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**Broward Metropolitan Planning Organization**
**Commitment 2045**
**Metropolitan Transportation Plan**

## Technical Report #8

# High Opportunity Transit Assessment

**September 26, 2018**

## MPO MISSION STATEMENT

To collaboratively plan, prioritize, and fund the delivery of diverse transportation options.

## MPO VISION STATEMENT

Our work will have measurable positive impact by ensuring transportation projects are well selected, funded, and delivered.

# List of Figures



# List of Tables

# Introduction

This purpose of this technical report is to document the high opportunity transit assessment conducted in support of the Broward MPO's 2045 Metropolitan Transportation Plan (MTP) and the resulting high opportunity transit corridor network that subsequently will serve as the basis for developing a transit vision for the Broward region.

The transit element of the 2045 MTP will answer the following questions:

- What should be the role of transit in the region?
- How does transit fit into a multi-modal system?
- How can transit fit in an auto-dominated area?
- What type of land use best supports transit?
- Should transit focus on serving transit-dependent populations or choice riders, or both?
- How do we fund transit operations and maintenance?
- What is the transit vision for the Broward region?

With this technical report, many of these questions are answered or begin to be answered as efforts continue toward the incremental development of a transit vision that is creative and realistic in its ability to shape future growth, development, and transportation investments throughout the Broward region.

This technical report is organized into the following major sections:

- High Opportunity Transit Framework
- Summary of Approach and Results
- Next Steps
- Appendix A: High Opportunity Transit Evaluation
- Appendix B: Land Use Categories and Transit Supportive Scores
- Appendix C: Segment Evaluation Criteria

# Framework & Methodology

## High Opportunity Transit Framework

The high opportunity transit evaluation framework is illustrated in Figure 1 and summarized in this section. This framework is used to support the incremental development of a transit vision for the Broward region and is based on the function that various transit services and technologies serve in relation to the mobility and accessibility needs of high opportunity transit corridors and areas that come together to form a proposed high opportunity transit network. Figure 1 depicts an inverse relationship between mobility and accessibility—as a transit technology provides increased mobility, it inherently provides less accessibility, and vice versa.

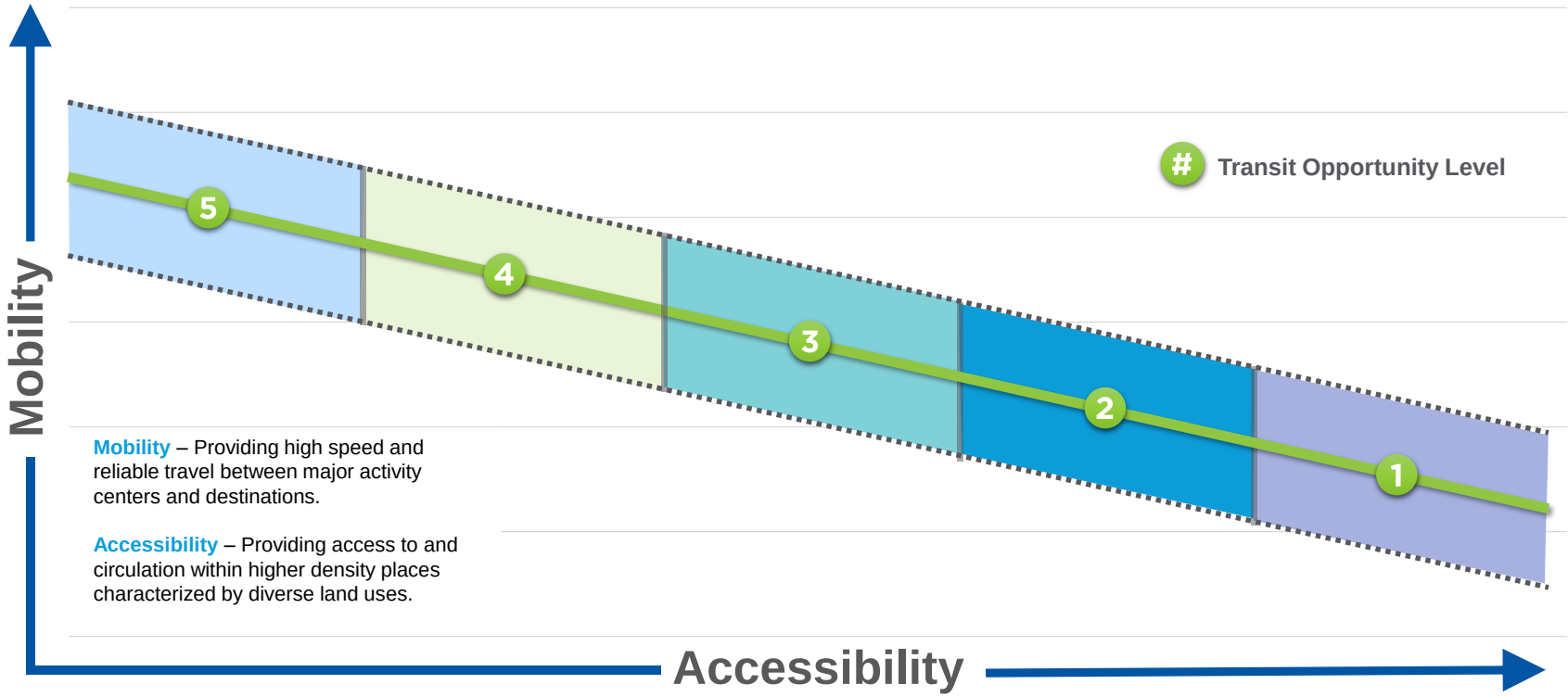
To ensure an understanding of the framework, definitions of mobility and accessibility are provided as follows:

- **Mobility** – Providing high speed and reliable travel between major activity centers and destinations. The focus of mobility is to get from one place to another as quickly as possible and typically is characterized by longer trips.
- **Accessibility** – Providing access to and circulation within higher density places that are characterized by diverse land uses. The focus of accessibility is to provide convenient connections to land uses and typically is characterized by shorter trips and circulation within activity centers.

The framework reflects five levels of transit opportunity, with each level reflecting a different mix of mobility and accessibility:

- **Level 1 Transit Opportunity** – Areas characterized by the need for low mobility and high accessibility/circulation (10% mobility / 90% accessibility)
- **Level 2 Transit Opportunity** – Corridors characterized by the need for relatively lower mobility and relatively higher accessibility (25% mobility / 75% accessibility)
- **Level 3 Transit Opportunity** – Corridors characterized by the need for a balance of mobility and accessibility (50% mobility / 50% accessibility)
- **Level 4 Transit Opportunity** – Corridors characterized by the need for relatively higher mobility and relatively lower accessibility (75% mobility / 25% accessibility)
- **Level 5 Transit Opportunity** – Corridors characterized by the need for high mobility and low accessibility (90% mobility / 10% accessibility)

Figure 1: High Opportunity Transit Framework: Mobility vs. Accessibility



It is important to note that these levels of transit opportunity do not include traditional local bus routes. In fact, it is assumed that an underlying local bus network exists throughout the Broward region but is not shown in the transit opportunity maps presented throughout this technical report. The concept of how transit technologies relate to the levels of transit opportunity will be introduced in a future technical report as the next step in developing an unconstrained transit vision for the Broward region.

## Summary of Approach and Results

The approach illustrated in Figure 2 is used to identify high opportunity transit corridors and assign them to the appropriate level of transit opportunity. The approach is organized into five major steps (designated as A–E in the figure). A brief overview of the approach is provided below, and a more-detailed description is provided in Appendix A.

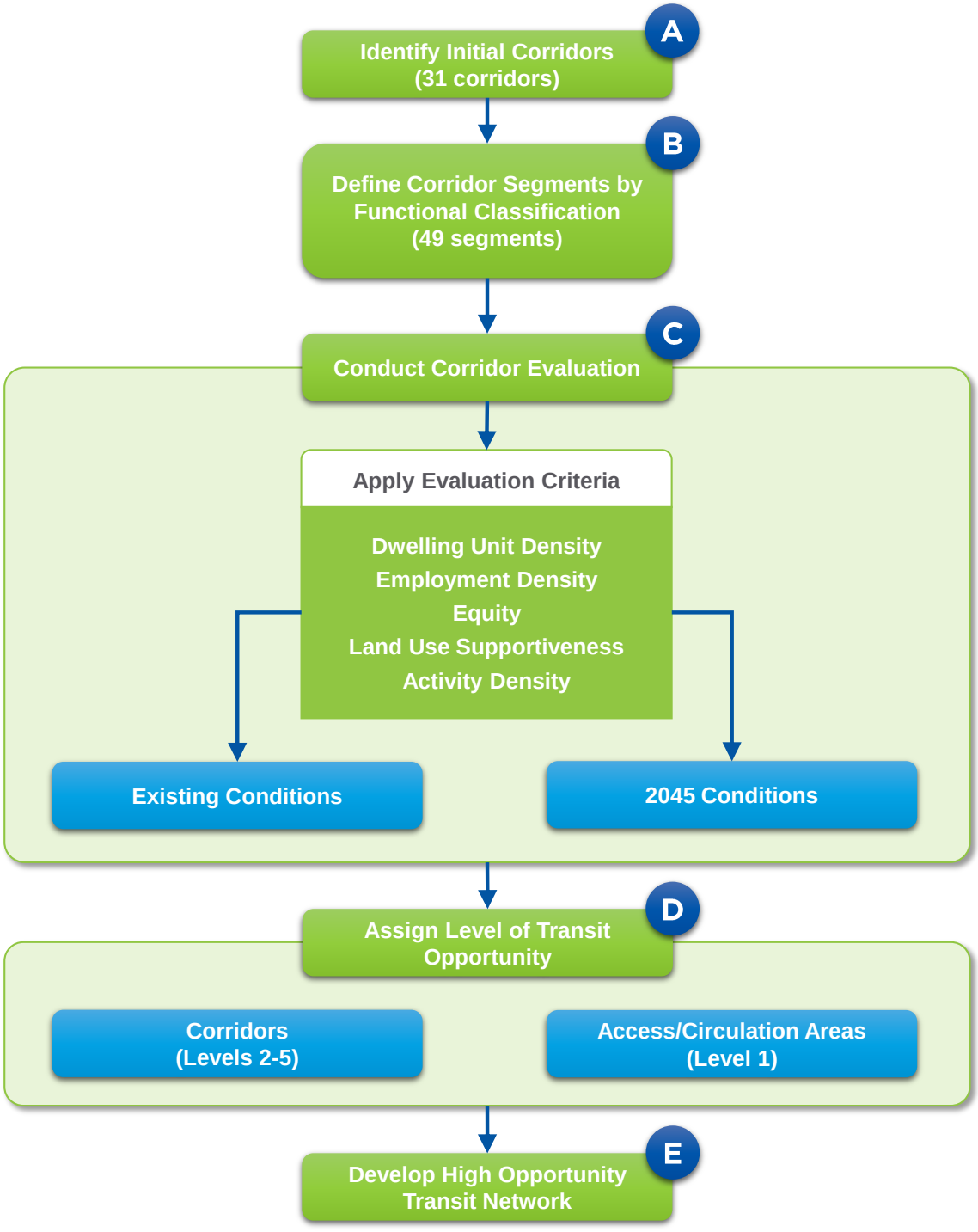
### Step A – Identify Initial Corridors

The analysis begins with the identification of 31 initial corridors. These initial corridors are compiled based on a review of past regional and corridor-specific studies conducted by the MPO and its partners throughout the Broward region. Additional corridors are added based on review of the Regional Transit Propensity Analysis recently conducted as part of the 2045 Regional Transportation Plan, along with review and discussions of the initial corridor network with MPO staff. For a detailed description of the corridors, refer to Appendix A.

### Step B – Define Corridor Segments by Functional Classification

Corridor segmentation is the division of corridors into segments with similar characteristics. Although the 31 corridors provide connections between major points of interest, they are not always uniform in their characteristics along their entire length. As a result, the corridors are subdivided into 49 total segments that provide more uniformity based on roadway functional classification and estimated activity by land use.

