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Transportation Planning Guidebook

JANUARY 2018



Gregory Stuart
Executive Director

“A coordinated transportation system is a shared responsibility. As partners in achieving our shared transportation vision, we believe the process begins with you.”

A coordinated transportation system is a shared responsibility. As partners in achieving our shared transportation vision, we believe the process begins with you. It is the Broward MPO’s goal to work with you to create a transportation system which meets the needs of all users and brings measurable value for our community, visitors, and the region. We drafted the Transportation Planning Guidebook with this philosophy in mind.

To achieve the Vision of the MPO Board, we want to work with you to fund projects and ensure their timely delivery. This guidebook provides the framework for you, our partners, to achieve two objectives: develop transportation projects that are program-ready, and create a transportation plan to pursue funding for projects through the MPO or other sources. We believe the resources in this guidebook will collectively strengthen our ability to deliver innovative transportation solutions through public input, data-driven analysis, and performance management.

The Broward MPO looks forward to working with you to meet the transportation needs of our communities. Your ideas, plans, and projects will help us to provide innovative solutions to address Broward’s transportation needs today and into the future. I invite you to join us to shape our collective transportation vision.

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Transportation Planning Guidebook

JANUARY 2018

BrowardMPO.org





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INTRODUCTION

Transportation planning is the process of navigating ideas and crafting solutions that address a need within the transportation system. This guidebook provides recommended steps to help recognize local transportation issues within Broward County. These steps provide guidance on how to address transportation issues by developing a transportation project that is eligible for funding (i.e., program ready), and if needed, a transportation plan to address the needs of the system.

Contained within are fundamental steps for project and plan development. It is organized by two sections: How to Develop a Transportation Project and How to Develop a Transportation Plan. Each chapter is supported by a checklist with key takeaways for each step of the process.

This guidebook will help inform decision-making for the advancement of multimodal solutions, and develop program-ready projects to apply for potential funding opportunities with the Broward MPO and other partner agencies.

WHAT'S INSIDE

How To Develop A Transportation Project:

This section provides recommended steps designed to help identify a transportation problem, find information to understand it and develop potential solutions. These steps will help develop a project that is program-ready for funding opportunities. An example is provided within this section to walk through each recommended step.

How To Develop A Transportation Plan:

This includes developing a vision for the transportation system that is supported by goals, objectives and performance measures to inform decision-making related to future investments. This guidebook will emphasize the development of transportation plans, improvement plans and project development phases of the transportation planning process.

What makes a project program ready?



Scope of work



Partner Collaboration



Cost Estimate



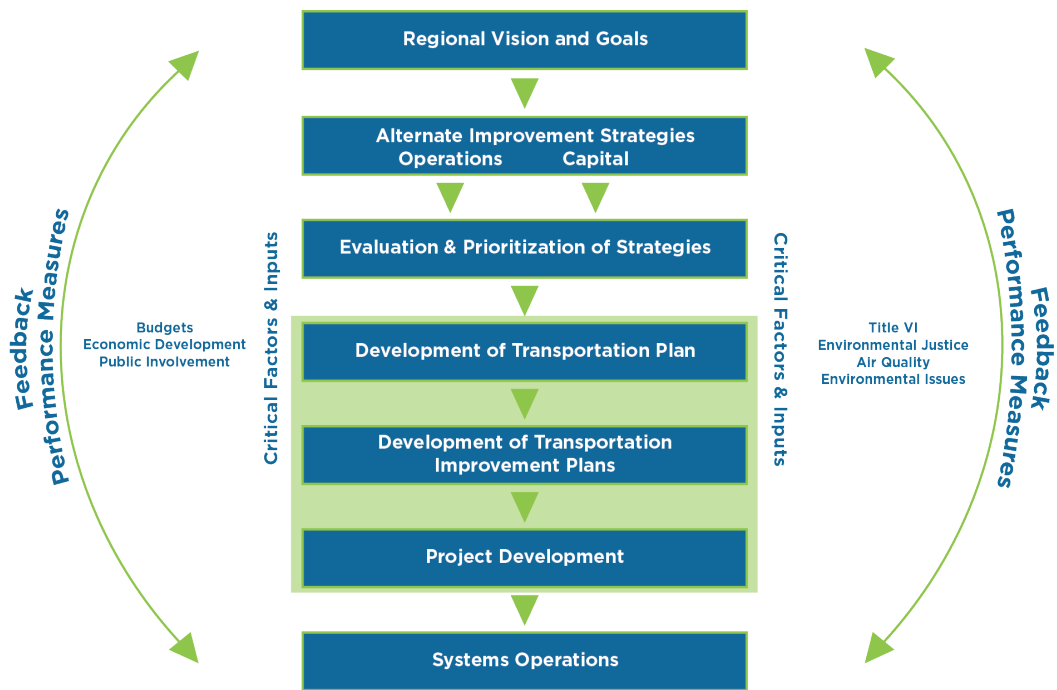
Resolution



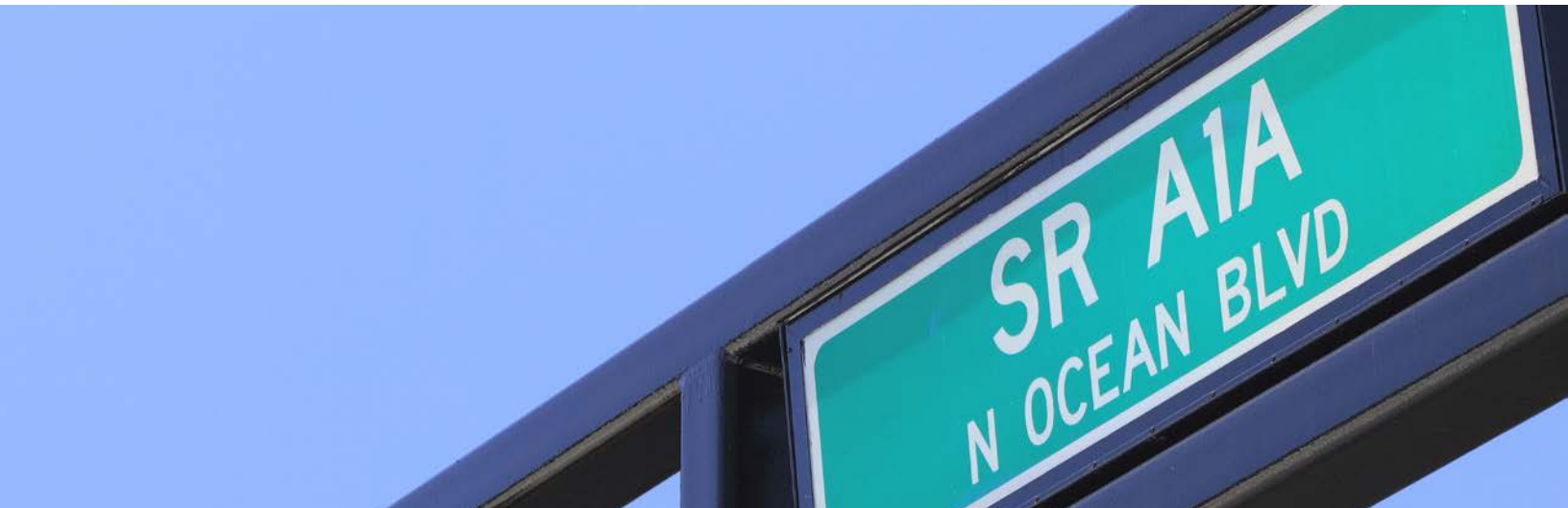
Transportation Planning Process

Transportation planning is an ongoing process for addressing transportation issues. This process is carried out on a regional and local scale and relies on feedback related to the impact of projects on system performance to inform decision-making.

