Transit Accidents	Per Year										X				
Number of Transit Accidents	Resulting in Fatality Per Year										X				
Number of Transit Accidents	Resulting in Injury Per Year										X				
Number of Vehicles	Involved in Crashes by Crash Type Per Year										X				

Miami-Dade MPO - 2040 LRTP Compliance Study:

Peer MPO Performance Measures

PERFORMANCE MEASURE	QUALIFIER	Miami-Dade MPO	Atlanta Regional Commission (ARC)	Boston Region MPO	The Chicago Metropolitan Agency for Planning (CMAP)	Delaware Valley RPC	Denver Regional Council of Governments (DRCOG)	Maricopa Association of Governments (MAG)	METROPLAN Orlando	Metropolitan Council	New York Metropolitan Transportation Council (NYMTC)	Oregon Metro	Puget Sound Regional Council (PSRC)	San Diego Association of Governments (SANDAG)	Wasatch Front Regional Council (WFRC)
TRANSIT															
Annual Rail Transit Trips	N/A						X								
Annual Transit Trips	N/A					X	X								
Average Change in Scheduled Transit Travel Time	Across Set of SMART "Trips"												X		
Average Commute Time	Transit Commutes <=20-Minutes from Areas w/High Concentrations of Disadvantaged Populations during Peak Hours														X
Daily Transit Route Miles	Non-Fossil Burning	X													
Number of ADA-Compliant Stations	N/A			X											
Number of Daily Passengers	On Public Transit	X													
Number of Daily Shared-Ride Trips	Region-Wide, by Mobility Corridor, and for Individual Regional Centers											X			
Number of Daily Transit Trips	N/A														X
Number of Daily Transit Trips	Region-Wide, by Mobility Corridor, and for Individual Regional Centers										X	X			
Number of Bus Routes	With Traffic Signal Priority Systems			X											
Number of Stations	Treated for Pedestrian or Bike Access			X											
Number of Park-and-Ride/Multimodal Facilities	N/A	X													
Number of Parking Spaces	At Transit Stations			X											
Number of Transit Patrons	Going To/From Airports and Seaports	X													
Mean Miles between Breakdowns (MMBB)	N/A			X											
Mean Miles between Failures (MMBF)	N/A			X											
Percentage of Daily Trips	Within 0.5-Mile of Transit Stop													X	
Percentage of Infrastructure in Good Condition	Transit		X												
Percentage of Peak Period Trips	Within 0.5-Mile of Transit Stop													X	
Percentage of Routes	With Percentage of Trips on Time above a Particular Threshold			X											
Person Miles Traveled	On Transit						X								
Ratio of Transit Route Miles	Inside/Outside of UDB Boundaries	X													
Service Coverage Percentage	In Transit-Supportive Areas	X													
Share of Daily Shared-Ride Trips	Region-Wide, by Mobility Corridor, and for Individual Regional Centers											X			
Share of Daily Transit Trips	Region-Wide, by Mobility Corridor, and for Individual Regional Centers											X			
Total Annual Demand-Response Transit Boardings	Paratransit Ridership per Disabled Population												X		
Total Annual Demand-Response Transit Boardings	Paratransit Ridership per Elderly Population												X		
Total Annual Demand-Response Transit Boardings	Park-and-Ride Utilization/Capacity												X		
Total Annual Demand-Response Transit Boardings	Ridership per Passenger Mile												X		
Total Annual Demand-Response Transit Boardings	Ridership per Service Hour												X		
Total Annual Demand-Response Transit Boardings	Vanpool Membership												X		
Total Annual Demand-Response Transit Boardings	Within Coverage Areas												X		
Total Annual Fixed-Route Transit Boardings	Paratransit Ridership per Disabled Population												X		
Total Annual Fixed-Route Transit Boardings	Paratransit Ridership per Elderly Population												X		
Total Annual Fixed-Route Transit Boardings	Park-and-Ride Utilization/Capacity												X		
Total Annual Fixed-Route Transit Boardings	Ridership per Passenger Mile												X		
Total Annual Fixed-Route Transit Boardings	Ridership per Service Hour												X		
Total Annual Fixed-Route Transit Boardings	Vanpool Membership												X		
Total Annual Fixed-Route Transit Boardings	Within Coverage Areas												X		
Total Transit Passenger Miles	Per Capita								X					X	
Total Transit Passenger Miles	Per Day														X
Total Transit Ridership	By Mode							X							
Total Transit Ridership	By Route							X							
Transit Attractiveness	N/A									X					
Transit Productivity	Boarding Rides per Revenue Hour Bus											X			
Transit Productivity	Boarding Rides per Revenue Hour for High-Capacity Transit											X			
Transit Revenue Hours of Service	Per Thousand People								X						
Transit Route Miles	From Cities and Central Areas in the AM Peak Period	X													
Transit Route Miles	In Corridors of Regional Significance	X													
Transit Route Miles	N/A	X							X						
Transit Route Miles	Per Thousand People								X						
Transit Share of Daily Trips	All Trips						X								
Transit Share of Daily Trips	Work Trips						X								
Transit Share of Travel	By Transit Sub-Mode							X							
Transit Suitability	N/A									X					