Figure 2: Approach to High Opportunity Transit Evaluation



The initial step for segmenting the corridors involves a review of the corridor functional classification, as derived from the Florida Department of Transportation (FDOT) roadway characteristics inventory database. The following functional classifications are used in the segmentation process:

- Urban Local
- Urban Major Collector
- Urban Minor Arterial
- Urban Minor Collector
- Urban Principal Arterial Interstate
- Urban Principal Arterial Other

FDOT roadway functional classification is overlaid on the initial corridors to identify roadways with two or more classifications. When this occurs, the corridor is separated into two or more segments for the analysis.

To help further define the segments, the results of the land use activity analysis conducted as part of the Transit Market Segmentation are reviewed. This analysis helps to spatially identify where land use activity areas make significant transitions along the corridors being evaluated, helping to further define the segments based on overall activity in a corridor or area. For additional detail on the land-use activity analysis, refer to "Technical Report #7: Travel Demand and Transit Market Segmentation."

## Step C – Conduct Corridor Evaluation

The corridor evaluation is conducted for two timeframes:

- **Existing Conditions Scenario** – Uses the best available data to estimate the extent to which existing dwelling unit, employment, and land use conditions support various levels of transit opportunity.
- **2045 Vision Scenario** – Uses the best available existing and 2045 data to project the extent to which future dwelling unit, employment, and land use conditions potentially support various levels of transit opportunity in 2045.

The following evaluation criteria are used to conduct the corridor segment evaluation:

- **Dwelling Unit Density** – Dwelling unit density is calculated from two measurements: dwelling units per acre and hotel rooms per acre. These two measures are combined to establish an equivalent dwelling units per acre within the ½-mile buffer around each segment. In addition, the number of dwelling units is based on 2015 and 2045 data developed as part of the 2045 MTP.

- **Employment Density** – Employment density is based on the number of employees per acre. The number of employees is based on 2015 and 2045 socioeconomic data prepared to support the 2045 regional travel demand modeling efforts. Employment density is estimated and evaluated for a ½-mile buffer around each segment.
- **Equity** – The Broward MPO developed a process to evaluate its plans and programs against federal Environmental Justice (EJ) and Title VI regulations, called the Transportation Planning Equity Measure. The equity measure is based on 2016 American Community Survey (ACS) 5-year Estimates as developed for the Broward MPO. The core set of indicators used to determine areas with a high composite equity score include:
    - Racial minority (non-White population)
    - Ethnic minority (Hispanic population)
    - Youth
    - Older adults
    - Population below poverty level
    - Limited English Proficiency (LEP) population
    - Population with a disability
- **Transit-Supportive Land Use** – A method is applied to determine a score for land uses that traditionally have a greater potential to support transit. Based on industry standards, each type of land use is assigned a score from 0 to 4, with the larger number being more transit-supportive. For example, areas with limited employment and population are given a weight of 0 (e.g., public right-of-way and water bodies) as are single family dwelling units, which typically have a lower propensity for transit use; areas designated as mixed-use, multi-family residential, or multi-story office are given a weight of 4, as they are more transit-supportive in nature. Appendix B provides a list of land uses and the score associated with each (excludes land uses with a score of 0). The scores for the land uses are summed and divided by the length of each segment (in miles) to calculate a normalized, transit supportive land use score. The resulting score represents each segment's ability to support transit based on the land uses in the vicinity of each transit segment.

- **Activity Density** – A land use-based activity density analysis is performed to identify corridors and areas with high activity, as measured by vehicle person trips generated by land use category using commercial, institutional, and government land uses. For this analysis, person trips are only for those made in vehicles, meaning that bicycle and pedestrian trips are not included in this activity analysis. The information aids in the determination of high demand corridors and areas where transit can play a key role in meeting transportation needs for commuting and other trip purposes related to these land uses.

Once the corridor segments are assigned to a level of opportunity for each of the evaluation criteria, numerical scores are defined (Level 5 Opportunity = 4, Level 4 Opportunity = 3, Level 3 Opportunity = 2, and Level 2 Opportunity = 1). These numerical scores are then summed for all evaluation criteria to generate a total score for each corridor segment. The final statistical analysis is used to evaluate the total scores (through average and standard deviations) and ultimately identify the level of opportunity that best matches the existing and future conditions for each corridor.

For additional information on the evaluation criteria and their application in this high opportunity transit assessment, refer to Appendix A of this report.

## Step D – Assign Level of Transit Opportunity

*Transit Opportunities for Existing Conditions* – The resulting scores for the Existing Conditions evaluation are used to determine the overall transit opportunity level for each corridor segment (based on average and standard deviations).

- Segments with scores equal to or greater than 14.59 were assigned a Level 5 Transit Opportunity
- Segments with scores equal to greater than 11.03 but less than 14.59 were assigned a Level 4 Transit Opportunity
- Segments with scores equal to or greater than 7.47 but less than 11.03 were assigned a Level 3 Transit Opportunity
- Segments with scores less than countywide average of 7.47 were assigned a Level 2 Transit Opportunity

*Transit Opportunities for 2045 Conditions* – Similarly, the resulting scores for the 2045 Conditions evaluation are used to determine the overall transit opportunity level for each corridor segment (based on average and standard deviations).

- Segments with scores equal to or greater than 17.39 were assigned a Level 5 Transit Opportunity
- Segments with scores equal to greater than 14.15 but less than 17.39 were assigned a Level 4 Transit Opportunity
- Segments with scores equal to or greater than 10.90 but less than 14.15 were assigned a Level 3 Transit Opportunity
- Segments with scores less than the countywide average of 10.90 were assigned a Level 2 Transit Opportunity

*Transit Opportunity for Access/Circulation Areas* – The Project Team reviewed the draft opportunity levels by corridor and the results of the transit market segmentation evaluation to apply professional judgment as to where to identify preliminary Level 1 transit opportunities. Level 1 transit opportunities are organized into the following categories:

- Level 1A – Circulation Area (assumed to be a 7.0-square-mile flex zone area established by a 1.5-mile buffer around a station location)
- Level 1B – Transfer Center (assumed to be a 1.8-square mile flex zone area established by a 0.75-mile buffer around a station location)
- Level 1C – Circulation Area and Transfer Center (assumed to be a 7.0-square-mile flex zone area established by a 1.5-mile buffer around a station location)
- Level 1D – Park-and-Ride (assumed to be a 1.8-square-mile flex zone area established by a 0.75-mile buffer around a station location)

## Step E – Develop High Opportunity Transit Network

To further refine the high opportunity transit corridors and access/circulation areas, additional review is performed by the Project Team:

- Professional judgment is used to adjust some of the assignments to ensure continuity in transit corridors by level of opportunity. Adjustments are reflected for Davie Road, Hollywood/Pines Boulevard, Miramar Parkway/Hallandale Beach

Boulevard, Nova Drive, Oakland Park Boulevard, Sawgrass Expressway, 10th Street, I-75, and I-595.

- The FEC and Tri-Rail rail corridor alignments are considered to be a Level 5 Transit Opportunity for the purpose of this analysis.
- Transit gaps for all transit markets are overlaid on the draft high opportunity transit network to guide additional adjustments as appropriate (see Figure 23 from Technical Report #7).
- Final review and adjustments are made to Level 1 Transit Opportunities (access and circulation areas) to respond to any changes made to the opportunity levels for corridors.

The transit network by level of opportunity is illustrated for existing and 2045 conditions in Figures 3 and 4, respectively. The draft high opportunity transit network for 2045 conditions is presented in tabular form in Table 1, which includes the draft and adjusted level of opportunity by corridor for 2045 conditions.

To illustrate the relationship between level of opportunity and the type of transit activity, mobility hubs are included in the figures, consistent with the recent Broward MPO report, “Revisit & Update Mobility Hubs: Methodology, Results, and Recommendations, Final Report” (February 2018). According to this report, the four types of transit activity/hubs include:

- **Rail Stations** are provided by Tri-Rail for the seven commuter rail stations in Broward County: Deerfield (at Hillsboro Blvd), Pompano Beach (south of Sample Road), Cypress Creek (south of Cypress Creek Blvd), Fort Lauderdale (at Broward Blvd), Dania Beach (at Griffin Road), Hollywood (at Hollywood Blvd), and Sheridan (at Sheridan Rd). Stations as designed today include a stair/elevator tower on each side of the tracks with an elevated walkway for passengers to safely cross from northbound to southbound station platforms. Brightline’s station for intercity rail opened in January for service in Downtown Fort Lauderdale. This is a new type of station for Fort Lauderdale with a much bigger footprint than would be required for commuter rail, light rail, streetcar or bus stations/stops.

Figure 3: Recommended Opportunity Level by Corridor (Existing Conditions)