This guidebook is designed to assist with the development of a transportation plan and inform project development. Furthermore, it will help guide vision and goal development and the establishment of performance measures that provide feedback when assessing transportation planning efforts as part of a plan update or project assessment. This guidebook emphasizes the development of transportation plans, improvement plans and project development phases of the transportation planning process.



 Guidebook used during these phases



Public Involvement



Transportation stakeholders are key providers of feedback within the transportation planning process. For effective public involvement, it is important to engage the public by:

- **Informing** the public of transportation related meetings, issues and events
- **Involving** the public by offering opportunities for engagement throughout the planning process
- **Including** all communities within the municipality to participate in planning activities, with special emphasis on underrepresented and/or underserved neighborhoods

Public involvement from the onset and through the transportation planning process provides opportunities for residents to participate in how needs are identified, solutions are developed and investments are targeted within their communities. Additionally, stakeholder outreach events provide an opportunity for community dialogue to address potential concerns related to the impacts of a transportation project.

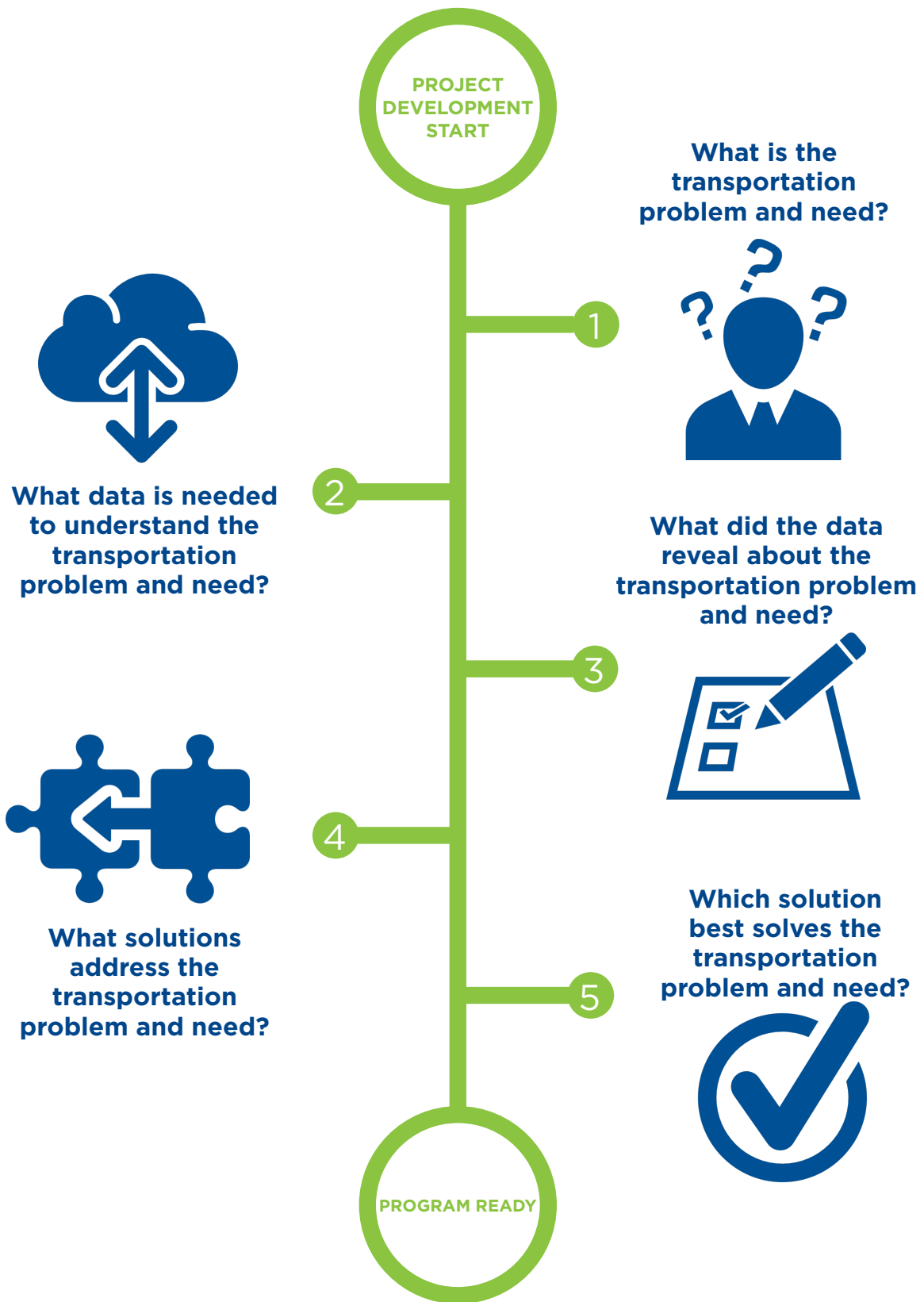
For more information related to public involvement, environmental justice and Title VI, the Broward MPO and USDOT have online resources available to build an effective and diverse public involvement and outreach program. Review the table of data resources on page 13 for more information.





HOW TO DEVELOP A TRANSPORTATION PROJECT

HOW TO DEVELOP A TRANSPORTATION PROJECT





Within this section, the following recommended steps provide guidance on how to develop a transportation project:

1

What is the transportation problem and need?

- Identify purpose and need for project
- Identify transportation problems within the municipality
- By what means was the problem identified (e.g., public, existing conditions, etc.)

2

What data is needed to understand the transportation problem and need?

- Where data can be obtained/key contacts
- What data sources are needed to evaluate this problem
- Determine data needs
- Catalog existing data and collect missing data

3

What did the data reveal about the problem and need?

- Vet potential problems
- Determine the validity of the problem
- Scope of the problem

4

What solutions address the transportation problem and need?

- Develop potential improvements
- List all possible solutions that could address the problem

5

Which solution best solves the transportation problem and need?

- Perform an alternatives analysis
- Determine the benefits, constraints and costs associated with each solution
- Determine if the solution aligns with the goals and objectives from a recent and existing plan
- Decide on a preferred solution



What is the Transportation Problem and Need?

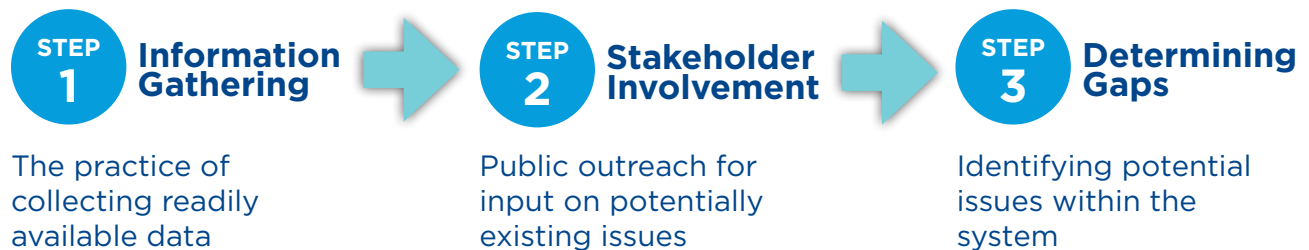
A transportation problem can be based on a problem that exists today or one that is expected to exist in the future. Defining the problem will help identify the scope and context of the transportation issue, and importantly, establish a purpose and a need for a transportation project.

