

Revisit & Update Mobility Hubs Program

Assess Current Methodology
Technical Memorandum

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Mobility Hubs Program

Assess Current Methodology

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Mobility Hubs Program

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Introduction

Subtask 1 provides a review and critique of the 2035 Transportation Transformation Long Range Transportation Plan (LRTP) methodology developed in 2009 to prioritize Mobility Hub projects and locations. Three specific results are documented in this task summary report:

- 1. 2035 Planning Context:** Summary of the original methodology, objectives and measures used for the 2035 LRTP adopted in 2009.
- 2. Evaluation of Original Methodology:** This section critiques the original methodology used to evaluate Mobility Hubs and documents changes in underlying circumstances.
- 3. Recommendations for New Methodology:** Initial recommendations for a revised methodology for identifying and prioritizing new locations are presented and a process is identified to adjust the plan for future changes in circumstances.

Revisit methodology and recommendations will be formalized following Broward MPO Board policy decision concerning approach.

2035 LRTP Planning Context

The introduction of the Mobility Hubs concept in Broward County began during the analysis of transit needs for the 2035 LRTP in 2009. The Cost Feasible Transit Projects & Mobility Hubs Map identified a Premium High Capacity transit system of Premium Rapid Bus (operating in mixed traffic) or Premium High Capacity (Bus Rapid Transit – operating in dedicated lanes) transit services. This Cost Feasible Plan was the framework for a robust transit system with an emphasis on improved bus services and future Mobility Hub locations projected to the 2035 horizon year.

Selection of corridors for inclusion in the Cost Feasible Plan and the type of service for each corridor was made based on a link-level analysis of ridership predicted in 2035 by the Southeast Florida Regional Planning Model (version 6.5). The corridor analysis included cost effectiveness performance measures to identify potential projects. The advancement of individual corridors was subject

to funding availability and further study. Locations for Mobility Hubs were based on future potential alignments and cost-effective performance.

Objectives and Measures

The LRTP identified five evaluation criteria to evaluate Mobility Hub locations in support of the Cost Feasible transit network, including transfers between and among premium BRT/rapid bus routes, and local bus routes near the intersection of the routes (See Table 1). The first two performance measures were qualitative measures based on a four-tiered system to normalize data countywide. No weight was applied to the scores.

TABLE 1: MOBILITY HUBS PROGRAM EVALUATION FRAMEWORK, 2035 LRTP

| Evaluation Criteria | Performance Measure | Score |
|--|--|---------------|
| Critical Connections | Number of transit corridors and type of service – High capacity routes received one point each. More than 3 local routes received one point. | 0 to 3 |
| Existing Developed Areas | Total number of jobs and population within one-half mile of the intersection of connecting routes. Points were assigned based on ranking of the population size within quartiles. Locations that fell within the relative size of over 76 percent of all locations received three points; between 51-75 percent - two points, and between 26-50 - one point. Jobs plus population totaling below 26 percent of the normalized data size was given no points. | 0 to 3 |
| Local Request/Support or Other Plan Designation | An area with existing or future plan or study received three points. All others received one point. | 1 or 3 |
| Public-Private Partnership Opportunities | Project status/initiative as defined by presence of a Community Redevelopment Authority (three points) or locally defined mixed use land use designation (two points). Locations with neither were assigned no points. | 0 to 3 |
| Tx Increment Financing Opportunities | Land use status – determined by the MPO with yes receiving a high score of three points. Those locations determined to not likely support TIF received no points. | 0 or 3 |
| Total possible score | | 1 - 15 |

Mobility Hub Types

Hub characteristics were defined for three conceptual typologies to reflect potential transit use and infrastructure needs for connecting transit users as shown in Table 2.