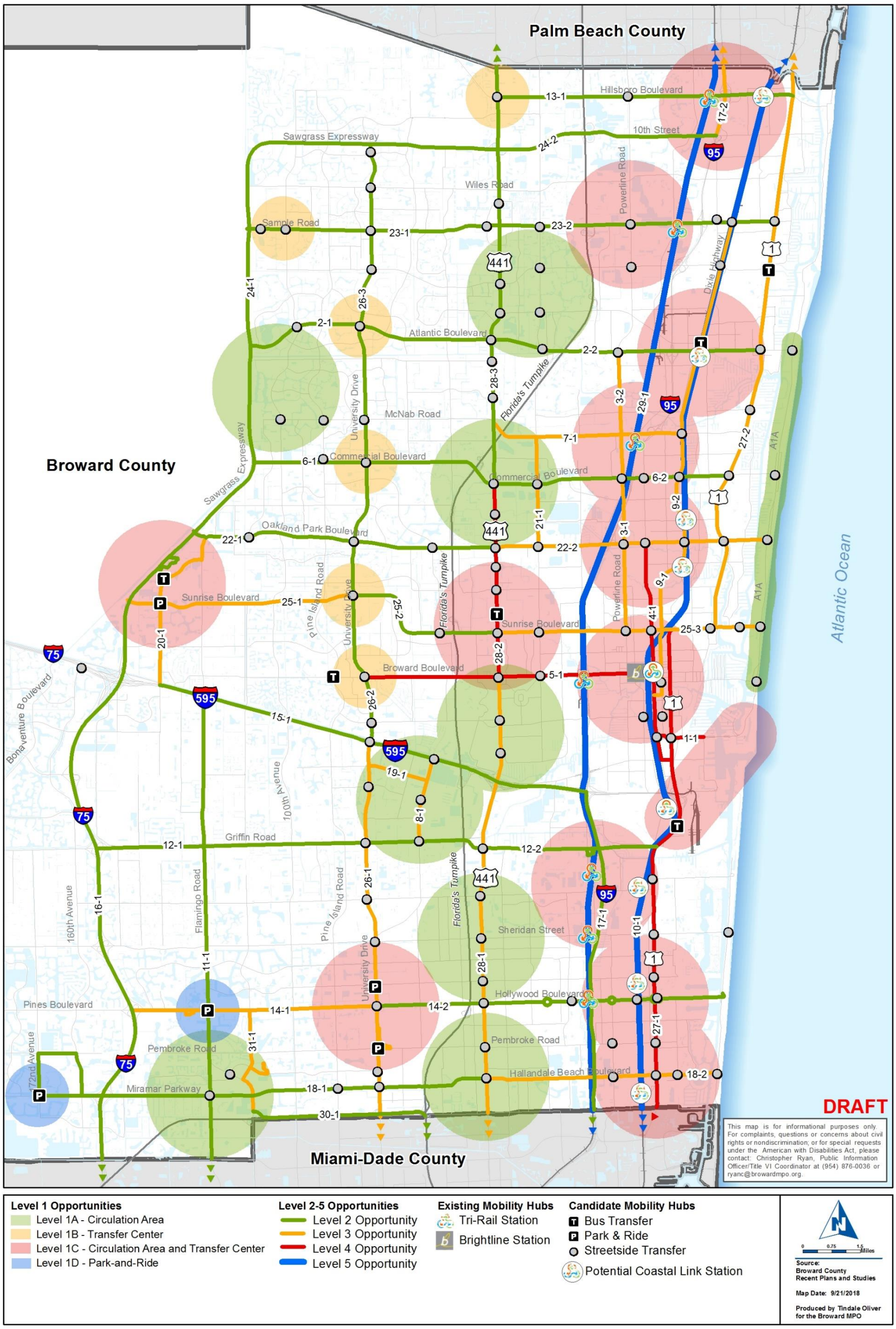
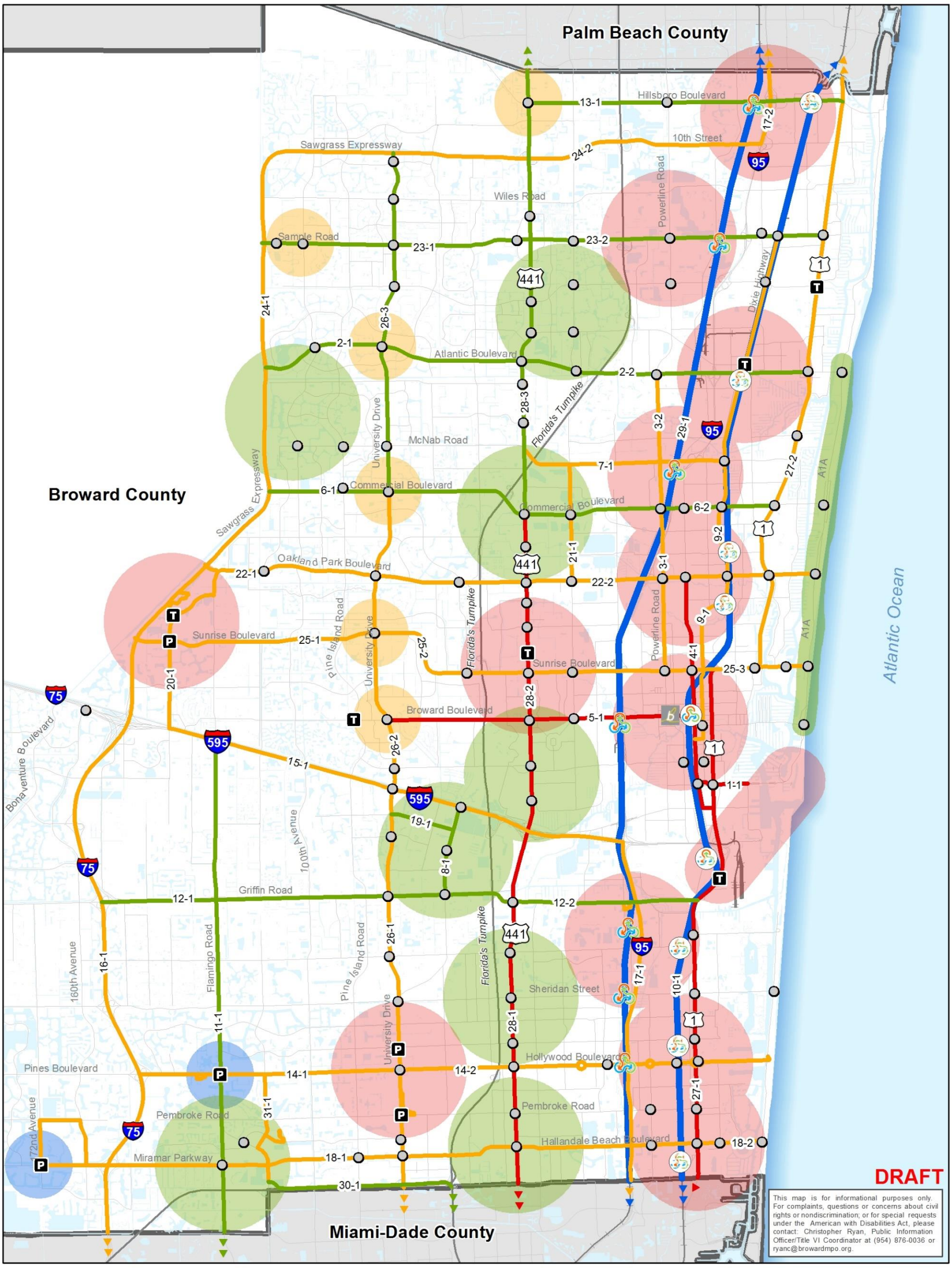


Figure 4: Recommended Opportunity Level by Corridor (2045 Conditions)



## Table 1: Draft and Adjusted Level of Opportunity by Transit Corridor (Existing and Future Conditions)

| On Street | Segment | Segment Components | Draft Level of Opportunity, 2045 Conditions | Adjusted Level of Opportunity, 2045 Conditions |
|---|---|---|---|---|
| 17th St | 1 | 1-1 | 4 | 4 |
| Atlantic Blvd | 2 | 2-1 | 2 | 2 |
| | | 2-2 | 2 | 2 |
| Powerline Rd | 3 | 3-1 | 3 | 3 |
| | | 3-2 | 3 | 3 |
| Andrews Ave | 4 | 4-1 | 4 | 4 |
| Broward Blvd | 5 | 5-1 | 4 | 4 |
| Commercial Blvd | 6 | 6-1 | 2 | 2 |
| | | 6-2 | 2 | 2 |
| Cypress Creek Rd | 7 | 7-1 | 3 | 3 |
| Davie Rd | 8 | 8-1 | 3 | 2 |
| Dixie Hwy | 9 | 9-1 | 3 | 3 |
| | | 9-2 | 3 | 3 |
| FEC Corridor | 10 | 10-1 | 5 | 5 |
| Flamingo Rd | 11 | 11-1 | 2 | 2 |
| Griffin Rd | 12 | 12-1 | 2 | 2 |
| | | 12-2 | 2 | 2 |
| Hillsboro Dr | 13 | 13-1 | 2 | 2 |
| Hollywood/ Pines Blvd | 14 | 14-1 | 3 | 3 |
| | | 14-2 | 2 | 3 |
| I-595 | 15 | 15-1 | 2 | 3 |
| I-75 | 16 | 16-1 | 2 | 3 |
| I-95 | 17 | 17-1 | 2 | 3 |
| | | 17-2 | 3 | 3 |
| Miramar Pkwy/Hallandale Beach Blvd | 18 | 18-1 | 2 | 3 |
| | | 18-2 | 3 | 3 |
| Nova Dr | 19 | 19-1 | 3 | 2 |
| NW 136th Ave | 20 | 20-1 | 3 | 3 |
| NW 31st Ave | 21 | 21-1 | 3 | 3 |
| Oakland Park Blvd | 22 | 22-1 | 2 | 3 |
| | | 22-2 | 3 | 3 |
| Sample Rd | 23 | 23-1 | 2 | 2 |
| | | 23-2 | 2 | 2 |
| Sawgrass Expwy | 24 | 24-1 | 2 | 3 |
| | | 24-2 | 2 | 3 |
| Sunrise Blvd | 25 | 25-1 | 3 | 3 |
| | | 25-2 | 3 | 3 |
| | | 25-3 | 3 | 3 |
| University Dr | 26 | 26-1 | 3 | 3 |
| | | 26-2 | 3 | 3 |
| | | 26-3 | 2 | 2 |
| US 1 | 27 | 27-1 | 4 | 4 |

| On Street | Segment | Segment Components | Draft Level of Opportunity, 2045 Conditions | Adjusted Level of Opportunity, 2045 Conditions |
|---|---|---|---|---|
| | | 27-2 | 3 | 3 |
| US 441 | 28 | 28-1 | 4 | 4 |
| | | 28-2 | 4 | 4 |
| | | 28-3 | 2 | 2 |
| Tri-Rail Corridor | 29 | 29-1 | 5 | 5 |
| Ronald Reagan Turnpike | 30 | 30-1 | 2 | 2 |
| Hiatus Rd | 31 | 31-1 | 3 | 3 |

*Note: The shaded cells reflect adjustments made to the level of opportunity to ensure network continuity and reflect judgment of the project team.*

- **Bus Transfer** facilities represent a fixed location where Broward County Transit operates multiple routes meeting at one off-road facility with room for customer amenities and covered waiting platforms.
- **Park & Rides** are another type of fixed facility at a location operated by BCT, FDOT or SFRTA where customer amenities and covered waiting platforms are provided for patrons.
- **Streetside Transfer** locations are places with multiple stops on either side of the streets that intersect at that candidate location. An example of this is Hollywood Blvd/SR7 where seven stops provide waiting areas within publicly owned right-of-way with bus shelters and seating, pedestrian crosswalks and lights, and bike lanes within the roadway.

## Next Steps

Using the high opportunity transit evaluation framework presented at the beginning of this report, an evaluation is conducted to develop a high opportunity transit network to support the incremental development of an unconstrained transit vision for the Broward region. The next steps include the following:

- Refine the opportunity levels to better reflect land use and multimodal accessibility as it changes along corridors from west to east and south to north.
- Adapt the transit technologies illustrated in Figures 5, 6, and 7 to the high opportunity transit framework (mobility vs. accessibility), which was illustrated previously in Figure 1 of this technical report.

- In developing the transit vision, consider the typology of the mobility hub candidate locations, as defined in final report, “Revisit & Update Mobility Hubs.”
- Develop an unconstrained transit vision for the Broward region that considers the levels of high opportunity with the appropriate transit technologies.
- Respond to the key transit policy questions posed in the introduction to this technical report.

Figure 5: Description of Transit Service/Technologies for Buses

# BUS

## COMMUNITY BUS

54 routes in 19 cities in Broward region;
12 shuttle bus routes operated by SFRTA

- Local/neighborhood
- Lower demand
- Shuttle bus/trolley bus
- Frequent stops
- Travel in regular traffic
- Circulate in neighborhoods

- Avg. Operating Speed: 10-15 mph
- Capital Cost: To be provided
- Operating Cost: To be provided


## LOCAL BUS

44 fixed bus routes operated by Broward County Transit (BCT) on weekdays

- Local and intra-city
- Lower to higher demand
- Traditional bus
- Frequent stops
- Travel in regular traffic
- Roadside bus stops
- Frequency varies from high to low
- Can feature overlapping routes with limited stops at major intersections during peak hours (e.g., BCT Breeze bus routes)

- Avg. Operating Speed: 15-20 mph
- Capital Cost: $500,000 - $750,000
- Operating Cost: $90-$140/ revenue hour


## EXPRESS BUS

7 weekday express bus routes operated by BCT and Miami-Dade Transit (MDT)

- Intra-city and regional travel
- Higher to medium demand
- Medium to high capacity vehicles
- Travel in regular traffic/ express lanes
- Limited stops concentrated at ends of route
- Peak-hour service
- Commuters
- Park-and-ride lots
- Amenities like Wi-Fi

- Avg. Operating Speed: 20-30 mph
- Capital Cost: To be provided
- Operating Cost: To be provided


## BUS RAPID TRANSIT

No BRT service exists in Broward region

- Intra-city and regional travel
- Higher demand
- Exclusive bus-only lanes
- Stylized vehicle design
- High capacity vehicles
- Often has traffic signal priority
- High frequency (15 minute headways or less)
- Higher speeds
- Larger, more substantial stations
- Level boarding at stations
- Potential for off-board fare collection

- Avg. Operating Speed: 20-25 mph
- Capital Cost: $24M - 60M/mile
- Operating Cost: $75-200/ revenue hour

Figure 6: Description of Transit Service/Technologies for Rail

Figure 7: Description of Transit Service/Technologies for Other Services

## OTHER

### AUTONOMOUS VEHICLES

Ford Research and Innovation using Miami as its first city to test self-driving vehicles

- Can begin implementation in contained environments (campuses, airports, etc.)
- Similar capacity to shuttles
- Segregated from traffic or travel in regular traffic

- Operating Speed: 10-45 mph
- Average Capital Cost: Varies by project
- Average Operating Cost: Varies by project

### SHARED RIDE

Private services in Broward region (Uber, Lyft, etc.); no publicly-operated shared-ride service exist in Broward region; Florida examples in Tampa Bay area and Orlando

- Van/passenger car
- On-demand
- Fixed or flexible stops
- Works with phone app
- Travel in regular traffic
- Frequency varies with service supply/availability to respond to demand