A valid need can be determined by an accurately defined or identified problem. This is based on a three-step process:



At-a-Glance

Good planning requires a purpose and need to justify the use of public resources for the transportation project. In concert with partner agencies that provide guidance, this can be accomplished with information gathering, stakeholder involvement and determining gaps within the system.



Information gathering is the practice of researching and collecting readily available data to assess the state of the transportation system. This information will establish the existing conditions of the system by collecting transportation related data to build a transportation profile. This will help identify potential gaps or problems based on deficiencies discovered in the system as information is gathered. There are several partner agencies like the Broward MPO, Broward County and Florida Department of Transportation (FDOT) that collect transportation related data.

Stakeholder involvement may reveal transportation problems that were previously identified or may be potentially sensitive to the community. Stakeholders should include the public and local, state and federally elected officials who are impacted by the problem,

or may be responsible for constituents that are impacted. Their input is key to avoid advancing solutions that may conflict with the community's vision. Check the most current long-range transportation plan or corridor studies for public involvement as they relate to a specific locality. These efforts may have already revealed a transportation issue.

Once the existing conditions (i.e., state of the transportation system) are established and stakeholder input is applied, the final step is to determine the gaps within the system. This is a decision-making step, where potential issues are identified based on the assessment of existing conditions. The results of these efforts may identify several transportation related issues, which may be addressed with a single solution or several potential projects.

To define a problem:

- 1 Understand the state of the system
- 2 Seek out previously identified issues
- 3 Identifying current gaps

Example:

At a recent public meeting, a City Commission was made aware of a safety concern from residents who walk, bicycle and use transit along South Avenue. The City Commission directed the Planning and Development Department to investigate South Avenue for resident safety concerns. A segment from Ocean Road to Sawgrass Boulevard was identified to have missing portions of bicycle lanes and utility poles within the sidewalk.

Checklist

- ✓ Inventory transportation facilities (i.e., roadways, transit stops, bus stops, greenways, sidewalks and bicycle facilities)
- ✓ Identify jurisdiction of transportation facilities (i.e., municipal, Broward County and FDOT)
- ✓ Collect information related to vehicular movements
- ✓ Collect information related to bicycle and pedestrian movements
- ✓ Collect information related to vehicle to vehicle, vehicle to bicycle and vehicle to pedestrian crashes
- ✓ Collect information related to transit boardings and alightings
- ✓ Collect information related to population characteristics (i.e., total counts, demographic and economic)
- ✓ Review the Broward MPO Metropolitan Transportation Plan (MTP) for previously identified transportation issues
- ✓ Review corridor studies for previously identified transportation issues
- ✓ Conduct outreach with the public and local elected officials
- ✓ Examine existing conditions of the transportation system, review outreach findings and identify potential problems and needs

2

What Data is Needed to Understand the Transportation Problem and Need?

At-a-Glance

Measurable data is needed to describe the transportation system. However, what data is needed to understand the problem and what data is currently available must be investigated first. This will help reveal gaps in available data and whether additional data collection efforts must be pursued. Once data sets are identified, they can be cataloged to assess the system.

Data collection efforts are key to understanding the scope of a transportation problem. Information that describes the characteristics of the system and can be used to assess current performance will help prepare staff when answering project questions related to the transportation need (i.e., benefits, costs and constraints). Although data collection efforts will vary depending on the transportation problem, the sources are often the same. This data is likely available online and is generally collected by partner agencies.



To identify the data needed

- 1 Identify data sources that collect information related to the transportation network
- 2 Determine data needs that would describe the transportation problem within the network
- 3 Collect and catalog data to support further assessment of the transportation problem

Example:

Planning and Development staff was instructed by the Director to find any information related to the City Commission's safety concerns about South Avenue. Staff reviewed information for right-of-way (ROW), sidewalk widths, lane widths, turning movement counts, Annual Average Daily Traffic (AADT), pedestrian and bicycle counts, signal timing and crash history. A field assessment was conducted to observe traffic counts at key intersections along the segment of South Avenue.

Checklist

- Inventory data sources (i.e., federal, state, local and private)
- Review inventory of transportation facilities and identify data needs related to each facility
- Update inventory of transportation facilities with the most currently available data
- Identify data that is not readily available online and investigate potential sources for additional information
- Update inventory of transportation facilities on a periodic basis as new data becomes available



DATA RESOURCES

Source	Description	Use	Link
Federal	USCB	Population characteristics	https://www.census.gov
Federal	ACS	Population characteristics	https://www.census.gov/programs-surveys/acs/
Federal	NHTS	Travel behavior	http://nhts.ornl.gov/
Federal	FHWA Title VI Guidance	Guidance for FHWA Title VI requirements	https://www.fhwa.dot.gov/civil-rights/programs/tvi.cfm
Federal	FHWA Freight Management and Operations	Resource and information related to freight planning, freight data and performance management	https://ops.fhwa.dot.gov/freight/
Federal	NPMRDS	Archived speed and travel time data sets for passenger vehicles, trucks and passenger vehicles with trucks	https://npmrds.ritis.org/analytics/help/#npmrds
State	BEBR	Population and economic characteristics	https://www.bibr.ufl.edu/
State	Signal Four Analytics	Traffic crash information	https://s4.geoplan.ufl.edu/
State	FDOT Transportation Data and Analytics Office	Highway, traffic counts, travel time, multimodal, freight and passenger information	http://www.fdot.gov/planning/statistics/
Local	Broward County Road Jurisdiction	Broward road jurisdiction and classification	http://bcgis.maps.arcgis.com/apps/webappviewer/index.html?id=f1cc352bdf3f4ceea4ee-a7a7209adafd
Local	Broward MPO Traffic Data	Traffic analysis zones, congestion management maps	http://www.browardmpo.org/index.php/data
Local	Broward MPO Commitment 2040	20-year financially feasible transportation plan for Broward County	http://www.browardmpo.org/index.php/investment-plan
Local	Broward MPO TIP	Five-year comprehensive list of funded transportation projects in Broward County	http://www.browardmpo.org/index.php/core-products/transportation-improvement-program-tip
Local	Broward MPO CSLIP	Funding program for local projects that do not require ROW acquisition and are considered “non-regionally significant”	http://www.browardmpo.org/index.php/major-functions/complete-streets-localized-initiatives-program
Other	Practitioners Peer Exchange EJ Roadmap	Information and resource related to the role of EJ in transportation decision-making	http://environment.transportation.org/pdf/2016_environmental_justice_peer_exchange/ejrm_1_v6.pdf

For a complete list of acronyms, turn to Appendix pages 44 and 45.

3

What Did the Data Reveal About the Transportation Problem and Need?



At-a-Glance

Transportation problems must be verified and validated. This process is based upon reviewing available data and determining whether the potential problem represents a deficiency in the existing system.

A valid transportation problem will demonstrate a purpose and a need.

Transportation issues may be brought forth by the community, elected officials or is the result of previous planning efforts. To verify whether a transportation issue identifies a valid problem, it is critical to ask what the data reveals about the problem.

- 1 Isolate the transportation problem within the existing transportation system
- 2 Collect the most currently available data to help describe the transportation problem
- 3 Based on the most currently available data, determine whether the transportation problem represents a deficiency within the existing system

The process of vetting a potential problem relies on data collection. This requires a baseline of existing information to assess the validity of a transportation problem. For the following common project types, there are several data sets available:

Sample Project Type	Helpful Data Sets
Sidewalk Improvement	Inventory of existing sidewalk network, pedestrian counts, activity centers
New Bicycle Lane	Inventory of existing bicycle lane network, bicyclist counts, accident counts
Turn Lane Extension	Peak and off peak AADT, existing and projected turn lane volumes
New Crosswalk	Pedestrian counts, peak and off peak AADT, accident counts

A validated transportation problem will support the need for a potential project. The information learned as part of this process will be used when developing a purpose and need statement—a requirement for project development. Demonstrating how a potential project solves a problem, why it is the best solution and how it relates to the goals and objectives of a transportation, comprehensive or local strategic plan, will increase the likelihood of potential funding when assessed for eligibility in partner agency programs and grant opportunities.