TABLE 2. MOBILITY HUB TYPES, 2035 L RTP

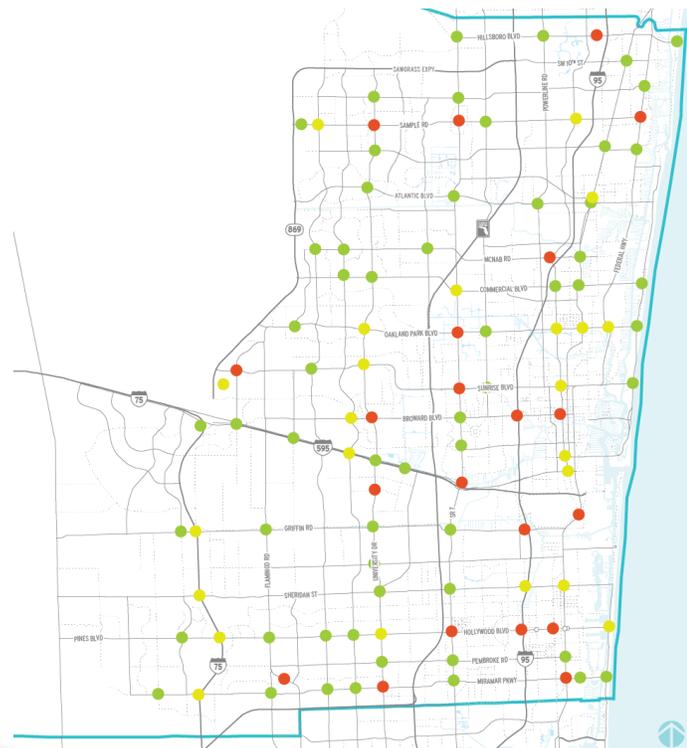
| Type | Description of Service | Connections | Land Use |
|------------------|--|---|---|
| Gateway | Premium High Capacity: 50% of project operates in fixed guideway/dedicated transit lane with 5-minute peak frequencies and 7.5-minute off-peak frequencies | Over 2,200 weekday trips; >2 premium high capacity BRT or Rail routes | High density mixed use in downtowns and transit-oriented developments or corridors |
| Anchor | Premium Rapid Bus: Operates in mixed traffic with 10-minute peak and 15-minute off-peak frequencies | 1,500 to 2,200 weekday trips; at least one BRT or Rail route | Local and regional activity centers near major institutions, employment centers, town centers and regional shopping centers |
| Community | Premium Rapid Bus attracting more local than regional trips | | [typically located in residential neighborhoods having lower densities] |

FIGURE 1. ORIGINAL MOBILITY HUB TYPOLOGY

2035 L RTP
MOBILITY HUBS

2035 L RTP Mobility Hub Typology

- Gateway
- Anchor
- Community



Mobility Hub Elements

A list of potential features or strategies was identified for each hub type. All locations would provide unique architecture and signage with lighted waiting areas and be designed to integrate with surrounding development. Table 3 includes potential features and strategies for each Mobility Hub type.

TABLE 3. MOBILITY HUB ELEMENTS, 2035 LRTP

| Project Element | Gateway | Anchor | Community |
|--|-----------------------------------|----------------------------------|---------------------|
| Shelters | Enclosed | Partially-enclosed | Partially-enclosed |
| Real-time passenger information systems | Yes | Yes | Where possible |
| Parking | Surface/structured | Surface/structured | None |
| Sidewalks | Half-mile radius | Quarter-mile radius | Quarter-mile radius |
| Bikeways | Two-mile radius | One-mile radius | One-mile radius |
| Connecting Service | Space for Bike/Carshare/Taxi Bays | Bikeshare/Kiss n Ride/Taxi Areas | Timed transfers |
| Pre-board ticketing | Yes | Yes | No |
| Restrooms | Yes | No | No |

Evaluation of Original Methodology

This evaluation has the benefit of nearly a decade of hindsight. Even so, some of the assumptions made in the 2035 LRTP were not adequately substantiated as a committed and cost feasible program. This section reviews and critiques the previous assumptions and methods to inform the development of a more defensible and sustainable means of implementing the Mobility Hubs concept.

In 2009, a total of five evaluation criteria were established for Mobility Hubs, each with a possible three points or a total of 15 points. The first two criteria evaluated potential transit connections with the illustrative Premium Transit system (critical connections) and potential activity (existing developed areas) in the area as defined by the number of people who live and work in the area.