- Operating Speed: 30-70 mph based on environment
- Average Capital Cost: Varies by project
- Average Operating Cost: Varies by project

### PEOPLE MOVER

Metromover circulates in Downtown Miami and the MIA Mover connects Miami airport to the Miami Intermodal Center

- Fully automated
- Elevated track and stations
- Electrically powered
- Operates on rails or rubber tire
- Low speed
- Medium frequency
- Specially branded
- Shorter travel distance

- Operating Speed: 10-20 mph
- Capital Cost: $11.2M - $122.4M/mile
- Operating Cost: $200-420/ revenue hour

### WATERBORNE TAXI

Riverwalk Water Trolley is a free service operated by the DFLTMA and City of Fort Lauderdale; Water Taxi is a privately operated service in Fort Lauderdale

- Watercraft vessel
- Navigates smaller waterways
- Low speed
- Medium frequency
- Specially branded
- Shorter travel distance
- Targeted for leisure trips

- Operating Speed: 7-10 mph
- Capital Cost: $150K to $750K
- Operating Cost: $70-100/ revenue hour

### EMERGING TECHNOLOGIES

**HYPERLOOP**

- Regional high-speed travel
- Separated from traffic
- Vehicle is electronically propelled through a low-pressure tube, using magnetic levitation

**PERSONAL RAPID TRANSIT/PODCARS**

- Local travel
- Similar to People Mover, elevated and driverless
- Intended for small groups of people (2-8)
- Speeds up to 30 mph

**VOLOCOPTER AIR TAXI CONCEPT**

- Local travel (up to 16 miles)
- Electrically powered, drone-based helicopters
- Intended for 1-2 passengers
- Includes network of Hubs and Ports for passenger and business access

- Other Emerging and Future Technologies

# Appendix A: High Opportunity Transit Evaluation

This section provides additional detail about the methodology and results of the high opportunity transit evaluation. The methodology is organized into five key steps:

- Step A: Identify Initial Corridors
- Step B: Define Corridor Segments by Functional Classification
- Step C: Conduct Corridor Evaluation
- Step D: Assign Level of Transit Opportunity
- Step E: Develop High Opportunity Transit Network

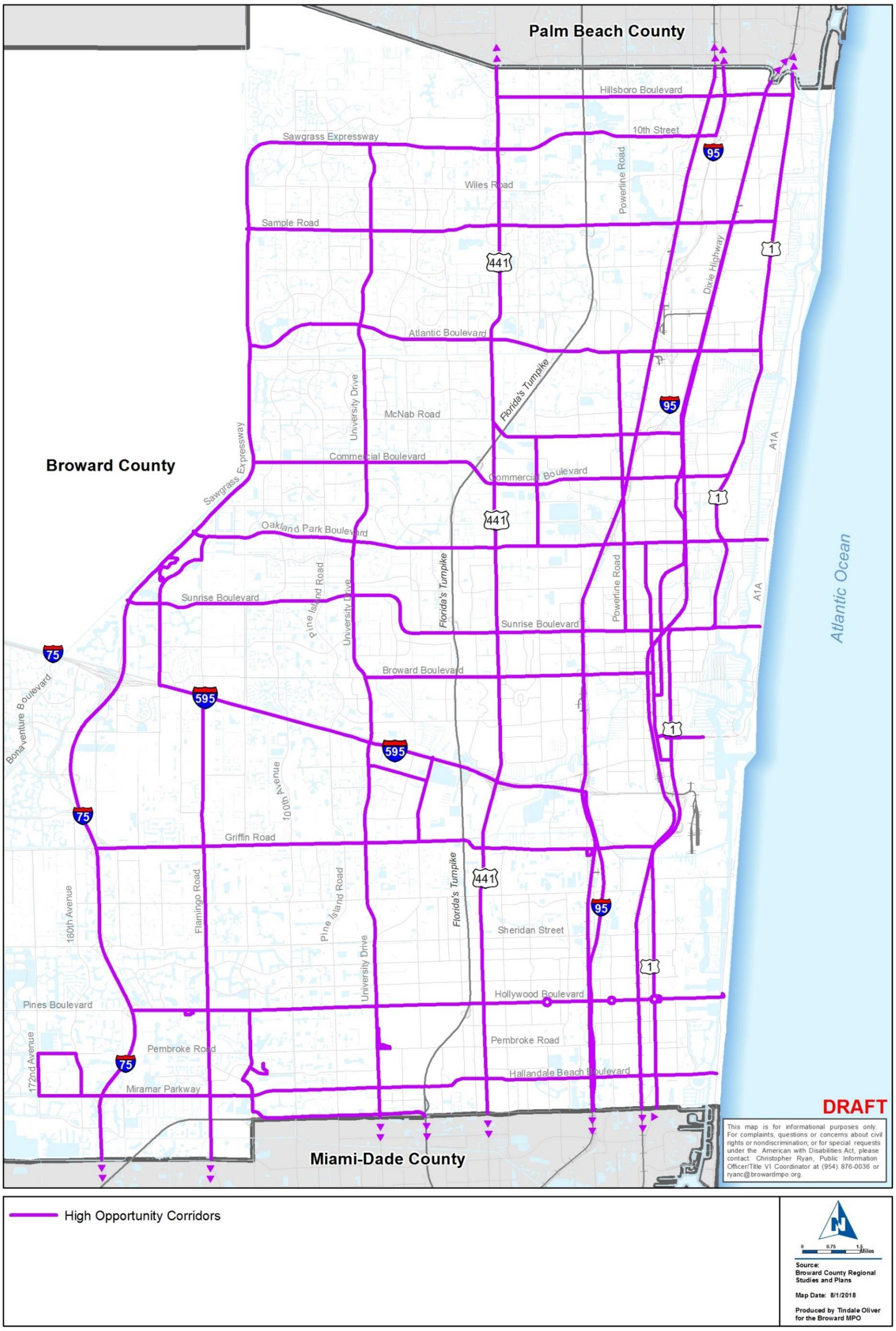
## Step A: Identify Initial Corridors

The analysis begins with the identification of 31 initial corridors. These initial corridors are compiled based on a review of past regional and corridor-specific studies conducted by the MPO and its partners throughout the Broward region. In addition, additional corridors are added based on review of the Regional Transit Propensity Analysis recently conducted as part of the 2045 Regional Transportation Plan, along with review and discussions of the initial corridor network with MPO staff.

The initial corridors are illustrated in Figure A-1, and a short description of each corridor is provided below (in alpha order).

- **17th Street Corridor** – west to east corridor located on 17th Street, from Andrews Avenue to Eisenhower Boulevard (1.1 miles)
- **Andrews Avenue Corridor** – south to north corridor on Andrews Avenue, from US 1, via Marina Mile Boulevard, to Oakland Park Boulevard (5.4 miles)
- **Atlantic Boulevard Corridor** – west to east corridor on Atlantic Boulevard, from Sawgrass Mills Expressway to US 1 (12.4 miles)
- **Broward Boulevard Corridor** – west to east corridor on Broward Boulevard, from University Drive to Andrews Avenue (6.8 miles)

Figure A-1: Initial High Opportunity Transit Corridors



- **Commercial Boulevard Corridor** – west to east corridor on Commercial Boulevard, from Sawgrass Expressway to US 1 (11.4 miles)
- **Cypress Creek Road Corridor** – west to east corridor on Cypress Creek Road, from US 441/SR 7 to North Dixie Highway (4.5 miles)
- **Davie Road Corridor** – south to north corridor on Davie Road, from Griffin Road to I-595 (2 miles)
- **Dixie Highway Corridor –** south to north corridor on Dixie Highway, from intersection of Andrews Avenue and SE 6th Street to Sample Road (11.8 miles)
- **FEC/Brightline Corridor –** current Brightline service operating on FEC rail corridor, from downtown Miami to downtown West Palm Beach; evaluation includes corridor only from the Miami-Dade County line to Palm Beach County line (24.9 miles)
- **Flamingo Road Corridor** – south to north corridor on Flamingo Road, from Miami-Dade County line to I-595 (10.8 miles)
- **Griffin Road Corridor** – west to east corridor on Griffin Road, from I-75 to US 1 (13.3 miles)
- **Hiatus Road Corridor** – south to north corridor on Hiatus Road, from Ronald Reagan Turnpike to Pines Boulevard (3.4 miles)
- **Hillsboro Drive Corridor –** west to east corridor on Hillsboro Drive, from US 441/ SR 7 to US 1 (6.9 miles)
- **Hollywood/Pines Boulevard Corridor** – west to east corridor on Hollywood/ Pines Boulevard, from I-75 to Ocean Drive (15.4 miles)
- **I-595 Corridor** – west to east corridor on I-595, from NW 136th Avenue to I-95 (10.4 miles)
- **I-75 Corridor** – south to north corridor on I-75, from the Miami-Dade County line to intersection at Sawgrass Expressway and 8th Street (13.5 miles)
- **I-95 Corridor** – south to north corridor on I-95, from Miami-Dade County line to I-595 (6.9 miles); south to north corridor on I-95, from 10th Street to Palm Beach County line (1.6 miles)

- **Miramar Parkway/Hallandale Beach Boulevard Corridor** – west to east corridor on Miramar Parkway/Hallandale Beach Boulevard, from 172nd Avenue in Miramar to Ocean Drive in Hallandale Beach (18.9 miles)
- **Nova Drive Corridor** – west to east corridor on Nova Drive, from University Drive to Davie Road (1.4 miles)
- **NW 136th Avenue Corridor** – south to north corridor on NW 136th Avenue, from I-595 to Oakland Park Boulevard via Flamingo Road (4 miles)
- **NW 31st Avenue Corridor** – south to north corridor on NW 31st Avenue, from Cypress Creek Road to Oakland Park Boulevard (2.6 miles)
- **Oakland Park Boulevard Corridor** – west to east corridor on Oakland Park Boulevard, from Sawgrass Expressway to A1A (13.6 miles)
- **Powerline Road Corridor** – south to north corridor on Powerline Road, from Sunrise Boulevard to Atlantic Boulevard (12.4 miles)
- **Ronald Reagan Turnpike Corridor** – west to east corridor on Ronald Reagan Turnpike, from Red Road to Florida's Turnpike (4.1 miles)
- **Sample Road Corridor** – west to east corridor on Sample Road, from Sawgrass Expressway to US 1 (12.4 miles)
- **Sawgrass Expressway Corridor** – south to north corridor on the Sawgrass Expressway, from the intersection at Sawgrass Expressway and 8th Street to I-95 (25 miles)
- **Sunrise Boulevard Corridor** – west to east corridor on Sunrise Boulevard, from Sawgrass Expressway to A1A (15.6 miles)
- **Tri-Rail Corridor** – south to north Tri-Rail corridor, from Miami International Airport to Mangonia Park in West Palm Beach; evaluation includes corridor only from Miami-Dade County line to Palm Beach County line (24.9 miles)
- **University Drive Corridor** – south to north corridor on University Drive, from Sawgrass Expressway to Ronald Reagan Turnpike (24.1 miles)
- **US 1 Corridor** – south to north corridor on US 1, from Miami-Dade County line to Palm Beach County line (42.9 miles)
- **US 441 Corridor** – south to north corridor on US 441, from Miami-Dade County line to Palm Beach County line (30.1 miles)

## Step B: Define Corridor Segments by Functional Classification

Corridor segmentation is the division of corridors into segments of similar characteristics. Although the 31 corridors provide connections between major destinations, they are not always uniform in their characteristics along their entire length. As a result, the corridors are subdivided into 49 total segments that provide more uniformity based on roadway functional classification and estimated activity by land use. The segmentation of the initial corridors is presented in Table A-1 and illustrated in Figure A-2.