Example:

After a review of the South Avenue segment, it was determined that bicycle lanes had gaps along the route, embedded utility poles reduced walkable sidewalk width and a key turn lane was over capacity. Based on this assessment staff recommended that the segment of South Avenue from Ocean Road to Sawgrass Boulevard be further studied for potential solutions.



Checklist

- ✓ Define the transportation problem and need within the existing transportation system
- ✓ Collect and analyze data to assess the transportation problem and need within the current and future transportation systems
- ✓ Determine whether the transportation problem and need represents a deficiency in the current and future transportation systems



What Solutions Address the Transportation Problem and Need?

Identifying potential solutions to address the transportation problem is an integral step toward developing a project. Solutions are developed based on field reviews of the problem area (i.e., potential project site location) and staff recommendations as to how best address the problem. List all possible solutions that could address the problem and conduct field reviews to determine which solutions are appropriate. Shared impacts across the transportation system and within local communities should be considered when developing potential solutions. Once a list of solutions is developed and field reviews are conducted, identify potential constraints to each solution to narrow the list for further evaluation.

At-a-Glance







Once a transportation problem is identified, solutions must be developed to address the problem. This is an integral step toward project development.

Potential solutions should consider multiple factors in addition to the transportation system like the shared impact on communities and available funding.

Example:

Following field reviews, staff suggested that lane widths within the existing roadway could be reduced to accommodate missing bike lane segments and pavers could be installed along major intersection crosswalks; however, utility relocation would require coordination from the local power company, and signal modification would require coordination from the maintaining agency.

Checklist

-  Review existing data related to the transportation problem and need
-  Identify potential solutions that address each aspect of the transportation problem and need
-  Coordinate with entities that have ROW/facility jurisdiction
-  Conduct field reviews and confirm that potential solutions are consistent with the vision and goals of local government, the region and state
-  Identify potential benefits, costs and constraints to each solution
-  List all possible solutions for further evaluation



Which Solution Best Solves the Transportation Problem and Need?

When assessing solutions, each aspect of the transportation problem should be reviewed for possible opportunities to link them within a single project. A cost-benefit analysis can help identify which solution best solves the transportation problem by examining its benefits, costs and constraints. Each assessed project represents a scenario or an alternative to be presented to the public for comment. The analysis should consider the potential project's impact within the affected community, the shared impact across neighboring communities and the transportation system and financial feasibility.










At-a-Glance

There may be multiple solutions to address a transportation problem. However, identifying which solution best addresses the transportation problem can be determined by examining benefits, costs and constraints to each potential solution. Shared impacts to the community and the system should be considered when assessing solutions.

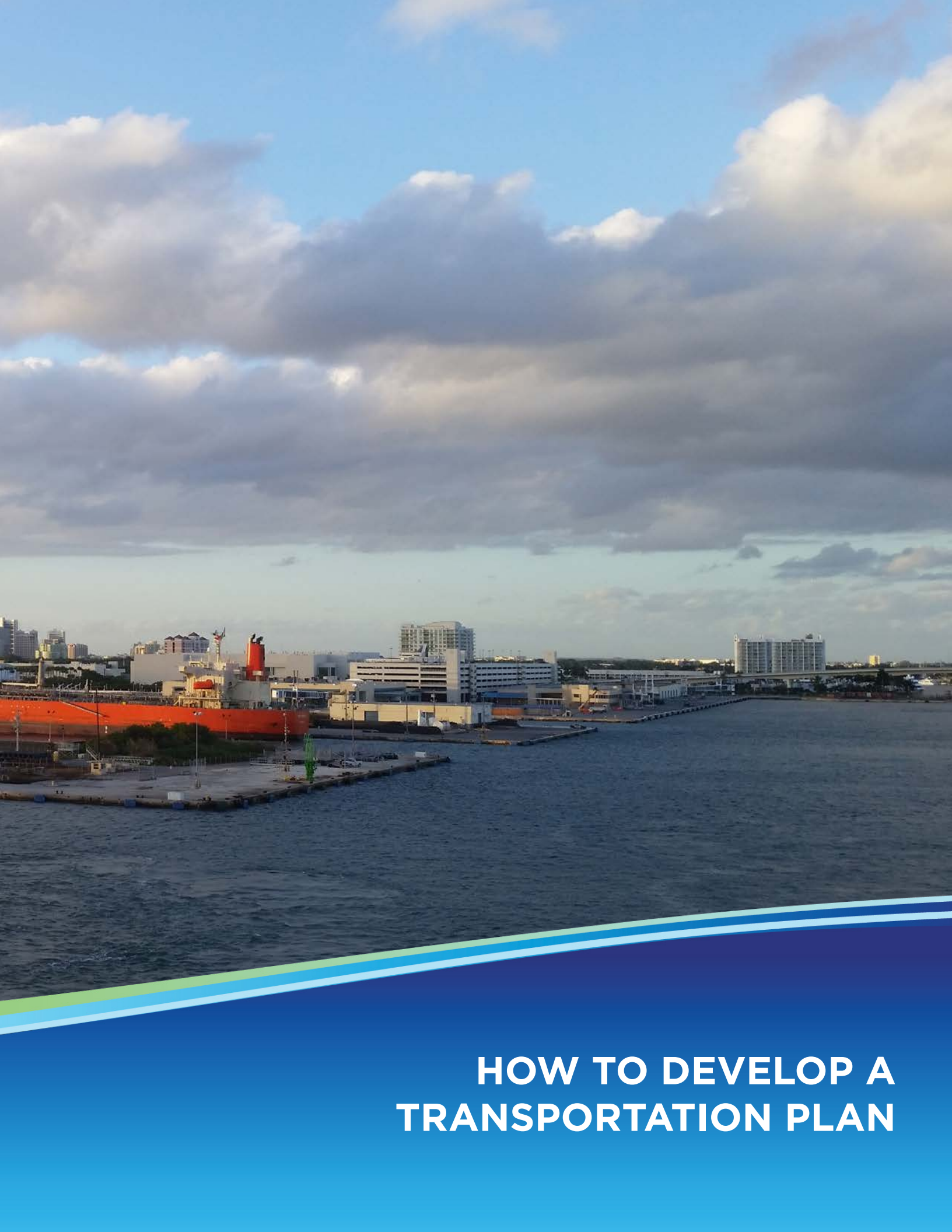
Example:

Staff produced three alternatives that were evaluated for their benefits, costs and constraints. The first alternative addressed bicycle lane gaps, modified signal timing at key intersections, and an improved turning radius for substandard turn lanes. The second alternative addressed only bicycle lane gaps and modified signal timing. A third alternative considered no improvements as a viable solution.