RESEARCH RESOURCE INDEX

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Category	Document and Date	Author	Link to document site
Financing	Evaluating Innovative Financing Opportunities for Miami-Dade Transit, October 27, 2009	Infrastructure Management Group for Citizen's Independent Transportation Trust	http://www.miamidade.gov/citt/reports.asp
Financing	The Innovative DOT: A Handbook of Policy and Practice, September 11, 2012	State Smart Transportation Initiative & Smart Growth America	http://www.ssti.us/2012/09/the-innovative-dot/
Financing	What do Americans Think about Federal Tax Options to Support Public Transit, Highways, and Local Streets and Roads? Results from Year 3 of a National Survey, Asha Weinstein Agrawal, Ph.D., June 2012	Mineta Transportation Institute	http://transweb.sjsu.edu/project/1128.html
LRTP	2012 Action Strategy, 2010-2012 Biennial Plan Review Report, July 2012	Puget Sound Regional Council (PSRC), Seattle, WA	http://www.psrc.org/assets/8514/2012ActionStrategyFINAL.pdf
LRTP	2030 Long Range Transportation Plan, 2010 - 2030, 8/12/09	METROPLAN Orlando, Orlando, FL	http://www.metroplanorlando.com/plans/long-range-transportation-plan/
LRTP	2030 Transportation Policy Plan, 2010-2030, 11/10/10	Metropolitan Council, St. Paul, MN	http://www.metrocouncil.org/planning/transportation/TPP/2010/index.htm
LRTP	2035 Metro Vision Regional Transportation Plan (2035 MVRTP), 2/16/11	Denver Regional COG (DRCOG)	http://www.drcog.org/index.cfm?page=regionaltransportationplan(rtp)
LRTP	2035 Regional Transportation Plan, 2010 - 2035, 6/10/10	Oregon Metro, Portland, OR	http://www.oregonmetro.gov/index.cfm/go/by.web/id=25038
LRTP	2035 Regional Transportation Plan, 2010 - 2035, 9/25/09	New York Metropolitan Transportation Council (NYMTC), New York, NY	http://nymtc-rtp.org/
LRTP	2050 Regional Transportation Plan, 2012 - 2050, 10/28/11	San Diego Association of Governments (SANDAG), San Diego, CA	http://www.sandag.org/index.asp?projectid=349&fuseaction=projects.detail
LRTP	Connections 2035, A Regional Plan for a Sustainable Future, 2015-2035, 7/23/09	Delaware Valley RPC	http://www.dvrpc.org/LongRangePlan/RegionalIndicators/
LRTP	DVRPC Best Practices in LRP Development and Implementation Activities	Delaware Valley Regional Planning Council	http://www.dvrpc.org/reports/WP12035.pdf
LRTP	Go To 2040: Regional Mobility (chapter of Sustainable Communities Plan)	The Chicago Metropolitan Agency for Planning (CMAP), Chicago, IL	http://www.cmap.illinois.gov/2040/regional-mobility
LRTP	Long Range Transportation Plan 2035, 2010-2035, 10/2009	Miami-Dade MPO, Miami, FL	http://www.miamidade2035transportationplan.com/
LRTP	Paths to a Sustainable Region, 2015 - 2035, 9/22/11	Boston Region MPO, Boston, MA	www.ctps.org/bostonmpo/3_programs/1_transportation_plan/plan.html
LRTP	Project Prioritization for Regional Long-Range Transportation Plans, November 2010	FYWA/FTA Transportation Planning Capacity Building, Volpe National Transportation Systems Center	http://www.planning.dot.gov/documents/PSRC_LongRangePlanning_2011.pdf
LRTP	Regional Transportation Plan - 2010 Update; 7/28/10; 2010 - 2031	Maricopa Association of Governments (MAG), Phoenix, AZ	http://www.azmag.gov/Projects/Project.asp?CMSID2=1126&MID=Transportation
LRTP	Regional Transportation Plan, 2011 - 2040, 6/22/11	Atlanta Regional Commission (ARC), Atlanta, GA	www.atlantaregional.com/plan2040
LRTP	Statewide database of regional high-priority investments for the State of Washington	WSDOT 14 RTPOs using Paladin SMARTGov software	http://www.forwardwashington.net/

