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# **DISCLAIMERS**

This technical report is intended to provide a framework to facilitate discussion and to document research findings at the time of its authorship. It was developed based on the most current and accurate information available at the time of its formulation. This document in no way limits the conclusions, recommendations and implementation strategies that will comprise the final 2040 Long Range Transportation Plan.

ist Of Acronymsii
ntroduction1
concepts2
Performance-Based Planning2
Identifying Strategic Areas2
Setting Goals3
Working Towards Goals3
Measuring Effectiveness3
Objective Measures4
Subjective Measures4
Strategic Trade-offs5
Optimizing A Plan5
Consistency 6
National Goals6
State Goals6
Local Goals
MPO Vision7
ioals, Objectives & Measures 9
Move People9
Create Jobs10
Strenathen Communities11

BTU	British Thermal Unit
CBD	Central Business District
CO2	
EJ	Environmental Justice
FTP	Florida Transportation Plan
FDOT	Florida Department of Transportation
GOMs	Goals, Objectives and Measures of Effectiveness
LOS	Level-of-Service
LRTP	Long Range Transportation Plan
MPO	Metropolitan Planning Organization
ROW	Right-of-Way
TIP	Transportation Improvement Program

The Long Range Transportation Plan (LRTP) represents a collection of strategic investments in transportation assets that serve as the primary means to travel and ship goods from, to and within the metropolitan area. It sets the priority for billions of dollars of public investment over the 20+ year span of the plan for the urbanized portions of Broward County. These investments need to be identified in a way that recognizes financial, environmental, regulatory, political and social constraints and work towards the region's vision and strategic goals. The transportation investments identified in the LRTP will shape the character of the community both in the short-term and in the long-term.

Because the investment decisions in the LRTP will have many outcomes, setting clear goals, objectives and measures of effectiveness for the plan as a whole, and individual projects in the plan will promote informed discussions of the trade-offs inherent in the plan development process. Understanding these trade-offs and how projects are selected should be an easy-to-understand process that builds on expected outcomes while recognizing uncertainty, equity and individual outcomes such as "quality of life" and "dignity".

Finding the optimal mix of projects that can be implemented quickly, those with significant regional impact then assembling them into a cohesive and effective LRTP requires a solid understanding of the community's goals and how they dovetail into the regional vision, state and national goals. A clear and compelling case for investing in any given project and the plan as a whole that recognizes the community's values makes advancing the LRTP from "concept to concrete" easier to accomplish by:

- Presenting a uniform vision to funding partners;
- Achieving community support and helping to garner local champions; and,
- Helping the community recognize how short-term and long-term trade-offs interact.

Establishing the benchmarks of how well individual projects and the LRTP as a whole work to satisfy the Broward Metropolitan Planning Organization's (MPO's) goals and objectives is the subject of this report. The report is organized as follows:

- · Concepts: sets the context for some important considerations in the development of goals, objectives and measures of effectiveness
- Consistency: identifies national, state and local goals that other planning partners are trying to achieve related to transportation investments
- · Goals, Objectives and Measures: identifies a preliminary set of goals, objectives and metrics that will be employed to guide the LRTP's development



Federal metropolitan planning rules require Metropolitan Planning Organization's (MPOs) incorporate clearly stated goals, objectives and measures in the LRTP development process. At their core, goals, objectives and measures (GOMs) provide a clear way to convey the trade-offs made during the planning and project prioritization process. The latest federal transportation funding legislation, Moving Ahead for Progress in the 21st Century Act (MAP-21), formalized these basic planning concepts and added a new requirement, "Performance-based Planning" into the metropolitan planning process. However, this is but one of several concepts that must be considered in the LRTP's development and adoption by the MPO Board. This section of the report discusses several important concepts that inform the development of goals, objectives and measures.

# PERFORMANCE-BASED PLANNING

Performance-based planning attempts to make the transportation investment decision-making process both informed and accountable. Several questions need to be answered to successfully implement this method:

- What are the areas of opportunity and concern we as a community, region, state and nation are trying to address?
- How do those areas perform both now and historically? Can we measure them?
- What are our improvement goals for those areas?
- Given competing areas and limited resources, what can we achieve that addresses our concerns?
- How do we prioritize our investments in such a way that we can best achieve our goals?
- When projects are built, or services are added or enhanced, did they achieve what they were intended to do?