Checklist

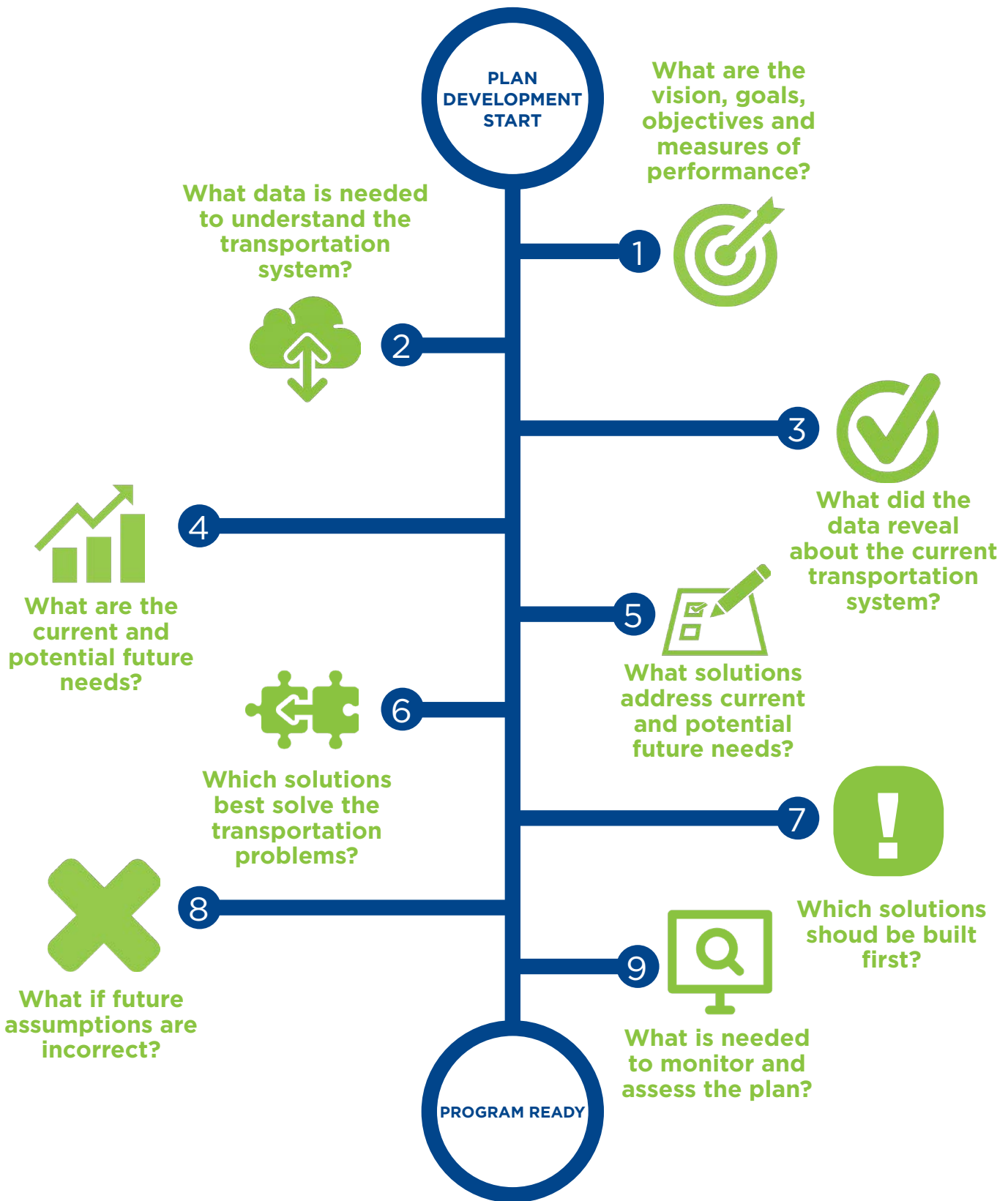
-  Identify benefits, costs and constraints associated with each possible solution
-  Determine which solutions are feasible (i.e. costs do not exceed benefit and are aligned with the City's transportation improvement goals and objectives).
-  Develop multiple scenarios (i.e., alternatives) based on combinations of feasible solutions that best address the transportation problem
-  Develop a "no improvements as viable" scenario to demonstrate future conditions if the transportation problem is not addressed
-  Present top alternatives and "no improvements as viable" scenario to the public for comment
-  Review top alternatives based on public comment
-  Identify potential funding and implementation opportunities (e.g., MTP update, Complete Streets and Other Localized Initiatives Program (CSLIP), grant opportunities, etc.)
-  Determine preferred alternative to move forward based on feasibility, public support and potential funding opportunities
-  Coordinate with partner agencies (i.e., Broward MPO, Broward County, FDOT) responsible for funding and implementation for potential project application submittals





HOW TO DEVELOP A TRANSPORTATION PLAN

HOW TO DEVELOP A TRANSPORTATION PLAN



Within this section, the following recommended steps provide guidance on how to develop a transportation plan:

1

What are the vision, goals, and measures of performance?

- Develop a vision statement, goals, objectives and performance measures
- Determine a vision statement for the municipality
- Identify goals to achieve that vision
- Identify measurable objectives to support each goal
- Establish performance measures to monitor progress

2

What data is needed to understand the transportation system?

- Identify where data can be obtained and list key contacts
- Develop a baseline of existing conditions from available data and data resource options

3

What did the data reveal about the current transportation system?

- Evaluate the current transportation system
- Identify transportation constraints and deficiencies within the municipality
- Determine current transportation needs

4

What are current and potential future needs?

- Conduct scenario planning/ sensitivity analysis
- What transportation issues may the municipality face in the long-term (i.e., 20 years)

5

What solutions address current and potential future needs?

- Review project development per “How To Develop a Transportation Project” beginning on page six.
- List out all possible projects that could address identified deficiencies/constraints

6

Which solutions best solve the transportation problems?

- Perform an alternatives analysis
- Determine the benefits, constraints and costs associated with each alternative
- Determine if alternatives aligned with the goals and objectives
- Decide on preferred solutions

7

Which solutions should be built first?

- Develop measurable prioritization criteria based on performance measures
- Prioritize projects for implementation

8

What if future assumptions are incorrect?

- Develop targets that would trigger a reevaluation of future assumptions
- Collect and update data as new information becomes available
- Determine whether future assumptions hold true based on newly available data

9

What is needed to monitor and assess the plan?

- Set benchmarks based upon performance measures
- Review plan performance on a periodic basis and update plan as needed



What Are the Vision, Goals, and Measures of Performance?

A transportation plan is a forward-thinking document that seeks to address gaps within the transportation system by brainstorming potential solutions. Regional and state priorities are important considerations to ensure that the vision and goals developed reconcile with existing planning efforts.

There are four essential elements that establish the framework for a transportation plan:



At-a-Glance

A **vision statement** is a comprehensive idea for the future of the transportation system. Goals outline steps to achieve the vision over a period of 10 to 20 years.

Objectives provide instruction on how to achieve each goal and performance measures set a framework to measure success.



A **vision statement** is a response to what the state of the transportation system should become. Vision statements are often produced as a result of workshops with elected officials and executive staff. Once a vision statement is developed, it needs to be supported by a framework to achieve that vision that consists of goals, objectives and performance measures.

A vision statement tells us what we want to become.

Goals are steps to achieve the vision statement. They can be independent of one another, but must relate to the overall vision for the transportation system. A goal establishes a measurable target to work toward that will be carried out as part of implementing the transportation plan. Goals are developed alongside the vision statement through workshops with elected officials and management.

Goals tell us how to achieve the vision.

Objectives are developed to support the achievement of goals. They should be specific targets that are action-oriented and measurable. Objectives enforce the framework of the transportation plan by guiding the development of potential solutions for transportation issues so that they help achieve the goals of the plan. Staff develops objectives in response to the vision and goals set by elected officials and management.

Objectives tell us how to achieve the goals.