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LRTP	Transportation 2040, 2010 - 2040, 5/20/10	Puget Sound Regional Council (PSRC), Seattle, WA	http://psrc.org/transportation/t2040
LRTP	Trends in Statewide Long-Range Transportation Plans - Core and Emerging Topics, March 2012	John A. Volpe National Transportation Systems Center	http://www.planning.dot.gov/documents/State_plans_report_508_A.PDF
LRTP	Wasach Front Regional Transportation Plan, 2011 - 2040, 5/26/11	Wasatch Front Regional Council (WFRC), Salt Lake City, UT	http://www.wfrc.org/cms/index.php
MBUF	Alternative Approaches to Funding Highways	Congressional Budget Office	http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/121xx/doc12101/03-23-highwayfunding.pdf
MBUF	As Washington Drags Its Feet, States Take the Lead on Mileage Fees	Noel Popwell, DC Streets Blog	http://dc.streetsblog.org/2011/12/05/as-washington-drags-its-feet-states-take-the-lead-on-mileage-fees/
MBUF	Feasibility of Mileage-Based User Fees: Application in Rural/Small Urban Areas of Northeast Texas, October 31, 2008	Texas Transportation Institute	http://utcm.tamu.edu/publications/final_reports/Goodin_08-11-06.pdf
MBUF	Focus on Vehicle Miles Traveled Fees, A Trends in America Special Report, March 2010	The Council of State Governments	http://csg.org/policy/documents/TIS_VMTcharges.pdf
MBUF	Mileage-Based User Fee Symposium, September 2011	Texas Transportation Institute	http://utcm.tamu.edu/publications/final_reports/Goodin_11-00-64.pdf
MBUF	National Evaluation of Mileage-Based Charges for Drivers, TRB #2221, 2011	University of Iowa	http://pubsindex.trb.org/view.aspx?id=1093351
MBUF	NCHRP Report 689: Costs of Alternative Revenue-Generation Systems, Patrick Balducci, et.al., 2011	Transportation Research Board	http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_689.pdf
MBUF	Nevado Vehicle Miles Traveled Fee Study, ongoing	Nevado DOT	www.nevadodot.com/micro-Sites/VMTFeeNV
MBUF	Oregon DOT Tests VMT Tax	Jon Boyd, Houston Tomorrow	http://www.houstontomorrow.org/livability/story/oregon-dot-tests-vmt-tax/
MBUF	Oregon's Mileage Fee Concept and Road User Fee Pilot Program	Oregon DOT	http://www.oregon.gov/ODOT/HWY/OIPP/docs/2005LegislativeReport.pdf
MBUF	Report of Minnesota's Mileage-Based user Fee Policy Task Force, Decembe 2011	Humphrey School of Public Affairs, University of Minnesota	http://www.dot.state.mn.us/mileagebaseduserfee/
MBUF	Techniques for Assessing the Socio-Economic Effects of Vehicle Mileage Fees	Oregon DOT Research Unite	http://www.oregon.gov/ODOT/TD/TP_RES/docs/Reports/2008/ODOT-VMT_Fee_Impacts.pdf
MBUF	Texas to Study Vehicle Miles Traveled Tax	Steve Hawley, Houston Tomorrow	http://www.houstontomorrow.org/livability/story/texas-to-study-vmt-tax/
MBUF	Vehicle Miles Traveled (VMT) Tax: An Alternative to the Gas Tax for Generating Highway Revenue, December 2008	Virginia DOT	http://vtrc.virginiadot.org/rsb/RSB19.pdf
MBUF	Why We Should Consider a Per-Mile Road Tax	Michael Meyer, CNN	http://www.cnn.com/2011/12/08/opinion/meyer-pay-per-mile-road-tax/index.html
Planning	Activity-Based Model Overview, Clint Davis, Wu Sun, June 13, 2012	SANDAG	http://www.sandag.org/uploads/publicationid/publicationis_1670_14527.pdf
Planning	Are We There Yet?, October 2012	Reconnecting America	http://reconnectingamerica.org/arewethereyet/buybooks.php?utm_source=AWTY+print&utm_campaign=AWTYprint&utm_medium=email
Planning	Broward Complete Streets Guidelines, July 2012 adoption	Broward MPO	http://urbanhs.com/initiatives/completestreets/
Planning	FDOT Quality Level of Service Handbook, 2009	FDOT Systems Planning Office	http://www.dot.state.fl.us/planning/systems/sm/los/default.shtm