One desired outcome of performance-based planning is constant quality improvement in project selection and delivery with respect to meeting national goals. If a particular project did not help the plan meet its stated goals, or was more effective than originally thought, that information can inform future decision-making. Done properly, performance-based planning not only improves project selection and prioritization, it also can make a compelling case for the Broward MPO's LRTP and why the community is invested in its outcome.

## **IDENTIFYING STRATEGIC AREAS**

The Broward MPO has identified several strategic areas where progress can be reasonably expected in the long-term. Furthermore, strengthening intermodal linkages between these investment types creates opportunities and alternatives for residents, visitors and businesses alike:

<sup>&</sup>lt;sup>1</sup>Legislative initiative by the U.S. Congress reauthorizing and restructuring federal highway and transit programs. MAP-21 provides new funding through fiscal year 2014 (September 30, 2014). It was signed into law by President Obama on July 6, 2012 (P.L. 112-141) http://www.fhwa.dot.gov/planning/performance\_based\_planning/

- Bicycle / Pedestrian Bicycle and pedestrian facilities serve the community's most immediate shortdistance travel needs and are critical for providing access to transit. Often called "active modes of transportation", sidewalks, bike paths and greenways help build communities by bringing people out of their vehicles. Safe sidewalks and bikeways help create a sense of place. Federal programs such as "Safe Routes to School" and "Transportation Alternative" foster such investments.
- Public Transportation Public transportation includes all publicly owned and operated modes of transportation including bus, passenger rail, paratransit and vanpool. It provides a high-capacity way to meet the travel needs of the travelers who choose not to drive or do not own an automobile.
- Car The automobile is the most common means of urban travel in the region. Whether a singleoccupant vehicle or a carpool with two or more passengers, the automobile will likely remain the primary means of travel for most residents because of its availability and flexibility and the distributed activity center and low-density development patterns common in Broward.
- Freight Freight fuels the economic engine of the region. Businesses and residents rely on goods transported by truck, rail, pipeline, air and ocean carriers. Federal, state and local initiatives seek to reduce the cost and barriers to freight movement. Investments in a robust freight network can increase the economic competitiveness of the region.
- Air Air travel of people and goods provide the primary long-distance connections for the region to the rest of the world. As a large tourist destination, providing seamless connections between Southeast Florida's airports and tourist destinations strengthen the economic vitality of the region.
- Sea The region's seaports provide a major economic linkage to the rest of the world by allowing goods to be shipped efficiently and at a competitive cost. Additionally, Southeast Florida is a major cruise ship hub attracting thousands of tourists to the region each week adding to the region's economic vitality.

To the extent each of these strategic areas works seamlessly with the other, citizens and businesses have choices regarding how to travel and move goods to best meet their needs. Building a robust transportation plan requires continuous improvements to the performance and integration of each of these strategic areas.

### **SETTING GOALS**

A plan, by its very definition, requires setting achievable goals. LRTP goals should be easily understood, tied to an MPO's vision (p. 10) and be established for each strategic area of interest. Ideally, an MPO's goals dovetail with those of other agencies and the community. For goals to be useful, they should have a set time in which to achieve them. Goals can sometimes compete with one another. For example, a goal may be to improve pedestrian access and another goal may to be to improve safety. Pedestrian access may be best served by increasing mid-block crossings while safety may not. Optimizing outcomes with respect to often competing goals is the primary function of the Broward MPO's LRTP.

# **WORKING TOWARDS GOALS**

The best laid plans often have unexpected outcomes. Plans need to be reevaluated and updated so that goals, progress and any necessary changes resulting from unexpected outcomes can be made. That is why federal metropolitan planning process includes periodic updates to the LRTP. Responsible stewardship of federal, state and local tax dollars requires an MPO to show not only their proposed projects but how the combination of selected projects create a synergy to further advance the MPO's goals in the most efficient and effective way possible.