Performance measures monitor the progress of the implementation of the transportation plan. They are data-driven metrics directly related to objectives. Its critical to ensure that objectives are measurable so that performance measures can be established. In addition, recognize the limitations of available data when developing performance measures to avoid potential metrics that lack reliable data. Performance measures are developed alongside objectives.

Performance measures tell us if we were successful.

Checklist

- ✓ Conduct visioning workshop to brainstorm ideas related to a desired future outcome for the transportation system
- ✓ Develop goals that advance the vision for the transportation system
- ✓ Develop objectives that are measurable, achieve the target of each goal and are based on readily available data
- ✓ Establish performance measures related to each objective based on readily available data



What Data is Needed to Understand the Transportation System?

At-a-Glance

Identify and collect transportation-related information to help describe the current state of the transportation system.

This will help establish a framework to examine the system for future improvements related to the vision statement.

Data collection is an ongoing effort that drives the planning development process. It is critical to have the most current information available when identifying needs of the transportation system. This will help inform a baseline of existing conditions with which to view the state of the transportation system.

The following elements of the transportation system should be examined:

- 1 Roadway network
- 2 Public transportation routes, stops and transfer locations
- 3 Bicycle lanes, greenways and sidewalk network
- 4 Activity centers
- 5 Key freight routes

To support the needs assessment efforts, the following information¹ should be collected:

- 1. Transportation Behavior** (e.g., AADT, turn lane movements, transit ridership, etc.)
- 2. Transportation Infrastructure** (e.g., roadway and freight route inventory, transit routes and schedules, bicycle and pedestrian facilities, etc.)

- 3. Demographic** (e.g., population, age, household income, etc.)
- 4. Land use** (e.g., residential, commercial, industrial, etc.)
- 5. Ownership** (i.e., ROW, jurisdictional authority and property rights)
- 6. Safety** (e.g., vehicle, pedestrian, bicycle crash information, etc.)

Prior to plan development, any existing data should be reviewed for accuracy. It may be helpful to establish an official data program to set guidelines on when to review data for updates and explore additional sources as new ones may become available over time.



Checklist

- ✓ Establish inventory of data sources (i.e., federal, state, local and private)
- ✓ Establish inventory of transportation system facilities and identify data needs related to each facility (e.g., roadway, public transit, bicycle and pedestrian, sidewalk, etc.)
- ✓ Update inventory of transportation facilities with the most currently available data
- ✓ Collect demographic, land use, ownership and safety related data to describe the government jurisdiction
- ✓ Identify data that is not readily available online and investigate potential sources for information to fill in gaps
- ✓ Develop a baseline of existing conditions based on transportation and non-transportation related data to describe the state of the transportation system
- ✓ Update baseline of existing conditions on a periodic basis as new data becomes available.

¹Review the list of suggested data sources, environmental justice and Title VI related resources on page 13.



What Did the Data Reveal About the Current Transportation System?







At-a-Glance

With the most currently available information, the transportation system can be examined via a needs assessment for potential constraints and gaps.

Transportation issues are often brought forth by the community, elected officials or is the result of previously identified planning studies. These issues must be assessed as they relate to priorities set forth by the vision and goals when developing a transportation plan. Additionally, the transportation related goals of partner agencies should be considered to avoid potential conflict between local, state and regional efforts.

The process of verifying transportation priorities is the result of measuring the most currently available information against the existing conditions of the system. A needs assessment will help identify constraints and gaps in the transportation system that will be addressed in the plan. In addition, it may reveal areas for potential investment that were not previously identified in public outreach and stakeholder involvement.

Checklist

-  Isolate transportation networks by mode (i.e., roadway, public transportation, bicycle and pedestrian infrastructure)
-  Gather the most currently available data related to each transportation mode
-  Develop an inventory of facilities for each transportation mode
-  Develop performance standards for each transportation mode (e.g., Level of Service (LOS), safety, AADT, bicycle and pedestrian counts, etc.) based on measurable data
-  Assess the existing conditions of the transportation system by performance
-  Identify gaps in the transportation system as revealed by data assessment of potential needs



Rides

AvMed Rides

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What Are Current and Potential Future Needs?

Current needs of the transportation system can be revealed through public outreach, stakeholder involvement and by evaluating the performance of the existing system with measurable data. In addition to current needs, the transportation plan must address potential future needs that may impact member governments in the near and long term (i.e., 10 to 20 years).

When assessing potential future needs there are two tools available:



At-a-Glance

Needs identification help determine where to invest public resources to improve the state of the transportation system.

When identifying potential needs it is important to also consider what issues local government may face in the near and long term (i.e., 10 and 20 years), and what may happen if anticipated scenarios do not occur.

Scenario Planning

Examines the “what if” related to possible future changes in the system

Sensitivity Analysis

Examines the impact of possible future changes in the system

Scenario planning is a problem-solving approach that examines a transportation issue by recommending several options to address the base issue. For example, a member government may face a congestion issue on a key downtown corridor. There are several options that may be available such as, adding roadway capacity along the segment, modifying existing turn lane widths at key intersections, or adding roadway capacity along an adjacent route to divert traffic.

However, what if anticipated roadway volume does not increase in the next 10 or 20 years as

previously forecasted? Or, what if the price of gas increases and more people shift to public transportation?

A sensitivity analysis is a test of assumptions related to how great the impact of a potential change is to a future scenario. For example, how great would the impact of congestion be along a key downtown corridor if population increases were greater than anticipated? At what threshold (e.g., roadway volume in 10 years, roadway volume in 20 years, etc.) would the potential roadway improvement fail to meet the anticipated volume in traffic?



Checklist

- ✓ List potential transportation needs as identified previously by data validation and problem verification efforts
- ✓ Identify and list potential solutions that may address transportation needs
- ✓ Develop future scenarios for the near term (10 years) and long term (20 years)
- ✓ Examine the sensitivity of potential solutions as they relate to the near and long term, and compare with performance measures



What Solutions Address Current and Potential Future Needs?

Often solutions to multimodal issues are proposed without a full understanding of the transportation problem, and, more importantly, if that problem represents a valid transportation issue or how the impact of that problem is shared.

The process of developing a transportation project will help guide the efforts of member governments to better serve communities through thorough problem identification and solution development:



At-a-Glance

There are often many potential solutions available to address transportation issues.

The process of determining which solutions could address these issues is a result of a thorough understanding of local transportation needs and problem identification.

- 1 Define the transportation problem and need
- 2 Identify data to understand the transportation problem and need as it exists today or may exist in the future
- 3 Understand what the data reveals about the transportation problem and need
- 4 Identify solutions to address the transportation problem and need
- 5 Decide which solution best solves the transportation problem and need based on their benefits, costs and constraints

For an overview of this process, review *Part 1: How to Develop a Transportation Project*.

Checklist

- ✓ Identify local transportation problems and needs
- ✓ Validate local transportation problems and needs with the most currently available data
- ✓ Identify which solutions address local transportation problems and needs
- ✓ Determine the benefits, constraints and costs associated with each potential solution
- ✓ Determine which solutions to recommend as potential improvement projects



Which Solutions Best Solve the Transportation Problems?






At-a-Glance

Transportation issues may be solved by more than one solution. It is important to evaluate each solution against one another, identify a preferred solution and ensure it is in line with the vision, goals and objectives of the community.

There are often many workable solutions to address the transportation needs of the community. However, deciding which solutions to move forward as viable transportation projects requires a decision as to which solution addresses each transportation problem or group of problems the best. Each solution should be examined for the benefits, costs and constraints associated with their implementation. They should also be assessed for their impact to neighboring communities in relation to the overall system. These solutions should align with transportation priorities (i.e., the vision, goals and objectives) as identified in the transportation plan. Solutions that are determined to be the best fit should be advanced as preferred solutions.