The initial step for segmenting the corridors involves the review of corridor functional classification, as derived from the FDOT roadway characteristics inventory database. The following functional classifications are used in the segmentation process:

- Urban Local
- Urban Major Collector
- Urban Minor Arterial
- Urban Minor Collector
- Urban Principal Arterial Interstate
- Urban Principal Arterial Other

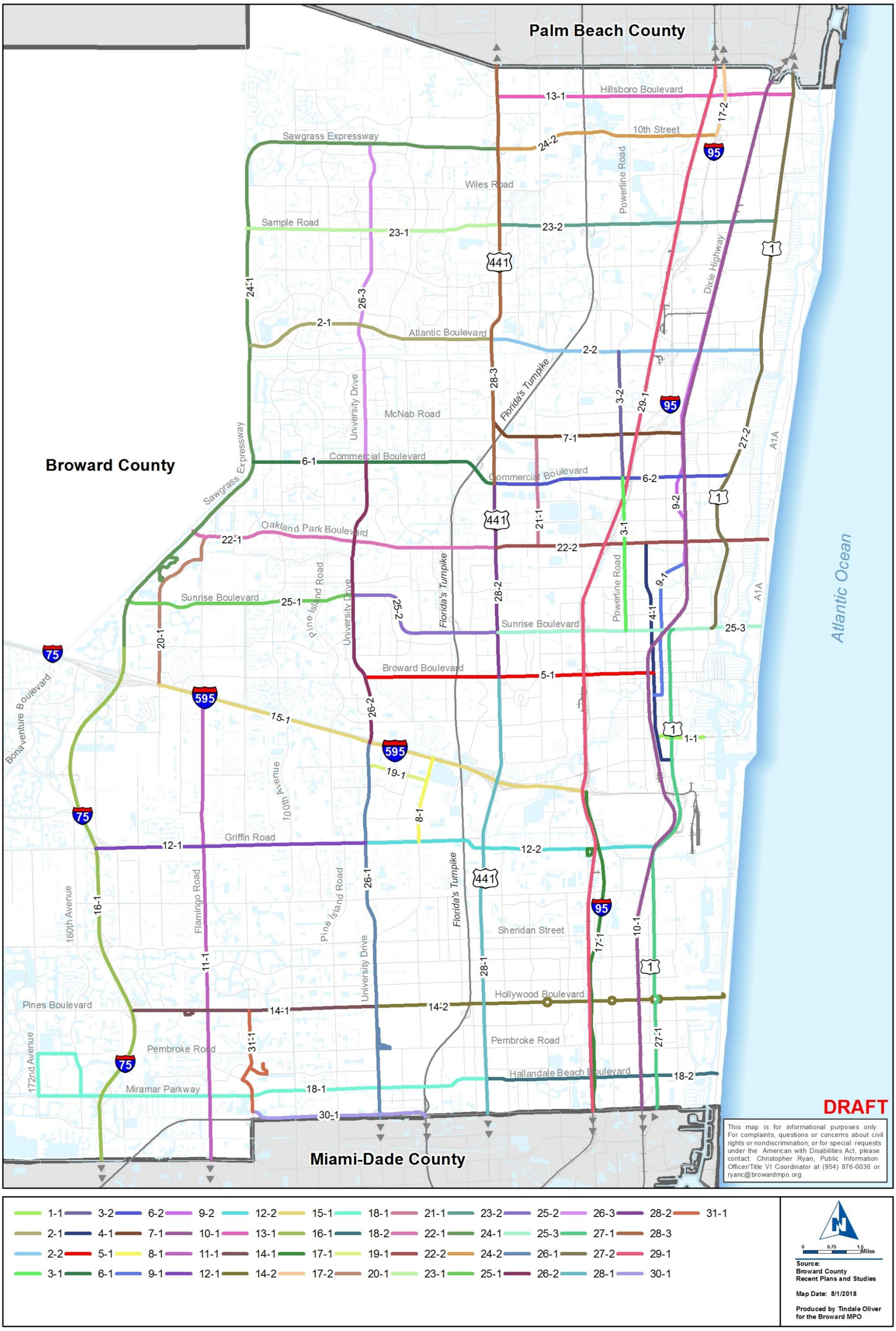
FDOT roadway functional classification is overlaid on the initial corridors to identify roadways with two or more classifications. When this occurs, the corridor is separated into two or more segments. To help further define the segments, the results of the land use activity analysis conducted as part of the Transit Market Segmentation are reviewed. This analysis helps to spatially identify where land use activity areas make significant transitions along the corridors being evaluated, helping to further define the segments based on overall activity in a corridor or area. For additional detail on the land-use activity analysis, refer to “Technical Report #7: Travel Demand and Transit Market Segmentation.”

## Table A-1: Segmentation of Initial High Opportunity Transit Corridors

| On Street | Corridor Number | Segment Number | From | To |
|---|---|---|---|---|
| 17th St | 1 | 1-1 | Andrews Ave | Eisenhower Blvd |
| Atlantic Blvd | 2 | 2-1 | Sawgrass Expwy | US 441 |
| | | 2-2 | US 441 | US 1 |
| Powerline Rd | 3 | 3-1 | Sunrise Blvd | Commercial Blvd |
| | | 3-2 | Commercial Blvd | Atlantic Blvd |
| Andrews Ave | 4 | 4-1 | US 1 | Oakland Park Blvd |
| Broward Blvd | 5 | 5-1 | University Dr | Andrews Ave |
| Commercial Blvd | 6 | 6-1 | Sawgrass Expwy | US 441 |
| | | 6-2 | US 441 | US 1 |
| Cypress Creek Rd | 7 | 7-1 | US 441 | Dixie Hwy |
| Davie Rd | 8 | 8-1 | Griffin Rd | I-595 |
| Dixie Hwy | 9 | 9-1 | Andrews Ave | 26th St |
| | | 9-2 | 26th St | Sample Rd |
| FEC Corridor | 10 | 10-1 | Miami-Dade County line | Palm Beach County line |
| Flamingo Rd | 11 | 11-1 | Miami-Dade County Line | I-595 |
| Griffin Rd | 12 | 12-1 | I-75 | University Dr |
| | | 12-2 | University Dr | US 1 |
| Hillsboro Blvd | 13 | 13-1 | US 441 | US 1 |
| Hollywood/ Pines Blvd | 14 | 14-1 | I-75 | University Dr |
| | | 14-2 | University Dr | Ocean Dr |
| I-595 | 15 | 15-1 | 136th St | I-95 |
| I-75 | 16 | 16-1 | Miami-Dade County Line | 8th St |
| I-95 | 17 | 17-1 | Miami-Dade County Line | I-595 |
| | | 17-2 | Sawgrass Expwy | Palm Beach County line |
| Miramar Pkwy/Hallandale Beach Blvd | 18 | 18-1 | 172nd Ave | US 441 |
| | | 18-2 | US 441 | Ocean Dr |
| Nova Dr | 19 | 19-1 | University Dr | Davie Road |
| NW 136th Ave | 20 | 20-1 | SR 84 | Oakland Park Blvd |
| NW 31st Ave | 21 | 21-1 | Oakland Park Blvd | Cypress Creek Rd |
| Oakland Park Blvd | 22 | 22-1 | Sawgrass Expwy | US 441 |
| | | 22-2 | US 441 | A1A |
| Sample Rd | 23 | 23-1 | Sawgrass Expwy | US 441 |
| | | 23-2 | US 441 | US 1 |
| Sawgrass Expwy | 24 | 24-1 | 8th Street | US 441 |
| | | 24-2 | US 441 | I-95 |
| Sunrise Blvd | 25 | 25-1 | Sawgrass Expwy | University Dr |
| | | 25-2 | University Dr | US 441 |
| | | 25-3 | US 441 | A1A |
| University Dr | 26 | 26-1 | Miami-Dade County line | I-595 |
| | | 26-2 | I-595 | Commercial Blvd |
| | | 26-3 | Commercial Blvd | Sawgrass Expwy |
| US 1 | 27 | 27-1 | Miami-Dade County line | Sunrise Blvd |
| | | 27-2 | Sunrise Blvd | Palm Beach County line |
| US 441 | 28 | 28-1 | Miami-Dade County line | Broward Blvd |

| On Street | Corridor Number | Segment Number | From | To |
|---|---|---|---|---|
| | | 28-2 | Broward Blvd | Commercial Blvd |
| | | 28-3 | Commercial Blvd | Palm Beach County line |
| Tri-Rail Corridor | 29 | 29-1 | Miami-Dade County line | Palm Beach County line |
| Ronald Reagan Turnpike | 30 | 30-1 | Red Rd | Florida's Turnpike |
| Hiatus Rd | 31 | 31-1 | Ronald Reagan Turnpike | Pines Blvd |

Figure A-2: Segmented Initial High Opportunity Transit Corridors



## Step C: Conduct Corridor Evaluation

The corridor evaluation is used to identify the initial level of transit opportunity to which each corridor should be considered for assignment. For this evaluation, corridors are assigned to 1 of 4 transit opportunity levels—Level 2, 3, 4, or 5. The determination of Level 1 transit opportunities is addressed subsequently in Step D of the high opportunity transit evaluation.

The corridor evaluation is conducted for two timeframes:

- **Existing Conditions Scenario** – Uses the best available data to estimate the extent to which existing dwelling unit, employment, and land use conditions support various levels of transit opportunity.
- **2045 Vision Scenario** – Uses the best available existing and 2045 data to project the extent to which future dwelling unit, employment, and land use conditions potentially support various levels of transit opportunity in 2045.

The following thresholds are used to apply the evaluation criteria to the corridor segments and make the initial assignment to levels of transit opportunity:

- **Level 5 Transit Opportunity**
  - Dwelling Unit Density Threshold – equal to or greater than 8 dwelling units/acre
  - Employment Density Threshold – equal to or greater than 7 employees/ acre
  - Equity – equal to or greater than +2 standard deviations from the countywide average
  - Transit-Supportive Land Use – equal to or greater than +2 standard deviations from the countywide average
  - Activity Density – equal to or greater than +2 standard deviations from the countywide average
- **Level 4 Transit Opportunity**
  - Dwelling Unit Density Threshold – equal to or greater than 6 dwelling units/acre but less than 8 dwelling units/acre

    - Employment Density Threshold – equal to or greater than 5 employees/acre but less than 7 employees/acre
    - Equity – equal to or greater than +1 standard deviation from countywide average but less than +2 standard deviations from the countywide average
    - Transit-Supportive Land Use – equal to or greater than +1 standard deviation from countywide average but less than +2 standard deviations from the countywide average
    - Activity Density – equal to or greater than +1 standard deviation from countywide average but less than +2 standard deviations from the countywide average
- **Level 3 Transit Opportunity**
    - Dwelling Unit Density Threshold – equal to or greater than 4.5 dwelling units/acre but less than 6 dwelling units/acre
    - Employment Density Threshold – equal to or greater than 4 employees/acre but less than 5 employees/acre
    - Equity – equal to or greater than countywide average but less than +1 standard deviation from the countywide average
    - Transit-Supportive Land Use – equal to or greater than countywide average but less than +1 standard deviation from the countywide average
    - Activity Density – equal to or greater than countywide average but less than +1 standard deviation from the countywide average
- **Level 2 Transit Opportunity**
    - Dwelling Unit Density Threshold – less than 4.5 dwelling units/acre
    - Employment Density Threshold – less than 4 employees/acre
    - Equity – less than the countywide average
    - Transit-Supportive Land Use – less than the countywide average
    - Activity Density – less than the countywide average

Once the corridor segments are assigned to a level of opportunity for each of the evaluation criteria, numerical scores are defined (Level 5 Opportunity = 4, Level 4 Opportunity = 3, Level 3 Opportunity = 2, and Level 2 Opportunity = 1) and summed for all evaluation criteria to generate a total score for each corridor segment. The final statistical analysis is used to evaluate the total scores (through average and standard

deviations) and ultimately identify the level of opportunity that best matches the existing and future conditions for each corridor. The five evaluation characteristics are summarized in greater detail below.

## Dwelling Unit Density

Dwelling unit density is calculated from two measurements: dwelling units per acre and hotel rooms per acre. These two measures are combined to establish an equivalent dwelling units per acre within the ½-mile buffer around each segment. In addition, the number of dwelling units is based on 2015 and 2045 data developed as part of the 2045 MTP.