<sup>&</sup>lt;sup>3</sup> http://en.wikipedia.org/wiki/Greenway\_(landscape)

<sup>&</sup>lt;sup>4</sup> A description of the state of a transportation facility rated on a scale of "A" to "F." For a highway, an "A" rating means traffic is flowing freely and "E" and "F" means it is very congested. Other LOS highway measurements include density, speed and maximum service flow. Transit, Pedestrian and Bicycle facilities have more comprehensive measures of level-of-service available as well. Commitment 2040 3

# MEASURING EFFECTIVENESS

Measuring how well plans achieve strategic goals is both an art and a science. There are two types of measures: objective and subjective. Objective measures, such as accidents per some unit (per year, per intersection, per 1,000,000 vehicle miles traveled) are straightforward to quantify. Subjective measures such as quality of life and aesthetics are difficult to quantify. A well-crafted LRTP employs both types of measures to improve regional outcomes.

### **OBJECTIVE MEASURES**

Objective measures are those that are "fact-based" over which there can be little dispute. Objective measures are things that can be readily quantified based on observable (empirical) or forecasted data. Examples of such measures include:

- Annual Boarding (Airports)
- Tons or Value of Shipments (Seaports, Freight)
- Passengers Per Revenue Mile of Service (Transit)
- Level-of-Service (LOS) (Roadways, Transit, Pedestrian, Bicycle)
- Miles of Sidewalk (Pedestrian)
- Miles of Greenway (Pedestrian, Bicycle)
- Miles of Dedicated Bike Lanes (Bicycle)
- Miles of Railways (Freight, Transit)
- Population within Walking Distance of a Bus Stop (Transit)
- Jobs within 30 Minutes of Low-Income Households (Roadways, Transit, Bicycle, Pedestrian)

### **SUBJECTIVE MEASURES**

Subjective measures are those items that are evaluated based on opinion and hence have a greater likelihood of differing perspectives. They are sometimes more important than objective measures in assessing how well an LRTP meets the community's needs. Even objective measures should be evaluated in subjective terms. For example, many people in Southeast Florida consider the roadways to be overly "congested". Congestion is often empirically measured using items such as Level-of-Service (LOS), travel time delay and peak hour spread; however, almost everyone from Los Angeles or New York may say Southeast Florida has little or manageable congestion.

A balanced plan recognizes subjective measures and incorporates them directly into the plan development process. Examples of such considerations include:

- Aesthetic Value- what is the appropriate trade-off between project cost (objective) and aesthetic considerations (subjective) such as elegant but expensive design?
- Construct-ability- how easy is it to advance a project given larger consideration such as political resistance and localized environmental impacts?
- · Connectivity and interdependence- when does a project compliment another, when is it redundant and when does it compete?
- Regional significance and local importance- when should a project with benefits that may largely accrue to people and businesses outside the MPO's planning area be advanced?



# STRATEGIC TRADE-OFFS

It would be easy for any given goal to overtake all others depending on the perspective of any given individual, group or agency when resources such as available funding or use of existing right-of-way limit choices (e.g. two different projects cannot both use the same funds or necessarily fit in the same right-of-way). The way this is accounted for in the plan development process is by applying weights to the various goals and objectives of the plan. These weights should represent the mix of many differing perspectives considering the public at large, implementing/funding agencies, elected officials and the business community. Each brings a different point of view that should be reflected in the necessary trade-offs to achieve a financially affordable plan that reflects the community's goals, the region's needs, state-level goals and the nation's strategy to improve mobility, environment, economic competitiveness and quality of life. To be understandable, goals, objectives and any associated measures must be few in number and comparable across investment alternatives.

# **GETTING THE MOST FROM A PLAN**

The LRTP should reflect an optimal mix of projects that satisfy the many competing goals subject to the limitation of available financial resources. The way this is accounted for in the plan development process is by evaluating performance measures using weights assigned to each of the plan's goals and measures. For example, if improving mobility is a goal and an objective is to reduce travel times in the region by 10%, it could require a new highway to be constructed. A new highway would likely have negative environmental and social impacts in addition to its positive mobility impacts.