An alternatives analysis examines potential solutions for their benefits, costs and constraints. It's advisable to develop several alternatives based off of potential solutions, in addition to a "no-build" scenario where no improvements are considered. Each alternative will be compared against one another in addition to the "no-build" scenario. Although there may be several potential alternatives, those that represent the best fit between the community, member government objectives, and address current and future needs should be designated as a preferred solution. Alternatives must be testable against performance measures and demonstrate trade-offs when designating a preferred solution.

Checklist

-  List each potential solution per transportation problem and need
-  Identify opportunities to link potential solutions as a single project (i.e., alternative)
-  Determine the benefits, costs and constraints related to each alternative per transportation problem and need
-  Consider how well each alternative addresses the transportation problem and need and consider a "no-build" scenario
-  Determine preferred solutions to be assessed for prioritization that are based on alternatives demonstrating the maximum benefit compared to cost, which are closest in line with community and regional transportation and land use priorities (i.e., vision, goals and objectives of the transportation plan)



Which Solutions Should be Built First?



At-a-Glance

When determining which solutions to prioritize, it is important to ensure that preferred alternatives can demonstrate how they meet the vision, goals and objectives of the transportation plan.

Furthermore, their impact on local communities and the environment must be considered alongside available funding opportunities when prioritizing which solutions to build first.

Project prioritization is the process of determining the order that transportation projects should be pursued. This process is used to determine which program-ready projects to advance when facing limited funding opportunities by ranking projects against one another.

Prioritization criteria should directly relate to the goals, objectives and performance measures of the plan. They should be based upon reliable datasets that are updated often. This will help develop an objective process when assessing which projects should be built first. An objective prioritization process should be based on the following:

- 1 Measurable criteria with available data based on the goals and objectives of the plan
- 2 Measurable criteria should relate to the performance measures of the plan
- 3 A scoring methodology that assesses each project as they relate to one another and the system
- 4 Criteria weighting based on the goals and objectives of the plan
- 5 Additional criteria for factors that consider community impact like environmental justice

Projects that require an environmental assessment, ROW acquisition or are beyond currently available funding may be lower in priority for potential implementation. The goal of prioritization is to rank preferred transportation projects that can be listed within the transportation plan. This will prepare member governments with a list of program-ready projects when seeking funding opportunities like the Broward MPO's MTP update or annual CSLIP update.

Checklist

- ✓ List all preferred alternatives
- ✓ Identify and assign measurable criteria that relates to the performance measures of the transportation plan to evaluate all preferred alternatives
- ✓ Score preferred alternatives based on measurable criteria
- ✓ Identify which preferred alternatives would require an environmental assessment or ROW acquisition and determine the impact as it relates to prioritization score
- ✓ Identify potential funding opportunities that may be pursued for project prioritization





What if Future Assumptions are Incorrect?

At-a-Glance






Future assumptions about the transportation system may change over time as new data becomes available, which may impact forecasts on projected outcomes.

The process of addressing multimodal needs relies on currently available data to develop forecasts related to the future conditions of the system. However, newly available data may impact the accuracy of previous forecasts. To accommodate these changes, the plan should be updated on a periodic basis (i.e., five or 10 years) as new data (e.g., American Community Survey (ACS), U.S. Census, travel demand surveys, etc.) becomes available. The plan should develop targets related to performance measures that would trigger a reevaluation of any forecasts for future scenarios.

For example, the transportation plan established a goal to improve downtown safety for pedestrians. The plan established

an objective to reduce downtown roadway volume by a target number of single occupant vehicles in downtown by 2030. The plan assigned a performance measure that the number of single occupant vehicles decrease 5% by 2030. However, new U.S. Census data was released and the local population had increased by a greater percentage than previously anticipated. Furthermore, domestic oil production has held steady for last three years and the price of gasoline has reached new lows. Based on this new information, the previous future assumption may be incorrect to assume a 5% decrease in vehicles. Thus, it would be reasonable to reassess the forecast to account for changes in data and potentially reevaluate how the goal of downtown safety will be addressed as part of a five-year plan

Checklist

-  Develop a schedule for a plan update (i.e., five or 10 years)
-  Develop targets that would trigger a reevaluation of future assumptions
-  Collect and update data as new information becomes available
-  Determine whether future assumptions still hold true based on newly available data
-  If future assumptions are likely to be incorrect, reevaluate any related forecasts or projections and determine impact on goal achievement during plan update



What is Needed to Monitor and Assess the Plan?

At-a-Glance

Performance measures establish benchmarks for progress and help monitor goal achievement. They provide feedback on the transportation plan and can be used to determine success.





The performance measures established when developing the vision, goals and objectives are used to monitor and assess the transportation plan. They should be measurable with available data to evaluate the success of each objective and inform on the progress of each goal.

For example, the plan includes a goal that aims to improve safety. Objectives supporting that goal include: reduce speed on key corridors and install a landscaped buffer between the sidewalk and roadway on key corridors. To monitor performance, the plan established the following measures: decrease vehicle to vehicle crashes by 25%, reduce vehicle to bicycle crashes by 50% and reduce

vehicle to pedestrian crashes by 50%. During the plan update, it was revealed that reduced speed on key corridors did not impact vehicle to vehicle crashes. However, vehicle to bicycle and vehicle to pedestrian crashes decreased by about 75%. With performance measures, member governments can benchmark the progress of implementing the transportation plan and help determine whether the preferred solution recommended was successful in addressing the transportation need.

Plan assessment is an ongoing process. Progress can be reported annually, biannually or at a benchmark year established within the transportation plan per the governing authority.

Checklist

-  Review performance measures established as part of vision, goals and objectives development
-  Collect data related to performance measures and assess whether the preferred solutions were successful in achieving the goals of the transportation plan
-  Assess the objectives of the transportation plan if goals were not successful as part of a plan update
-  Report progress based on established reporting framework timeline





NEXT STEPS



KEY PARTNERS

Coordination with partner agencies is a critical element of transportation planning. Many of the recommended steps within the guidebook call for coordination with partner agencies and governments that have jurisdiction over transportation facilities. Member governments should consider the following key partners when advancing a program-ready project and developing a local transportation plan:

- **Broward MPO** – responsible for transportation planning and federal transportation funding for the Broward County portion of the Miami Urbanized Area
- **FDOT** – responsible for state funding of design and construction activities, and the operation and maintenance of State jurisdiction facilities
- **Broward County** – responsible for the Broward County comprehensive plan and the operation and maintenance of County jurisdiction facilities



ROLE OF THE MPO

As a lead planning partner, the role of the Broward MPO is to **coordinate local and regional transportation priorities** for investments in a shared transportation system. This is done by **identifying the best use of tax dollars on transportation projects** in Broward County.

This effort is complemented by working with all transportation stakeholders to **identify, prioritize and secure funding for improvements** to the transportation infrastructure. The recommended steps in this guidebook provide member governments with the tools to develop program-ready projects that are eligible for funding opportunities.