Critique of Previous Criteria

- Critical Connections: Given the north-south/east-west grid pattern of the roadway and transit system in Broward, many trips require at least one transfer. The mere existence of an intersection with another route does not necessarily indicate that it is a destination or that people would be waiting at that location. In fact, the best transfer made is one that does not result in long wait times at the transfer point. *A convergence of routes does not create the need for a community place or investment.* The type of activity that needs to occur at a given location should be the driving force in determining the program elements that occur at a given location.
- Existing Developed Areas: Intersections where routes connect serve as the point from which population and jobs within a half mile were identified from the 2000 U.S. Census. The previous criteria were defined as the *addition of population and employment within a half-mile* of a given intersection and used this numerical sum as a measure of potential activity at a Mobility Hub location. *The character of the land uses at potential Mobility Hub location was not considered.*

Three of the total five criteria were based on qualitative information that was less defined. Equal weight assigned to these criteria totaled 60 percent of the possible score which resulted in an unbalanced score for some locations.

- Local Request/Support or Other Plan Designation: The existence of a plan does not account for the individual plan objectives which may or may not involve transit or pedestrian-friendly access, or the status of supporting policies (zoning, etc.) to implement stated objectives. Plans require commitment and funding to become reality and not all plans are

comparable. Today's local support may not translate to long-term resolve for implementation over time.

- Public-Private Partnership Opportunities and Tax Increment Financing Opportunities: Potential for tax increment financing opportunities or public-private partnerships are not necessarily driven by Community Redevelopment Authorities or land use designations. Taken alone, or out of context, these factors are not true indicators of the readiness of a location to be considered for investment priority.

Cost Feasibility Not Demonstrated

The original methodology was based on an underlying assumption that a Premium Transit system was cost feasible. At the time there was neither a committed sponsor, nor reasonable expectation that the Premium Transit system could be funded. Link-level analysis of projected 2035 daily trips was used to determine whether Bus Rapid Transit (operating in dedicated lanes) or Rapid Bus (operating in mixed traffic) was the appropriate level of service. Locations for Mobility Hubs were selected based on the north-south/east-west corridors for an unfunded transit network. Mobility hubs were identified at major intersections based on potential for connecting routes and service between those connecting routes.

The Cost Feasible Plan confirmed that only 50 percent of the operating and maintenance funds required to run existing service at that time was available. Future service for Bus Rapid Transit or Rapid Bus could only be funded if more funds became available. This does not meet the definition of cost feasible projects. The status quo could not be perpetuated over the planning horizon to 2035, and so the assertion that a BRT system could be implemented was misleading. Unfortunately, the 2035 LRTP as presented in 2009 did not prompt the discussion needed then to address the future funding shortfalls that Broward County faces in 2018.

Changes in Underlying Circumstances

Many of the Mobility Hub locations were selected based on proposed future service that was not implemented. Although the Cost Feasible Plan of BRT/Rapid Bus Premium Transit system was the basis for establishing Hub assignments, the potential funding sources did not materialize and corridor studies did not recommend implementation of dedicated lanes for BRT Premium Transit.

Declining transit ridership. The December 2017 Transit Development Plan¹ reflects systemwide ridership losses of 13.1 percent fiscal year ending June 30, 2017. Local routes alone lost 14.1 percent with all routes losing over 5 percent

¹Broward County Transit 2018-27 TDP Annual Update, 11/16/17.

each except for Route 50 on Dixie Hwy which increased 0.4 percent. All local routes showed drops over 5 percent each except Route 50. Over the past two years, BCT carried 8.7 million fewer trips, almost a quarter of the trips for the year ending June 2015. Community bus ridership dropped 4.3 percent overall, but some exceptions are noted for Margate routes serving 56 percent more trips (34,360) and Davie 27 percent more trips (45,903) in 2017. Broward County Transit attributes the decline in transit use to low gas prices and a stronger economy in 2017.

Development Trends. Growth continues with roughly one thousand people moving to Florida each day. Future development will most likely focus on infill and redevelopment since Broward is geographically constrained between the Atlantic Ocean and the Florida Everglades and no significant greenfields remain for new single-family housing developments. Broward County population is characterized by an aging population in need of transportation options. Demand for walkable communities is growing faster than supply. The real estate bubble of the last decade prompted changes in the type of product developers offered during a resurgence of rental offerings that began in 2010 and a decrease in new single-family housing that continues today.