Weighing each of the MPO's goals then evaluating measures to judge how well each project satisfies those goals results in potentially good projects in a simple way but doesn't necessarily identify the mix of projects that should be in the final transportation plan. This is because it is quite possible to end up with projects that are contentious, have a very limited focus and are incompatible with other projects in the plan.

Selecting the best list of projects requires altering the weight of the plan's measures, or the importance of each evaluation criterion, to identify the projects that "float to the top of the list" regardless of the weight assigned. The standard approach is to evaluate a potential list of projects and their performance relative to specific objectives then double or half the weights assigned to each of the goals and objectives.

As a simple example, assume there are two goals for the plan, improve job accessibility and protect the environment. Improving job accessibility is weighed as 50% of the goal of the plan and protecting the environment is also 50%. Double the 50% goal to 100% (effectively zeroing out the other goal) then reevaluate the list of projects against their stated measures. Then, reduce the weight for accessibility to 25% and increase the other measure to 75% and evaluate the ranking of the projects yet again. Good projects remain on top

of the list regardless of how the weights are applied. Iterating through the process of varying weights identifies the projects that should be at the core of the transportation plan. Then, projects are added that support the core projects and meet other requirements (e.g. available funding) or other constraints (e.g. equity, environmental justice, geographic/political "fairness", etc.).

In addition to satisfying the Broward MPO's stated vision and mission statements (p. 10), the LRTP must strive to accommodate the goals of the MPO's funding and planning partners in a way that is consistent with sometimes inconsistent federal law, state, regional and local goals.

# **NATIONAL GOALS**

The metropolitan planning process must provide for the establishment and use of a performance-based approach to transportation decision-making to support the national goals described in section 150(b) of title 23 and in section 24 5301(c) of title 49 of the United States Code (U.S. Code, aka MAP-21).

Section 150 of title 23, United States Code (Highway) identifies the following national goals the MPO should support: Section 5301(c) of title 49, United States Code (transit) identifies the following national goals the MPO goals

- Achieve a significant reduction in traffic fatalities and serious injuries on all public roads;
- Maintain the highway infrastructure asset system in a state of good repair;
- Improve the efficiency of the surface transportation system;
- Improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development;
- Enhance the performance of the transportation system while protecting and enhancing the natural environment; and,
- 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.

### should support:

- Increase the availability and accessibility of public transportation across a balanced, multimodal transportation network;
- Promote the environmental benefits of public transportation, including reduced reliance on fossil fuels, fewer harmful emissions, and lower public health expenditures;
- Improve the safety of public transportation systems
- Achieve and maintain a state of good repair of public transportation infrastructure and vehicles;

- Provide an efficient and reliable alternative to congested roadways;
- Increase the affordability of transportation for all users
- Maximize economic development opportunities by
  - Connecting workers to jobs;
  - Encouraging mixed-use, transit-oriented development; and,
  - Leveraging private investment and joint development (e.g. P3's Public-Private Partnerships).

# STATE GOALS

The 2060 Florida Transportation Plan (FTP) developed by the Florida Department of Transportation (FDOT) is a plan for all of Florida. It defines Florida's future transportation vision and identifies goals, objectives and strategies to guide transportation decision-making. It establishes the policy framework for expenditure of state and federal transportation funds flowing through FDOT's work program. The Broward MPO's goals and objectives can help implement the FTP by aligning with the goals in the FTP. The six FTP goals follow:

• 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

# **LOCAL GOALS**

Most local governments in Florida express their long range goals through the comprehensive planning process. All municipal governments, in addition to county government, are required to develop a comprehensive plan that outlines the communities' goals for transportation and other infrastructure issues such as water and sewer and what steps or policies will help them reach their goals.

A review of 22 available local comprehensive plans in the Broward County identified the following goals and objectives as most relevant to the Broward MPO's LRTP update. In general, these can be categorized as follows:

# **MPO VISION**

Federal, state, regional and local goals must be considered in light of the Broward MPO's Vision and Mission

#### General

• Develop and maintain a transportation system that meets the needs of all sectors of the community in a safe, efficient, cost effective and aesthetically pleasing manner.