The thresholds used in the dwelling unit density analysis are carried over from the transit market segmentation analysis documented in Technical Report #7. The Discretionary Threshold Assessment (DTA) uses industry standard relationships to identify the areas within the Broward region that reflect transit-supportive residential density levels today and in the future.

Four density thresholds are developed to indicate if an area contains sufficient density to sustain some level transit supportiveness:

- **Low Investment** – reflects lower dwelling unit densities consistent with lower transit investment (i.e., low opportunity).
- **Medium Investment** – reflects moderate dwelling unit densities consistent with moderate transit investment (i.e., medium opportunity).
- **High Investment** – reflects higher dwelling unit densities consistent with higher levels of transit investment (i.e., high opportunity).
- **Very High Investment** – reflects very high dwelling unit densities consistent with very high levels of transit investment (i.e., very high opportunity).

Table A-2 presents the dwelling unit density thresholds used for this evaluation criteria.

Table A-2: Transit Service Density Thresholds (Dwelling Unit Density)

| Level of Transit Investment | Dwelling Unit Density Threshold[1] |
|---|---|
| Low Investment | < 4.5 dwelling units/acre |
| Medium Investment | 4.5–6 dwelling units/acre |
| High Investment | 6–7 dwelling units/acre |
| Very High Investment | >7 dwelling units/acre |

[1] TRB, National Research Council, TCRP Report 16, Volume 1 (1996), "Transit and Land Use Form," November 2002, MTC Resolution 3434 TOD Policy for Regional Transit Expansion Projects.

## Employment Density

Employment density is based on the number of employees per acre. The number of employees is drawn from 2015 and 2045 socioeconomic data prepared to support the 2045 regional travel demand modeling efforts. Employment density is estimated and evaluated for a ½-mile buffer around each segment.

The thresholds used in the employment density analysis are carried over from the transit market segmentation analysis documented in Technical Report #7. As indicated previously, the DTA uses industry standard relationships to identify the areas within the Broward region that experience transit-supportive employment density levels today and in the future.

Four density thresholds are developed to indicate if an area contains sufficient density to sustain some level of transit-supportiveness:

- **Low Investment** – reflects lower employment densities consistent with lower transit investment (i.e., low opportunity).
- **Medium Investment** – reflects moderate employment densities consistent with a moderate transit investment (i.e., medium opportunity).
- **High Investment** – reflects higher employment densities consistent with higher levels of transit investment (i.e., high opportunity).

- **Very High Investment** – reflects very high employment densities consistent with very high levels of transit investment (i.e., very high opportunity).

Table A-3 presents the employment density thresholds associated with each threshold of transit investment (as measured for TAZs).

Table A-3: Transit Service Density Thresholds (Employment Density)

| Level of Transit Investment | Employment Density Threshold[1] |
|---|---|
| Low Investment | <4 employees/acre |
| Medium Investment | 4 employees/acre |
| High Investment | 5–6 employees/acre |
| Very High Investment | ≥7 employees/acre |

[1] Based on review of research on relationship between transit and employment densities.

## Equity

The Broward MPO developed a process to evaluate its plans and programs against federal Environmental Justice (EJ) and Title VI regulations, called the Transportation Planning Equity Measure. The equity measure is based on 2016 American Community Survey (ACS) 5-year Estimates as developed for the Broward MPO. The core set of indicators used to determine areas with a high composite equity score include:

- Racial minority (non-White population)
- Ethnic minority (Hispanic population)
- Youth
- Older adults
- Population below poverty level
- Limited English Proficiency (LEP) population
- Population with a disability

The total area within a ½-mile buffer of each segment that intersected a high to very high composite score is calculated. The resulting categories and thresholds for the existing conditions scenario and the 2045 vision scenario include the following:

- **Level 5 Transit Opportunity** – equal to or greater than an equity score of 2.26 (+2 standard deviations from the average)
- **Level 4 Transit Opportunity** – equal to or greater than an equity score of 1.92 but less than 2.26 (between +1 and +2 standard deviations from the average)
- **Level 3 Transit Opportunity** – equal to or greater than an equity score of 1.58 but less than 1.92 (greater than the average and less than +1 standard deviations from the average)
- **Level 2 Transit Opportunity** – less than countywide average equity score of 1.58 (less than the average)

Given that future data are not available for the application of the equity tool, the existing conditions were used to support the 2045 analysis for this evaluation criterion.

### Transit Supportive Land Use

A method is applied to determine a score for land uses that traditionally have a greater potential to support transit. Based on industry standards, each type of land use is assigned a score from 0 to 4, with the larger number being more transit-supportive. For example, areas with limited employment and population are given a weight of 0 (e.g., public right-of-way and water bodies) as are single family dwelling units, which typically have a lower propensity for transit use; areas designated as mixed-use, multi-family residential, or multi-story office are given a weight of 4, as they are more transit-supportive in nature. Appendix B provides a list of land uses and the score associated with each (excludes land uses with a score of 0). The scores for the land uses are summed and divided by the total miles for each segment to calculate a normalized, transit supportive land use score. The resulting score represents each segment's ability to support transit based on the land uses in the vicinity of each transit corridor segment.

The resulting categories and thresholds for both the existing and 2045 conditions include the following:

- **Level 5 Transit Opportunity** – transit-supportive land use score equal to or greater than 19.34 (+2 standard deviations from the average)

- **Level 4 Transit Opportunity** – transit-supportive land use score equal to or greater than 13.47 but less than 19.34 (between +1 and +2 standard deviations from the average)
- **Level 3 Transit Opportunity** – transit-supportive land use score equal to or greater than 7.61 but less than 13.47 (greater than the average and less than +1 standard deviations from the average)
- **Level 2 Transit Opportunity** – transit-supportive land use score less than the countywide average of 7.61 (less than the average)

## Activity Density

A land use-based activity density analysis is performed to identify corridors and areas with high activity, as measured by person trips generated by land use category using commercial, institutional, and government land uses. For this analysis, person trips are only for those made in vehicles, meaning that bicycle and pedestrian trips are not included in this activity analysis. The information aids in the determination of high demand corridors and areas where transit can play a key role in meeting transportation needs for commuting and other trip purposes related to these land uses.

The 2015 person-trip rates by land use for the service area are based on the following variables:

- Parcel data (dwelling units and living square footage) and their corresponding land use categories developed from the 2015 Florida Department of Revenue (DOR) land-use classifications.
- Vehicle trip ends by land use code from the *ITE Trip Generation Manual* 10th Edition and other derived sources.
- Percent of land use activity associated with each trip purpose (for purposes of determining temporal distribution of parcel trips).
- National Highway Traffic Safety Administration (NHTSA) vehicle occupancy rates to convert vehicle trips to person trips.

The activity density analysis is calculated for 2015 land use conditions for weekday land use trip generation rates. A combination of work and non-work land uses was used to identify where trips are made and are represented by retail, medical, education, office,

restaurant, recreation, hospital, institutional, and government land uses. Residential, agriculture, and industrial land uses were excluded from the analysis.

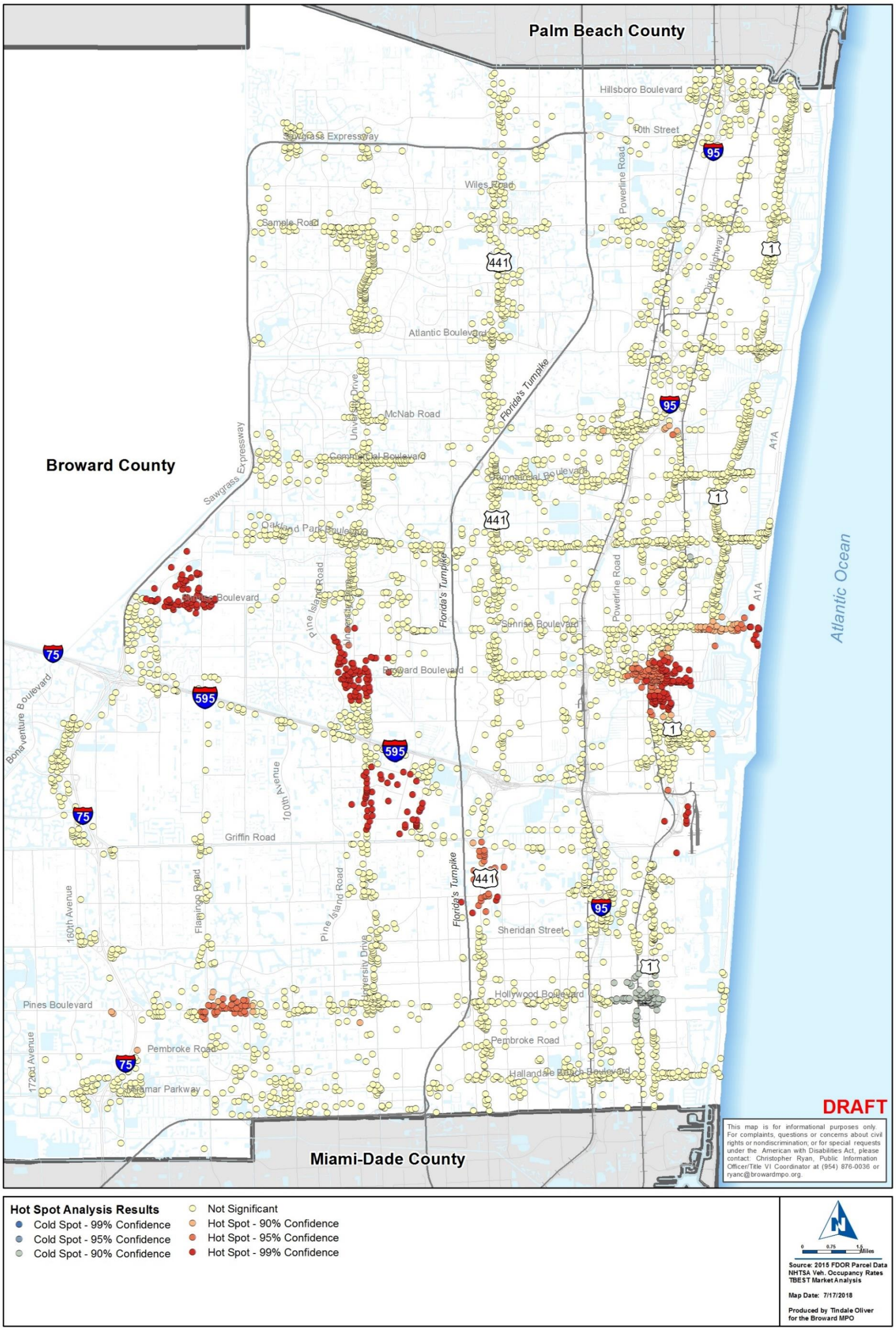
After performing the land use-based activity analysis, a hot-spot analysis was conducted for the areas within a ½-mile buffer around each segment to identify activity density. The hot-spot analysis evaluates each person-trip-generated feature and its weight within the ½-mile buffer of each segment and determines whether the features cluster spatially (hot spot statistical analysis in ArcGIS that uses the *Getis-Ord Gi** statistic). To be a statistically significant hot spot, a feature will have a high value and be surrounded by other features with high values. The total number of significant parcel features within hot spot clusters was then spatially determined and summed for each segment.

The resulting categories and thresholds for the existing conditions scenario and the 2045 vision scenario include the following:

- **Level 5 Transit Opportunity** – equal to or greater than 17.46 significant trip-generating parcels
- **Level 4 Transit Opportunity** – equal to or greater than 10.55 but less than 17.46 significant trip-generating parcels
- **Level 3 Transit Opportunity** – equal to or greater than 3.64 but less than 10.55 significant trip-generating parcels
- **Level 2 Transit Opportunity** – less than countywide average of 3.64 significant trip- generating parcels

The locations of the activity centers using the hot spot analysis are illustrated in Figure A-3. The results of the activity density analysis are also provided in Appendix C.