Changes in Expectations

The Premium High Capacity Bus Rapid Transit system anticipated in the 2035 LRTP did not advance on any corridor. More frequent service was added for Rapid Bus routes known as Breeze and the new 95 Express bus service were added in 2010, but there is no financial support or ridership to sustain Premium High Capacity Bus Rapid Transit service on dedicated lanes in the foreseeable future. This past year, BCT deferred improvements to frequency of service, route extensions or realignments and extension of service time spans because of budgetary constraints.

Unforeseen in the 2035 LRTP was the initiation of the private sector intercity rail corridor on the Florida East Coast Rail Corridor. Service from Miami to Fort Lauderdale and West Palm Beach is expected to begin full operations in 2018. And, the Wave Streetcar in downtown Fort Lauderdale was funded for implementation and is scheduled to operate by 2021.

Express bus service between Broward and Miami indicates significant latent demand for long haul service from the western residential populations of Broward. A close look at where people need to travel to/from is needed to better serve these travel markets and to better define Mobility Hub needs at the Express bus termini.

The need to cover shortfalls in transit service and meet growing travel demand has never been greater. Yet funding sources continue to shrink and voters have not supported additional surtaxes. In November 2016, a funding initiative failed for a second time in Broward (the first vote occurred a decade earlier). Timing of renewed efforts to develop a plan that voters may support is under discussion. Unless other funds are identified, transit service cuts and/or reallocation of existing transit service may be needed in addition to deferred improvements experienced in 2017.

A Market Assessment was conducted at the beginning of this revisit of methodology and Mobility Hub recommendations for locations. The results of the market study are the focus of market-related criteria in the new methodology to evaluate market readiness for a candidate location as one component of the evaluation to identify locations, develop new typology, and advance a strategy for implementation.

Recommendations for New Methodology

The assessment of the current methodology provides a foundation for new criteria to locate, evaluate and rank potential Mobility Hubs. The intent is to develop a rationale and methodology for new criteria in collaboration with agencies and stakeholders. The methods will include a way to update Mobility Hub recommendations and add new locations as circumstances warrant. The project team has taken a fresh look at the planning framework. New recommendations summarized in this section represent initial ideas that will be further refined as the project develops and stakeholders are engaged. The explanation that follows explains the transition from the former methodology to the current methodology.

Evaluation Framework

The *2035 LRTP* identified 103 Mobility Hubs that aspired to link hub locations to transit and land use. Our initial expectation was that the number of Mobility Hubs would be fewer in number. Instead, the criteria were broadened to incorporate more “candidate locations” and establish pre-requisite criteria for a candidate location to be considered a potential Mobility Hub. The focus of the new criteria was to identify locations that are currently market-ready and program-ready where existing conditions and level of information about the project elements warrant investment in mobility improvements in the short term. By broadening the lens to “candidate locations” without declaring a location to be a Mobility Hub before it is ready, we can ensure most locations will be assessed based on verifiable data rather than predictions that may or may not come true.

The last LRTP update, *Commitment 2040*, adopted in December 2014 established three overarching goals:

- move people
- create jobs
- strengthen communities

The Mobility Hubs initiative was not directly addressed in the most recent 2040 LRTP, but relates to each overarching goal to varying degrees. For example, transit and transportation infrastructure and service improvements can make it easier for people to travel by multiple modes. Placemaking elements such as shelters, benches, wayfinding and landscape introduced in a manner that contributes to community character and quality of life can strengthen communities. An indirect result of new transportation infrastructure may achieve the goal of job creation through improvements to employee mobility, job-housing match, or location efficiencies.

An approach under consideration to identify future potential mobility hubs guides and incentivizes communities to establish policies that support transit and non-motorized connections that will, in turn, integrate well with new Mobility Hub features and desired adjacent development. Mobility Hub investments in locations where future service and projects are not already included in the currently adopted Transportation Improvements Plan may require further study, during the 2045 LRTP Update, and identification of funding to advance into implementation.