### Safety

- Reduce accident rates on roadways
- Maintain current hurricane evacuation times
- Ensure adequate maintenance funding

## Roadway

- Meet all adopted roadway Level-of-Service
- Incorporate access management practices into all roadway design projects.
- Improve intersection Level-of-Service using low-cost solutions
- Reduce neighborhood "cut through" traffic

#### Transit

- Expand transit services
- Expand transit services for the elderly and the disabled
- Increase transit ridership and farebox revenues
- · Coordinate transportation and land use decisions

### • Bicycle and Pedestrian

- Improve non-vehicular transportation
- · Include sidewalks and bikeways into the design of all non-limited access roadway projects

## • Environmental

- Provide for an energy efficient transportation system
- Reduce greenhouse gas emissions

### • Land Use

 Advance a transportation network that promotes infill development

Statements (bold and italic added).

"The Broward MPO's vision is to transform transportation in Broward County to achieve optimum mobility with emphasis on mass transit while promoting economic vitality, protecting the environment, and enhancing quality of life."

"The mission of the Broward MPO is to influence the expenditure of federal and state funds to provide a regional transportation system that ensures the safe and efficient mobility of people and goods, optimizes transit opportunities, and enhances our community's environmental and economic well-being.

Through the lens of the MPO's vision, all of the goals and objectives for the 2040 LRTP can be distilled to

<sup>&</sup>lt;sup>5</sup> http://www.dot.state.fl.us/planning/ftp/text.shtm

<sup>&</sup>lt;sup>6</sup> FDOT is the state agency responsible for designing, building and maintaining Florida's transportation network. The agency helps coordinate the development and improvement of airports, rail facilities and ports. It also can assist in the operational Commitment 2040 7 cost of transit systems. www.dot.state.fl.us

three simple goals each with measurable objectives:

- Move People maintaining existing infrastructure, improving multimodal accessibility to places where people want to go, providing options to people with limited means, achieving and maintaining acceptable performance on all forms of transportation, etc.
- **Create Jobs** providing access to jobs and major employment centers, expanding freight and goods movement opportunities, fostering trade and tourism, etc.
- Strengthen Communities promoting a choice of transportation alternatives that improve health and allow neighborhoods to be more integrated into the larger region, promoting infill development patterns, maintaining a healthy environment, realizing equitable distribution of benefits and costs to all communities and distinct populations, promoting economical transportation, improving safety, etc.

How well each project or group of projects come together to meet the stated goals and objectives can be measured through objective and subjective measures often referred to as "measures of effectiveness." To be meaningful, the GOMs should be as few as possible so that the trade-offs among them are clear and not lost in numerous, incomprehensible details. Consistent with performance-based planning principals, GOMs should be applicable to each "strategic area of interest" addressed in the LRTP. Individual projects should strive to satisfy one or more of the plan's stated objectives in a measurable way.

# **MOVE PEOPLE**

Moving people relates to how easy and efficient it is for the public to get to their desired destinations. Underlying concepts include accessibility, travel time, travel cost and reliability. Of course, improving mobility for people has additional benefits for goods movement, economic vitality and overall quality of life.

Objective	How Objective is Achieved (Measures of Effectiveness)
Maintain infrastructure	<ul> <li>All operating and maintenance costs for existing facilities/services are fully funded through existing revenue sources (objective) for the life of the project/service or for the duration of the cost affordable plan, whichever comes first.</li> <li>All operating and maintenance costs for proposed facilities are funded through existing (objective) and/or reasonably expected future revenue sources (subjective).</li> </ul>
Achieve LOS standards on existing infrastructure	<ul> <li>Maximize the proportion of facilities by mode operating at or exceeding Level-of-Service (LOS) standards weighted by the number of users or adjacent populations (objective).</li> </ul>
Improve accessibility for all users of the transportation system	<ul> <li>Maximize the number of jobs within 30 minutes travel time by mode</li> <li>Maximize the number of facilities that are consistent in lanes, technology and policy (such as pricing, pedestrian only, bicyclist only, etc.) across county lines.</li> </ul>

<sup>&</sup>lt;sup>7</sup> MAP-21 states that any project operating in current rights-of-way automatically qualifies for a Categorical Exclusion pursuant to NEPA.