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Planning	FHWA Best Planning Practices: Metropolitan Plans, March 2012	John A. Volpe National Transportation Systems Center	http://www.planning.dot.gov/documents/BestPlanningPractices_MTP.pdf
Planning	FHWA MPO Search Engine	Transportation Planning Capacity Building	http://www.planning.dot.gov/mpos2.asp
Planning	FHWA Performance Measures Resources (various reports)	FHWA, et al	http://www.fhwa.dot.gov/planning/performance_based_planning/resources/
Planning	Florida Chamber of Commerce Six Pillars	Florida COC	https://www.flchamber.com/six-pillars/overview/
Planning	Forward Washington	Washington State MPOs	http://www.forwardwashington.net/
Planning	GOVERNING Healthy Commuting Habits Study, June 2012	Centers for Disease Control and Prevention	http://www.governing.com/news/state/gov-biking-walking-cities-obesity-study.html
Planning	Losing Ground: The Struggle of moderate-Income Households to Afford the Rising costs of Housing and Transportation, October 2012	Center for Housing Policy and Center for Neighborhood Technology	http://www.cnt.org/about
Planning	Making the MOST of MAP-21, December 2012	Transportation for America	http://t4america.org/resources/map-21/handbook/
Planning	Mixed-Income Transit-Oriented Development Action Guide, March 2012	Reconnecting America	http://www.mitod.org/about.php
Planning	Regional Transit System Plan Phase I Review, 3/12/12	WMATA	http://planitmetro.com/2012/03/12/regional-transit-system-plan-phase-i-review/#more-1909
PPP	Challenges and Opportunities Series: Public Private Partnerships in Transportation Delivery, May 11, 2012 Draft Report	FHWA	http://www.fhwa.dot.gov/ipd/forum/index.htm
PPP	Moving Forward on public Private Partnerships: US and International Experience with PPP Units	Brookings--Rockefeller, Emilia Istrate and Robert Puentes	http://www.brookings.edu/~/media/Files/rc/papers/2011/1208_transportation_istrate_puentes/1208_transportation_istrate_puentes.pdf
PPP	Perils of Privatization and Pricing as Proposed - Towards a public Utility Model of Roads, 2/21/12	Transportationist.org blog, David Levinson	http://blog.lib.umn.edu/levin031/transportationist/2012/03/perils-of-privatization-and-pr.html
PPP	Using Public Private Partnerships to Carry out Highway Projects, January 2012	Congressional Budget Office	http://www.cbo.gov/publication/42685
Statistics	Miami-Dade County, FL	Wikipedia	http://en.wikipedia.org/wiki/Miami-Dade_County,_Florida
Statistics	MSA Leading Population Areas	Wikipedia	http://en.wikipedia.org/wiki/Metropolitan_Statistical_Area
Technology	How Mobile Payments are Revolutionizing Public Transit, Global Innovation Series, 2/22/12	Mashable Tech	http://mashable.com/2012/02/22/public-transportation-technology/
Technology	Uptown Neibhorhoods Looking to Reform On-Street Parking Policies, 2/27/12	UrbanCincy, Tyler Catlin	http://www.urbancincy.com/2012/02/uptown-neighborhoods-looking-to-reform-on-street-parking-policies/
Visualization	Public Involvement Techniques, Using Special Techniques to Enhance Participation	FHWA/FTA	http://www.planning.dot.gov/PublicInvolvement/pi_documents/4c-intro.asp
Visualization	Scenario Planning & Visualization	FHWA/FTA	http://www.fhwa.dot.gov/planning/scenario_and_visualization/scenario_planning/
Visualization	Visual Preference Survey, March 3, 2004	Village of Mundelein, Illinois	http://www.mundelein.org/tod/vpsresults.asp
Visualization	Visualization in Planning	FHWA/FTA	http://www.fhwa.dot.gov/planning/scenario_and_visualization/visualization_in_planning/