The evaluation template from the Broward MPO's new Complete Streets and Other Localized Initiatives Program (CSLIP) is an example of a potential planning framework for the evaluation of Mobility Hub locations. CSLIP incorporates quantitative criteria to evaluate applications and fund projects each year. This process encourages municipalities and other interested stakeholders to prepare applications that achieve the best performance measures in support of MPO goals.

Evaluation Criteria and Measures

The project team proposed the development of a set of evaluation measures to reflect the current, broader priorities of the MPO for Mobility Hubs. The purpose is to set investment priorities, heavily weighted by known information and conditions, favorable to future investments and not based on predictions of future performance. Guided by the goals established in *Commitment 2040*, the recommended evaluation framework will measure a candidate location's existing **market readiness** and **network readiness**, by folding the best available

information into the evaluation matrix for review. The prediction of theoretical future service would not be the driving factor for the evaluation although potential service is a factor.

A candidate location's ability to "move people" would be reflected in market readiness and network readiness. Trip producers (residential populations) and attractors (i.e. employment centers, educational and medical facilities, entertainment and retail destinations) for a given area provides market-based evidence of where people live and work. Special trip generators, such as town centers, office parks, or event facilities are also considered. The network readiness of a candidate location would be measured by existing transit ridership in terms of use and frequency.

Market readiness and network readiness have a bearing on a candidate location's ability to "strengthen communities." Performance-based planning evidence of market interest and strength of future consumer demand is provided through development trends from planned projects evaluated in the Market Assessment and an analysis of how well existing land use should support transit use. This information is used to identify new or shifting travel markets and patterns. The market readiness evaluation criterion measures both existing and potential future trip generation related to market strength and potential future transit ridership demand.

Table 4 summarizes proposed market readiness and network measures and how they support the 2040 LRTP goals. A screening tool was developed to test these and other evaluation criteria. Several iterations were applied based on recommendations and a review of preliminary results with stakeholders for the original 2035 Mobility Hubs and additional candidate locations.

TABLE 4. PROPOSED MOBILITY HUB MARKET AND NETWORK READINESS CRITERIA

| Prioritization Criterion | Measure | 2040 LRTP Goal | Description |
|--------------------------------------|-----------------------------|------------------------|---|
| MARKET READINESS | | | |
| Existing trip generation | Trip Producers | Move People | Auto and transit trip origins within one-half mile |
| | Trip Attractors | Move People | Auto and transit trip destinations within one-half mile |
| Potential trip generation | Trip Producers | Strengthen Communities | Residential development probability, expected dwelling units, ITE trip generation rate, buildout timing (discount trips by 0-5 years, 5-10 years, >10 years) |
| | Trip Attractors | Strengthen Communities | Retail/office/industrial development probability, retail/office/industrial expected gross floor area, retail/office/industrial ITE trip generation rate, buildout timing (discount trips by 0-5 years, 5-10 years, >10 years) |
| NETWORK READINESS | | | |
| Existing transit ridership | Trips (stop level or route) | Move People | Existing transit lines serving location in route to line terminal, existing ridership by line |
| Existing transit availability | Frequency | Strengthen Communities | Number of vehicles serving a location in peak hour |

Recommendations

This critique of the Mobility Hubs selection criteria and methodology reflects the project team's recent experiences working with Mobility Hubs, changes since the original concept was introduced and the locations identified in the 2035 LRTP. The initial recommendations were further developed by the project team following staff input and stakeholder coordination during and throughout key decision points in the revisit process. The recommendations helped to define evaluation criteria, methodology and typologies and to identify the most promising locations for Mobility Hubs. Below are general recommendations recognized at the outset of the technical development work, but that were not considered final and so were tested and explored with the Broward MPO staff and stakeholders as the work progressed.

Complete Trips is the primary objective for a Mobility Hub. Seamless connections in comfortable, inviting and safe places that help people get to where they are going, quickly and with ease. A desired circumstance for Mobility Hubs is any opportunity to work with adjacent developers to set the stage and integrate the public realm with private land uses. While the Broward MPO may not expect to tip the scales in weighing development decisions one way or the other, appreciable public realm environments could influence and change travel patterns for pedestrians and bicycle travel modes. Positive and motivational changes for what happens along the path of a person's travel route can encourage more people to try another way and ultimately change the auto-centric travel habits within communities.