Objective	How Objective is Achieved (Measures of Effectiveness)
Shorten Project Delivery	• Minimize the number of projects that need new rights-of-way (ROW) .
Maximize Transit Ridership	<ul> <li>Increase transit mode share by 20% (build share / baseline share) in all planning sectors</li> <li>Increase transit mode share by 40% (build share / baseline share) in all areas with 20,000 or more persons per square mile</li> <li>Increase transit mode share by 40% (build share / baseline share) in all areas with 10,000 or more employees per square mile</li> </ul>

# **CREATE JOBS**

Transportation is a critical element to supporting job in the region. Efficient, low cost and smooth operating transportation facilities help existing employers grow and also attract new employers by giving them a competitive advantage both in terms of attracting employees and having a lower overall cost of product and service delivery.

Objective	How Objective is Achieved (Measures of Effectiveness)
Maintain or reduce average travel time to major economic centers of the urban area	<ul> <li>Average travel time to Central Business Districts         (CBD's), outlying business districts and major         employment centers with more than 5,000         employees/square mile (No Build Alternative –         Build Alternative) for all modes</li> <li>Average in-vehicle travel time to Port Everglades (No Build Alternative – Build Alternative)</li> <li>Average in-vehicle travel time to Fort Lauderdale/         Hollywood International Airport (No Build         Alternative – Build Alternative)</li> </ul>
Promote new development	Provide newly developing areas frequent transit service (20 minute or less headway) or 95% of highway lane miles in developing areas at Level-of- Service (LOS) C or better
Minimize the overall cost of travel	(Travel time * value of time + operating cost + maintenance cost) / (person miles of travel + truck miles of travel).
Maximize private investments in transportation service provision	Minimize net cost of public expenditures in project development     Increase community / public involvement via innovative approaches

# STRENGTHEN COMMUNITIES

Transportation investments can strengthen or weaken communities. Federal Environmental Justice (EJ) principals mandate that both the costs and benefits of transportation projects should be equitably distributed throughout a community. However, certain types of projects uniformly strengthen communities wherever they occur while other types of projects may have costs borne by a community disproportionate to any benefits they receive from them.

Objective	How Objective is Achieved (Measures of Effectiveness)
Insure transportation benefits and costs are equitably distributed throughout the region	<ul> <li>Maximize the number of viable transportation alternatives in all 5 of the MPO's geographic planning areas</li> <li>Improve accessibility to employment opportunities in areas of the county where the majority of residents make 50% or less of the median income</li> </ul>
Reduce accidents, injuries and fatalities	Redesign major accident locations
Promote redevelopment and infill	Maximize Public Private Partnership development opportunities in areas of the county where the majority of residents make 50% or less of the median income     Increase premium transit access to jobs and population
Insure projects include appropriate aesthetic considerations in their project design	Project budget must have a line item for aesthetic improvements
Provide options for non-motorized travel	<ul> <li>Number of miles of sidewalk/number of roadway miles (coverage)</li> <li>Number of bicycle lane miles/number of roadway miles (coverage)</li> <li>Minimize the number of gaps in the sidewalk and bike lane network</li> </ul>
Promote environmentally sensitive projects	Reduce energy consumption measured as British Thermal Unit of Energy consumed (BTU)/person mile traveled Produce less tons of ozone precursors and greenhouse gasses (CO2) than were produced in 1990 (pre Clean Air Act Amendments).

<sup>&</sup>lt;sup>8</sup> The equitable distribution of costs and benefits associated with any federal investment on all members of the community. An environmental justice analysis seeks to ensure that low-income persons and people of color, in particular, benefit from federal investments and do not experience disproportionate adverse environmental and health impacts.

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