Figure A-3: Activity Density Hot Spot Analysis



## Total Score

Using the results of the analyses performed for the five evaluation criteria (dwelling unit density, employment density, transit-supportive land use, equity, and activity density), a total score was assigned to each segment. Each segment's score was calculated by assigning a numeric value to each ranking from the individual characteristics using the following score assignments:

- Evaluation criteria with a Level 5 Transit Opportunity = 4 points
- Evaluation criteria with a Level 4 Transit Opportunity = 3 points
- Evaluation criteria with a Level 3 Transit Opportunity = 2 points
- Evaluation criteria with a Level 2 Transit Opportunity = 1 point

All evaluation criteria are weighted equally in both the existing conditions scenario and the 2045 scenario. For each corridor segment, scores are calculated by summing the product of each of the segment scores and the criteria weighting. Since the weights are equal in this analysis, they had no impact on the results; however, the analysis was set up to enable weighting the characteristics differently if determined to be appropriate.

The total score was applied to one of four categories assigned to each segment based on standard deviations from countywide average):

- **Level 5 Transit Opportunity** – equal to or greater than +2 standard deviations from the countywide average
- **Level 4 Transit Opportunity** – equal to or greater than +1 standard deviation from countywide average but less than +2 standard deviations from countywide average
- **Level 3 Transit Opportunity** – equal to or greater than countywide average but less than +1 standard deviation from countywide average
- **Level 2 Transit Opportunity** – less than countywide average

# Step D: Assign Level of Transit Opportunity

## Transit Opportunity Assignments

The scores resulting from the evaluation are used to determine the overall transit opportunity level for each corridor segment.

*Transit Opportunities for Existing Conditions* – The resulting scores for the Existing Conditions evaluation are used to determine the overall transit opportunity level for each corridor segment (based on average and standard deviations).

- Segments with scores equal to or greater than 14.59 were assigned a Level 5 Transit Opportunity
- Segments with scores equal to greater than 11.03 but less than 14.59 were assigned a Level 4 Transit Opportunity
- Segments with scores equal to or greater than 7.47 but less than 11.03 were assigned a Level 3 Transit Opportunity
- Segments with scores less than countywide average of 7.47 were assigned a Level 2 Transit Opportunity

*Transit Opportunities for 2045 Conditions* – Similarly, the resulting scores for the 2045 Conditions evaluation are used to determine the overall transit opportunity level for each corridor segment (based on average and standard deviations).

- Segments with scores equal to or greater than 17.39 were assigned a Level 5 Transit Opportunity
- Segments with scores equal to greater than 14.15 but less than 17.39 were assigned a Level 4 Transit Opportunity
- Segments with scores equal to or greater than 10.90 but less than 14.15 were assigned a Level 3 Transit Opportunity
- Segments with scores less than the countywide average of 10.90 were assigned a Level 2 Transit Opportunity

*Transit Opportunity for Access/Circulation Areas* – The Project Team reviewed the draft opportunity levels by corridor and the results of the transit market segmentation evaluation to apply professional judgment as to where to identify preliminary Level 1

transit opportunities. Level 1 transit opportunities are organized into the following categories:

- Level 1A – Circulation Area (assumed to be a 7.0-square-mile flex zone area established by a 1.5 mile-buffer around a station location)
- Level 1B – Transfer Center (assumed to be a 1.8-square-mile flex zone area established by a 0.75-mile buffer around a station location)
- Level 1C – Circulation Area and Transfer Center (assumed to be a 7.0-square-mile flex zone area established by a 1.5-mile buffer around a station location)
- Level 1D – Park-and-Ride (assumed to be a 1.8-square-mile flex zone area established by a 0.75-mile buffer around a station location)

## Step E: Develop High Opportunity Transit Corridor Network

To further refine the high opportunity transit corridors and access/circulation areas, additional review is performed by the project team:

- Professional judgment is used to adjust some of the assignments to ensure continuity in transit corridors by level of opportunity. Key adjustments are reflected for Davie Road, Hollywood/Pines Boulevard, Miramar Parkway/Hallandale Beach Boulevard, Nova Drive, Oakland Park Boulevard, Sawgrass Expressway, 10th Street, I-75, and I-595.
- The FEC and Tri-Rail rail corridor alignments are considered to be a Level 5 Transit Opportunity for the purpose of this analysis.
- Transit gaps for all transit markets are overlaid on the draft high opportunity transit network to guide additional adjustments as appropriate (see Figure 23 from Technical Report #7).
- Final review and adjustments are made to Level 1 Transit Opportunities (access and circulation areas) to respond to any changes made to the opportunity levels for corridors.

# Appendix B: Land Use Categories & Transit Supportive Scores

Table B-1 provides the land use categories and the scores assigned by the project team for the relative transit-supportiveness of each land use category, with the higher number reflecting a greater likelihood of the land use being transit-supportive. Land uses with a score of 0 are excluded from the table.

Table B-1: Land Use Categories and Transit-Supportive Scores

| Land Use Category | Score |
|---|---|
| Mobile Home | 3 |
| Multi-family ≥ 10 units | 3 |
| Multi-family < 10 units | 2 |
| Condominiums | 3 |
| Mixed Use | 4 |
| Department Stores | 3 |
| Supermarkets | 2 |
| Regional Shopping Centers | 3 |
| Community Shopping Centers | 1 |
| Office Buildings Multi-story | 2 |
| Professional Buildings | 2 |
| Airports and Marinas | 4 |
| Restaurants | 3 |
| Drive-in Restaurants | 2 |
| Wholesale Outlets | 2 |
| Hotels | 3 |
| Public Schools | 1 |
| Colleges | 1 |
| Hospitals | 2 |
| County Government | 3 |
| State Government | 3 |
| Federal Government | 3 |
| Municipal Government | 4 |

Source: Tindale Oliver

# Appendix C: Segment Evaluation Criteria

Table C-1: Segment Evaluation Criteria: Existing Conditions Scenario

| Segment | Employment Density | | Population Density | | | | Land Uses (2015 Parcel Data) | | Broward MPO Equity Measure Tool (2016 ACS 5-year) | | Activity Centers (2015 Florida DOR) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2015 Employment Data | | 2015 Population Data | Hotel (2015 Parcels) | Total Score | | | | | | | | |
| | Employees/ Acre | Category | Dwelling Units / Acre | Hotel Rooms / Acre | Total Equivalent Dwelling Units / Acre | Category | Land Use Score | Category | Average Composite Score | Category | Total | Per Mile | Category |
| 1-1 | 20.56 | Very High | 3.61 | 1.56 | 5.17 | Medium | 34.82 | Very High | 1.71 | Medium | 2 | 1.79 | Low |
| 2-1 | 4.53 | Medium | 2.03 | 0.03 | 2.06 | Low | 7.67 | Medium | 1.24 | Low | 0 | 0.00 | Low |
| 2-2 | 7.21 | Very High | 3.39 | 0.03 | 3.42 | Low | 6.45 | Low | 1.59 | Medium | 0 | 0.00 | Low |
| 3-1 | 17.09 | Very High | 2.38 | 0.32 | 2.70 | Low | 13.90 | High | 1.69 | Medium | 1 | 0.34 | Low |
| 3-2 | 8.60 | Very High | 3.54 | 0.11 | 3.65 | Low | 0.84 | Low | 2.46 | Very High | 0 | 0.00 | Low |
| 4-1 | 24.80 | Very High | 5.11 | 0.23 | 5.34 | Medium | 9.35 | Medium | 1.84 | Medium | 126 | 23.55 | Very High |
| 5-1 | 16.81 | Very High | 3.82 | 0.23 | 4.04 | Low | 7.69 | Medium | 1.75 | Medium | 138 | 20.41 | Very High |
| 6-1 | 8.33 | Very High | 3.50 | 0.26 | 3.75 | Low | 7.35 | Low | 1.63 | Medium | 0 | 0.00 | Low |
| 6-2 | 12.91 | Very High | 3.05 | 0.33 | 3.39 | Low | 7.78 | Medium | 1.48 | Low | 0 | 0.00 | Low |
| 7-1 | 13.00 | Very High | 1.61 | 0.43 | 2.04 | Low | 9.47 | Medium | 1.74 | Medium | 6 | 1.32 | Medium |
| 8-1 | 8.44 | Very High | 2.85 | 0.04 | 2.89 | Low | 17.82 | High | 1.18 | Low | 17 | 8.42 | High |
| 9-1 | 26.64 | Very High | 6.78 | 0.14 | 6.93 | Medium | 14.33 | High | 1.68 | Medium | 125 | 35.11 | Very High |
| 9-2 | 8.89 | Very High | 3.57 | 0.08 | 3.65 | Low | 5.35 | Low | 1.72 | Medium | 5 | 0.61 | Medium |
| 10-1 | 11.03 | Very High | 4.02 | 0.15 | 4.18 | Low | 2.37 | Low | 1.83 | Medium | 129 | 5.17 | Very High |
| 11-1 | 4.25 | Medium | 2.08 | 0.00 | 2.08 | Low | 3.69 | Low | 1.46 | Low | 21 | 1.94 | Very High |
| 12-1 | 2.84 | Low | 1.03 | 0.00 | 1.03 | Low | 7.42 | Low | 1.00 | Low | 3 | 0.47 | Low |
| 12-2 | 6.12 | High | 2.06 | 0.18 | 2.24 | Low | 1.01 | Low | 1.44 | Low | 23 | 3.32 | Very High |
| 13-1 | 6.74 | High | 3.08 | 0.11 | 3.20 | Low | 6.06 | Low | 1.59 | Medium | 0 | 0.00 | Low |
| 14-1 | 7.95 | Very High | 4.00 | 0.00 | 4.00 | Low | 6.10 | Low | 1.72 | Medium | 43 | 7.08 | Very High |
| 14-2 | 5.81 | High | 4.14 | 0.22 | 4.36 | Low | 4.73 | Low | 1.53 | Low | 1 | 0.11 | Low |
| 15-1 | 5.95 | High | 1.71 | 0.20 | 1.91 | Low | 4.34 | Low | 1.35 | Low | 2 | 0.19 | Low |
| 16-1 | 6.38 | High | 1.39 | 0.12 | 1.51 | Low | 3.01 | Low | 1.19 | Low | 3 | 0.23 | Low |
| 17-1 | 8.51 | Very High | 2.09 | 0.63 | 2.72 | Low | 6.73 | Low | 1.68 | Medium | 0 | 0.00 | Low |
| 17-2 | 12.84 | Very High | 2.67 | 0.66 | 3.33 | Low | 18.40 | High | 2.00 | High | 0 | 0.00 | Low |
| 18-1 | 4.93 | Medium | 2.53 | 0.08 | 2.60 | Low | 3.26 | Low | 1.36 | Low | 0 | 0.00 | Low |
| 18-2 | 6.50 | High | 6.38 | 0.38 | 6.75 | Medium | 7.73 | Medium | 2.19 | High | 0 | 0.00 | Low |
| 19-1 | 9.11 | Very High | 3.35 | 0.14 | 3.50 | Low | 22.54 | Very High | 1.00 | Low | 14 | 9.86 | High |
| 20-1 | 9.08 | Very High | 1.94 | 0.34 | 2.28 | Low | 9.65 | Medium | 1.14 | Low | 36 | 8.91 | Very High |
| 21-1 | 14.20 | Very High | 4.11 | 0.17 | 4.28 | Low | 9.38 | Medium | 1.79 | Medium | 0 | 0.00 | Low |
| 22-1 | 4.45 | Medium | 5.96 | 0.10 | 6.06 | Medium | 5.69 | Low | 1.85 | Medium | 1 | 0.14 | Low |
| 22-2 | 7.94 | Very High | 5.01 | 0.15 | 5.17 | Medium | 7.52 | Low | 1.74 | Medium | 0 | 0.00 | Low |
| 23-1 | 7.30 | Very High | 3.37 | 0.05 | 3.42 | Low | 7.24 | Low | 1.15 | Low | 0 | 0.00 | Low |
| 23-2 | 7.88 | Very High | 2.98 | 0.00 | 2.98 | Low | 6.34 | Low | 1.60 | Medium | 0 | 0.00 | Low |
| 24-1 | 4.16 | Medium | 1.34 | 0.03 | 1.37 | Low | 2.02 | Low | 1.16 | Low | 15 | 0.76 | High |
| 24-2 | 6.47 | High | 3.82 | 0.08 | 3.91 | Low | 6.12 | Low | 1.45 | Low | 0 | 0.00 | Low |
| 25-1 | 8.36 | Very High | 2.12 | 0.13 | 2.25 | Low | 6.53 | Low | 1.15 | Low | 50 | 9.33 | Very High |
| 25-2 | 6.62 | High | 3.27 | 0.09 | 3.36 | Low | 8.66 | Medium | 1.67 | Medium | 0 | 0.00 | Low |
| 25-3 | 6.84 | High | 4.20 | 0.33 | 4.52 | Medium | 7.94 | Medium | 2.28 | Very High | 45 | 7.29 | Very High |
| 26-1 | 7.39 | Very High | 3.10 | 0.02 | 3.13 | Low | 4.69 | Low | 1.35 | Low | 29 | 2.96 | Very High |
| 26-2 | 6.56 | High | 2.10 | 0.24 | 2.34 | Low | 6.09 | Low | 1.36 | Low | 64 | 9.51 | Very High |
| 26-3 | 7.96 | Very High | 3.20 | 0.11 | 3.31 | Low | 6.49 | Low | 1.21 | Low | 0 | 0.00 | Low |
| 27-1 | 15.55 | Very High | 4.65 | 0.35 | 5.00 | Medium | 4.40 | Low | 1.76 | Medium | 129 | 11.14 | Very High |
| 27-2 | 7.62 | Very High | 4.01 | 0.08 | 4.09 | Low | 1.59 | Low | 1.17 | Low | 28 | 0.89 | Very High |
| 28-1 | 6.38 | High | 2.52 | 0.03 | 2.55 | Low | 4.28 | Low | 1.94 | High | 30 | 2.92 | Very High |
| 28-2 | 8.51 | Very High | 4.38 | 0.25 | 4.63 | Medium | 8.83 | Medium | 2.29 | Very High | 0 | 0.00 | Low |
| 28-3 | 7.14 | Very High | 2.76 | 0.13 | 2.89 | Low | 4.38 | Low | 1.46 | Low | 0 | 0.00 | Low |
| 29-1 | 8.63 | Very High | 2.36 | 0.29 | 2.65 | Low | 2.09 | Low | 1.90 | Medium | 0 | 0.00 | Low |
| 30-1 | 3.92 | Low | 0.98 | 0.03 | 1.01 | Low | 4.11 | Low | 1.58 | Low | 0 | 0.00 | Low |
| 31-1 | 11.91 | Very High | 2.46 | 0.05 | 2.51 | Low | 8.50 | Medium | 1.58 | Low | 15 | 4.40 | High |