The right place at the right time. The primary change in direction for the revised methodology is to identify Mobility Hubs based what we know about land use and evidence of market demand. Timing will be a critical factor for what can be effective at the time of implementation. Rather than attempting to predict transit use based on a system that may not be realized, the project team recommends criteria that focus on the activities that need to occur at a given location today. Trying to second guess what would be needed 10-20 years in the future may not be productive in defining elements for today's travelers.

Activity drives infrastructure needs. The types of desired activities at a given Mobility Hub location may drive what mobility-supportive elements could result in the biggest return on investment. The type and intensity of existing Mobility Hub activity will determine what activities would be appropriate for a given location. For example, a park & ride serves as a collection and distribution point for commuters to a central location such as a downtown, town center, hospital or college campus. What happens at that collection point is very different compared to what happens at the other end of the trip where a ready connection to the

ultimate destination needs to occur by walking, bus, shuttle, or a transportation network company (Uber or Lyft).

Transfer locations are not the focus of Mobility Hubs. The potential for transfers is a means to an end of any given trip. Well-designed waiting areas for transferring patrons is needed, but the purpose of the Mobility Hubs is more than the needs of transit riders transferring from one route or mode to another. What happens with connections at either end of the trip is a frequent deciding factor in how one travels. High transfer locations are already served by transfer centers or super stops operated by the transit provider. That is not to say that one of these transfer locations would not include Mobility Hub functions, but it is not the sole function of the Broward MPO's introduction of the Mobility Hub concept.

Pre-requisite conditions. Transportation networks and market readiness are clear deciding factors but there are likely other good qualifications that may help identify the best locations. The project team is looking for a good balance in evaluation criteria that identify location-specific physical conditions and design opportunities that can help narrow the field for selection. Even though the sites may not have evidence of travel markets that support Mobility Hubs or the land use to support transit oriented development today, these additional criteria will further a collective understanding of what is needed for a Mobility Hub to be selected for implementation, today or at some point in the future. These factors may also provide a way for municipalities to target locations for potential future sites. Some potential factors worth further exploration during the development of methodology include the following:

- Bus service termini that may lend themselves to off-street facilities
- Integration of the public and private realm through adjacent improvements that expand the public realm without land acquisition
- Compatible land uses that have differing time of day or time of week demands for parking
- Zoning revisions that provide policy incentives for more walkable and inviting land uses that encourage multimodal travel

The project team explored reliability and relevance of measures that could differentiate among candidate locations with the most promising prospects for complete trips.

Keep it simple. Project prioritization can be overly complex. There is an elegance in the tri-prong goals of the 2040 Commitment which the project team recommends the Broward MPO should always reference. The overarching objectives to move people, create jobs and strengthen communities is a good place to start with the selection and evaluation of Mobility Hubs. Some criteria

may be measurable but have little reliable or current data to support the evaluation. Other considerations may be design elements that would be appropriate for any Mobility Hub no matter where it is. The recommendation moving into the planning framework and methodology discussion is to identify factors that differentiate one site from another. Some factors would be more of a design consideration, such as providing safe crossings and pedestrian access; these conditions would either exist or be added at a given location, but mere existence should not drive selection of a specific location.

Allow for change and flexibility. Some flexibility should be integrated into the methods that will allow for variation within a core performance-driven criterion that is used for Mobility Hub site readiness and selection. As new information becomes available or as conditions change, perspectives could change over time. How land use and travel markets evolve may surprise us as people move and live differently.–Priorities of individual municipalities will continue to vary throughout Broward, but the investment priorities of the Broward MPO will remain data-driven and strive for the best return for the people and places they serve for many years after they are implemented.



Move People | Create Jobs | Strengthen Communities

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For more information, please contact:

Christopher Ryan - Public Information Officer/Title VI Coordinator
Broward Metropolitan Planning Organization - Trade Centre South
100 West Cypress Creek Road, Suite 650, Fort Lauderdale, Florida 33309
Phone: (954) 876-0033 | Email: ryanc@browardmpo.org