MPO FUNDING OPPORTUNITIES

- The MTP, formerly known as the Long Range Transportation Plan (LRTP), it is a fiscally constrained plan that is updated every five years to identify transportation priorities over a 20-year horizon
- Member governments can provide program-ready projects to the Broward MPO for consideration into the Multimodal Priorities List (MMPL)
- Projects that are non-regionally significant, do not require ROW acquisition and an environmental assessment may be considered eligible for CSLIP within the MTP
- Projects listed in the MTP are programmed into the Transportation Improvement Program (TIP) on an annual basis
- The TIP is Broward MPO's primary funding mechanism
- Schedules and assigns projects to be funded within the next five years
- To receive federal funding, projects must be identified in the MTP

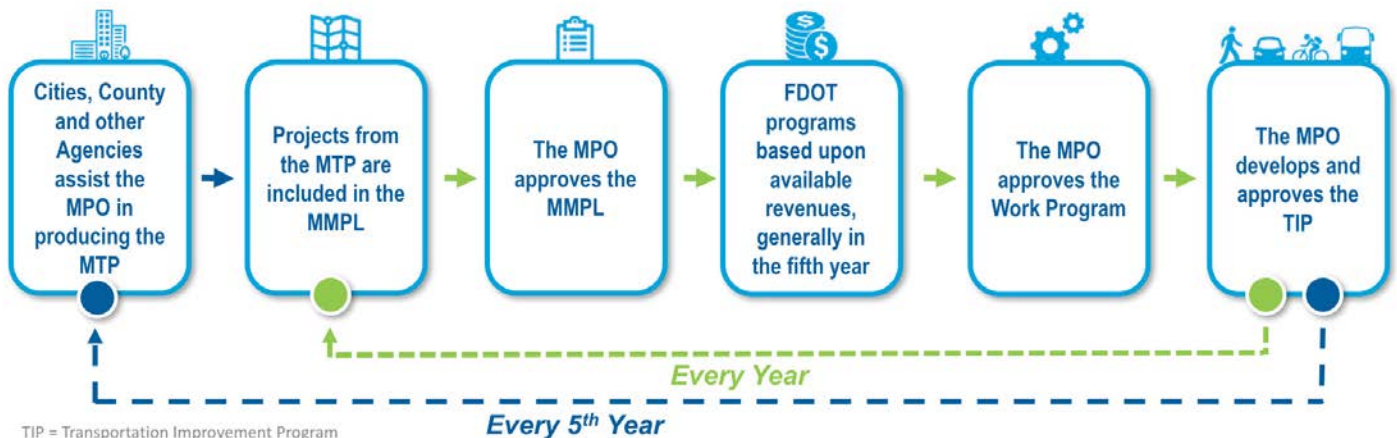
OTHER FUNDING OPPORTUNITIES

- Potential funding awards (i.e., discretionary grants by federal and state agencies) and local revenue-generating initiatives may become available over time
- The Broward MPO can assist in leveraging federal and state funds to match local commitments



Member governments should coordinate with the Broward MPO in the early stages of MTP development by assisting in local needs assessments and identifying program-ready projects to be included within the MMPL.

METROPOLITAN TRANSPORTATION PLAN (MTP)* - PROCESS



TIP = Transportation Improvement Program
 MMPL = Multimodal Priorities List
 *Formerly known as Long Range Transportation Plan/Cost Feasible Plan



BrowardMPO.org

MOVING FORWARD

The Transportation Planning Guidebook is a resource for assisting member governments in addressing local transportation issues, with guidance on how to develop a transportation project and a transportation plan. Review the recommended steps provided within this guidebook, and coordinate with the Broward MPO and other key partners as a part of project and plan development. Visit **BrowardMPO.org** for more information about the projects and programs mentioned in this guidebook.







APPENDIX

LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ACS	American Community Survey
AADT	Annual Average Daily Traffic*
BCT	Broward County Transit
Broward MPO	Broward Metropolitan Planning Organization
BEBR	Bureau of Economic and Business Research
EJ	Environmental Justice*
FDOT	Florida Department of Transportation*
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
ITS	Intelligent Transportation Systems
LOS	Level of Service
LRTP	Long Range Transportation Plan*
MTP	Metropolitan Transportation Plan*
MPO	Metropolitan Planning Organization*
MMPL	Multimodal Priorities List
NHTS	National Household Travel Survey
NPMRDS	National Performance Management Research Data Set
ROW	Right of Way*
SFRTA	South Florida Regional Transportation Authority*

SIS	Strategic Intermodal Systems*
SR	State Road
TIP	Transportation Improvement Program
USCB	United States Census Bureau
USDOT	United States Department of Transportation*

**Indicates acronyms that are briefly defined within the Glossary*



GLOSSARY OF TERMS

Annual Average Daily Traffic (AADT)

The total volume of traffic on a highway segment for one year, divided by the number of days in a year.

Broward County Board of County Commissioners

The Broward County Board of County Commissioners are responsible for developing, operating and maintaining transportation infrastructure that is vital to Broward County residents and visitors. Broward County entities include the County’s Traffic Engineering Division, Broward County Transit (BCT), Port Everglades and Fort Lauderdale-Hollywood International Airport (FLL).

Complete Streets and Other Localized Initiatives Program (CSLIP)

A transportation alternatives program designed to fast-track localized projects that do not require ROW acquisition and are non-regionally significant. CSLIP projects have four eligible classes: complete streets, safety and security, sustainability initiatives and technology advancement. CSLIP is an annual program prepared by the Broward MPO. CSLIP projects are included as part of the LRTP as a single project line.

Environmental Justice (EJ)

The equitable distribution of costs and benefits associated with any Federal investment on all members of the community. An EJ policy and analysis seeks to ensure that low-income persons and people of color benefit from Federal investments and do not experience disproportionate adverse environmental and health impacts.

Florida Department of Transportation (FDOT)

The Florida Department of Transportation works closely with local agencies, MPOs, transportation providers and special districts that own, operate or maintain different portions of the transportation network. FDOT is responsible for developing the Florida Transportation Plan (FTP), the Strategic Intermodal System (SIS) and the State Transportation Improvement Program (STIP).

Long Range Transportation Plan (LRTP)

See Metropolitan Transportation Plan (MTP).

Metropolitan Transportation Plan (MTP)

The Broward MPO is responsible for the development of the MTP for the Broward County portion of the Miami Urbanized Area. The MTP lists regionally significant transportation improvements that are scheduled for funding over the next 20 years and is updated every five years. Projects listed within the MTP were assessed and identified as needs by the Broward MPO.

Metropolitan Planning Organization	An organization made up of local elected and appointed officials responsible for developing, in cooperation with the state, transportation plans and programs in metropolitan areas containing 50,000 or more residents. MPOs are responsible for the development of transportation facilities that will function as an intermodal transportation system and the coordination of transportation planning and funding decisions.
Multimodal	More than one mode of transportation (i.e., air, roadway, public transportation, rail and water).
Performance Measures	A metric directly tied to achieving a goal or objective or used in a decision-making process. An indicator or context measure which is used to identify relevant background conditions and trends.
Program Ready	A transportation project that is eligible for MPO funding. Eligible projects must demonstrate the following: a scope of work, partner collaboration, a cost estimate, resolutions of support and jurisdictional ownership from the governing authority, and public support.
Purpose and Need	A description of the transportation problem explaining the primary goal or reason for which a project is being pursued.
Right-of-Way (ROW)	Land, property or interest therein acquired for or devoted to the transportation process.
Strategic Intermodal Systems (SIS)	Florida’s transportation system comprised of facilities and services of statewide and interregional significance, including appropriate components of all modes.
Title VI	The section of the Civil Rights Act of 1964 that prohibits discrimination on the basis of race, color or national origin in programs that receive federal financial assistance, including transportation projects.
Transportation Improvement Program (TIP)	A comprehensive list of federal, state and locally funded transportation projects. The TIP is a staged, five-year program of transportation projects that is consistent with the MTP.
United States Department of Transportation (USDOT)	USDOT includes the following federal agencies: the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA) and the Federal Aviation Administration (FAA) and all provide policy guidance, technical resources and funding for transportation projects.



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