Source: Tindale Oliver

## Table C-2: Segment Evaluation Criteria: 2045 Vision Scenario

| Segment | Employment Density | | Population Density | | | | Land Uses (2015 Parcel Data) | | Broward MPO Equity Measure Tool (2016 ACS 5-year) | | Activity Centers (2015 Florida DOR) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2045 Employment Data | | 2045 Population Data | Hotel (2015 Parcels) | Total Score | | | | | | | | |
| | Employees/ Acre | Category | Dwelling Units / Acre | Hotel Rooms / Acre | Total Equivalent Dwelling Units / Acre | Category | Land Use Score | Category | Average Composite Score | Category | Total | Per Mile | Category |
| 1-1 | 30.13 | Very High | 12.99 | 1.56 | 14.55 | Very High | 34.82 | Very High | 1.71 | Medium | 2 | 1.79 | Low |
| 2-1 | 6.64 | High | 6.93 | 0.03 | 6.95 | Medium | 7.67 | Medium | 1.24 | Low | 0 | 0.00 | Low |
| 2-2 | 10.57 | Very High | 10.18 | 0.03 | 10.21 | Very High | 6.45 | Low | 1.59 | Medium | 0 | 0.00 | Low |
| 3-1 | 25.06 | Very High | 5.09 | 0.32 | 5.41 | Medium | 8.40 | High | 1.69 | Medium | 1 | 0.34 | Low |
| 3-2 | 12.61 | Very High | 8.89 | 0.11 | 9.00 | Very High | 13.90 | Low | 2.46 | Very High | 0 | 0.00 | Low |
| 4-1 | 36.35 | Very High | 14.90 | 0.23 | 15.13 | Very High | 0.84 | Medium | 1.84 | Medium | 126 | 23.55 | Very High |
| 5-1 | 24.63 | Very High | 11.51 | 0.23 | 11.74 | Very High | 9.35 | Medium | 1.75 | Medium | 138 | 20.41 | Very High |
| 6-1 | 12.20 | Very High | 10.60 | 0.26 | 10.86 | Very High | 7.69 | Low | 1.63 | Medium | 0 | 0.00 | Low |
| 6-2 | 18.92 | Very High | 8.07 | 0.33 | 8.40 | Very High | 7.35 | Medium | 1.48 | Low | 0 | 0.00 | Low |
| 7-1 | 19.05 | Very High | 7.15 | 0.43 | 7.57 | Medium | 7.78 | Medium | 1.74 | Medium | 6 | 1.32 | Medium |
| 8-1 | 12.36 | Very High | 9.53 | 0.04 | 9.58 | Very High | 9.47 | High | 1.18 | Low | 17 | 8.42 | High |
| 9-1 | 39.05 | Very High | 19.51 | 0.14 | 19.66 | Very High | 17.82 | High | 1.68 | Medium | 125 | 35.11 | Very High |
| 9-2 | 13.03 | Very High | 10.54 | 0.08 | 10.62 | Very High | 5.35 | Low | 1.72 | Medium | 5 | 0.61 | Medium |
| 10-1 | 16.16 | Very High | 11.04 | 0.15 | 11.19 | Very High | 14.33 | Low | 1.83 | Medium | 129 | 5.17 | Very High |
| 11-1 | 6.22 | High | 6.11 | 0.00 | 6.11 | Medium | 2.37 | Low | 1.46 | Low | 21 | 1.94 | Very High |
| 12-1 | 4.17 | Medium | 5.45 | 0.00 | 5.45 | Medium | 3.69 | Low | 1.00 | Low | 3 | 0.47 | Low |
| 12-2 | 8.97 | Very High | 6.43 | 0.18 | 6.61 | Medium | 8.45 | Low | 1.44 | Low | 23 | 3.32 | Very High |
| 13-1 | 9.88 | Very High | 8.25 | 0.11 | 8.37 | Very High | 7.42 | Low | 1.59 | Medium | 0 | 0.00 | Low |
| 14-1 | 11.65 | Very High | 10.74 | 0.00 | 10.74 | Very High | 1.01 | Low | 1.72 | Medium | 43 | 7.08 | Very High |
| 14-2 | 8.51 | Very High | 10.32 | 0.22 | 10.54 | Very High | 6.06 | Low | 1.53 | Low | 1 | 0.11 | Low |
| 15-1 | 8.72 | Very High | 6.07 | 0.20 | 6.26 | Medium | 4.73 | Low | 1.35 | Low | 2 | 0.19 | Low |
| 16-1 | 9.34 | Very High | 3.85 | 0.12 | 3.97 | Low | 6.10 | Low | 1.19 | Low | 3 | 0.23 | Low |
| 17-1 | 12.48 | Very High | 8.19 | 0.63 | 8.77 | Very High | 4.34 | Low | 1.68 | Medium | 0 | 0.00 | Low |
| 17-2 | 18.82 | Very High | 6.61 | 0.66 | 7.19 | Medium | 3.01 | High | 2.00 | High | 0 | 0.00 | Low |
| 18-1 | 7.23 | Very High | 6.43 | 0.08 | 6.51 | Medium | 6.73 | Low | 1.36 | Low | 0 | 0.00 | Low |
| 18-2 | 9.52 | Very High | 13.71 | 0.38 | 14.10 | Very High | 18.40 | Medium | 2.19 | High | 0 | 0.00 | Low |
| 19-1 | 13.35 | Very High | 6.84 | 0.14 | 6.98 | Medium | 3.26 | Very High | 1.00 | Low | 14 | 9.86 | High |
| 20-1 | 14.61 | Very High | 7.29 | 0.34 | 7.63 | Medium | 7.73 | Medium | 1.14 | Low | 36 | 8.91 | Very High |
| 21-1 | 20.82 | Very High | 9.38 | 0.17 | 9.55 | Very High | 22.54 | Medium | 1.79 | Medium | 0 | 0.00 | Low |
| 22-1 | 6.52 | High | 11.79 | 0.10 | 11.89 | Very High | 9.65 | Low | 1.85 | Medium | 1 | 0.14 | Low |
| 22-2 | 11.64 | Very High | 12.58 | 0.15 | 12.73 | Very High | 9.38 | Low | 1.74 | Medium | 0 | 0.00 | Low |
| 23-1 | 10.70 | Very High | 9.24 | 0.05 | 9.30 | Very High | 5.69 | Low | 1.15 | Low | 0 | 0.00 | Low |
| 23-2 | 11.55 | Very High | 8.94 | 0.00 | 8.94 | Very High | 7.52 | Low | 1.60 | Medium | 0 | 0.00 | Low |
| 24-1 | 6.10 | High | 4.63 | 0.03 | 4.67 | Medium | 6.34 | Low | 1.16 | Low | 15 | 0.76 | High |
| 24-2 | 9.48 | Very High | 8.75 | 0.08 | 8.83 | Very High | 7.24 | Low | 1.45 | Low | 0 | 0.00 | Low |
| 25-1 | 13.27 | Very High | 8.45 | 0.13 | 8.58 | Very High | 6.12 | Low | 1.15 | Low | 50 | 9.33 | Very High |
| 25-2 | 9.70 | Very High | 12.33 | 0.09 | 12.42 | Very High | 2.02 | Medium | 1.67 | Medium | 0 | 0.00 | Low |
| 25-3 | 10.03 | Very High | 14.53 | 0.33 | 14.86 | Very High | 6.53 | Medium | 2.28 | Very High | 45 | 7.29 | Very High |
| 26-1 | 10.84 | Very High | 8.87 | 0.02 | 8.89 | Very High | 8.66 | Low | 1.35 | Low | 29 | 2.96 | Very High |
| 26-2 | 9.13 | Very High | 10.01 | 0.24 | 10.43 | Very High | 7.94 | Low | 1.36 | Low | 64 | 9.51 | Very High |
| 26-3 | 11.67 | Very High | 9.90 | 0.11 | 10.01 | Very High | 6.49 | Low | 1.21 | Low | 0 | 0.00 | Low |
| 27-1 | 22.79 | Very High | 14.06 | 0.35 | 14.42 | Very High | 6.09 | Low | 1.76 | Medium | 129 | 11.14 | Very High |
| 27-2 | 11.17 | Very High | 9.58 | 0.08 | 9.67 | Very High | 4.69 | Low | 1.17 | Low | 28 | 0.89 | Very High |
| 28-1 | 9.35 | Very High | 8.12 | 0.03 | 8.15 | Very High | 1.59 | Low | 1.94 | High | 30 | 2.92 | Very High |
| 28-2 | 12.47 | Very High | 13.25 | 0.25 | 13.50 | Very High | 4.40 | Medium | 2.29 | Very High | 0 | 0.00 | Low |
| 28-3 | 10.46 | Very High | 8.89 | 0.13 | 9.03 | Very High | 4.38 | Low | 1.46 | Low | 0 | 0.00 | Low |
| 29-1 | 12.64 | Very High | 6.46 | 0.29 | 6.75 | Medium | 8.83 | Low | 1.90 | Medium | 0 | 0.00 | Low |
| 30-1 | 5.75 | High | 7.20 | 0.03 | 7.27 | Medium | 4.28 | Low | 1.58 | Low | 0 | 0.00 | Low |
| 31-1 | 17.46 | Very High | 10.82 | 0.05 | 10.87 | Very High | 2.09 | Medium | 1.58 | Low | 15 | 4.40 | High |

Source: Tindale Oliver

Broward MPO
Metropolitan Planning Organization

Move People & Goods | Create Jobs | Strengthen Communities

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