Miami-Dade Transportation Planning Organization

SMART PLAN CORRIDOR INVENTORY

BEACH CORRIDOR

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Prepared for

Miami-Dade Transportation Planning Organization

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1. Introduction

This report creates a corridor inventory that establishes a complete picture of the existing conditions along the Beach Corridor. The main objective is to collect available demographic and socioeconomic data and to prepare a preliminary inventory of the current land use within the corridor. Planning initiatives implemented across the United States were also reviewed and documented in order to identify guidelines, best practices, and tools that can be implemented in transit oriented developments in the Miami-Dade region.

1.1. Background

In order to address the mobility needs throughout Miami-Dade County, the Miami-Dade Transportation Planning Organization (TPO) Governing Board approved the Strategic Miami Area Rapid Transit (SMART) Plan on April 21, 2016. The SMART Plan intends to advance six of the People's Transportation Plan rapid transit corridors, along with a network system of Bus Express Rapid Transit (BERT) service, in order to implement mass transit projects in Miami-Dade County (Figure 1).

The SMART Plan represents a unified vision for Miami-Dade that will provide a strategic multimodal transportation system with integrated technology that supports both the economic and population growth in the region. The TPO Governing Board's top priority is the advancement of the SMART Plan.

Project Limit

The Beach corridor is located in the urban core of Miami Dade County in south Florida. The Beach corridor traverses the City of Miami and the City of Miami Beach. As shown in Figure 1, the study boundaries are as follows:

- Northern boundary – NW 41 Street, I-195/SR 112;
- Eastern boundary – the Atlantic Ocean from West 41 Street to South Pointe in Miami Beach;
- Southern boundary – SE/SW 13 Street;
- Western boundary – I-95.

On the City of Miami side, the corridor is approximately 3 miles in length and runs north south. The distance between the City of Miami and the City of Miami Beach is also about 3 miles. The main land and the island are connected by three bridges, the MacArthur Causeway, the Venetian Causeway, and I-195. The most northern bridge is I-195, about 1.5 miles south of this bridge is the Venetian Causeway Bridge. South of this bridge, is the MacArthur Causeway which is only 0.1 miles south of the Venetian Causeway Bridge on the main land and 1.5 miles south of the Causeway on the beach side. The portion of the corridor in the City of Miami Beach is approximately 2 miles in length.

As such the Beach corridor covers three distinct areas in Miami Dade (Figure 2). These are the Midtown City of Miami area, a bridge structure, and the Miami Beach area. The land mass in the total study area is approximately 5,500 acres. Approximately because the analysis of the data is based on the traffic analysis zone (TAZ) structure of the Southeast Regional Planning Model version 7 (SERPM-V7), which does not correspond exactly with the half mile buffer. Figure 3 shows the TAZ boundaries and the half mile buffer of the study area.

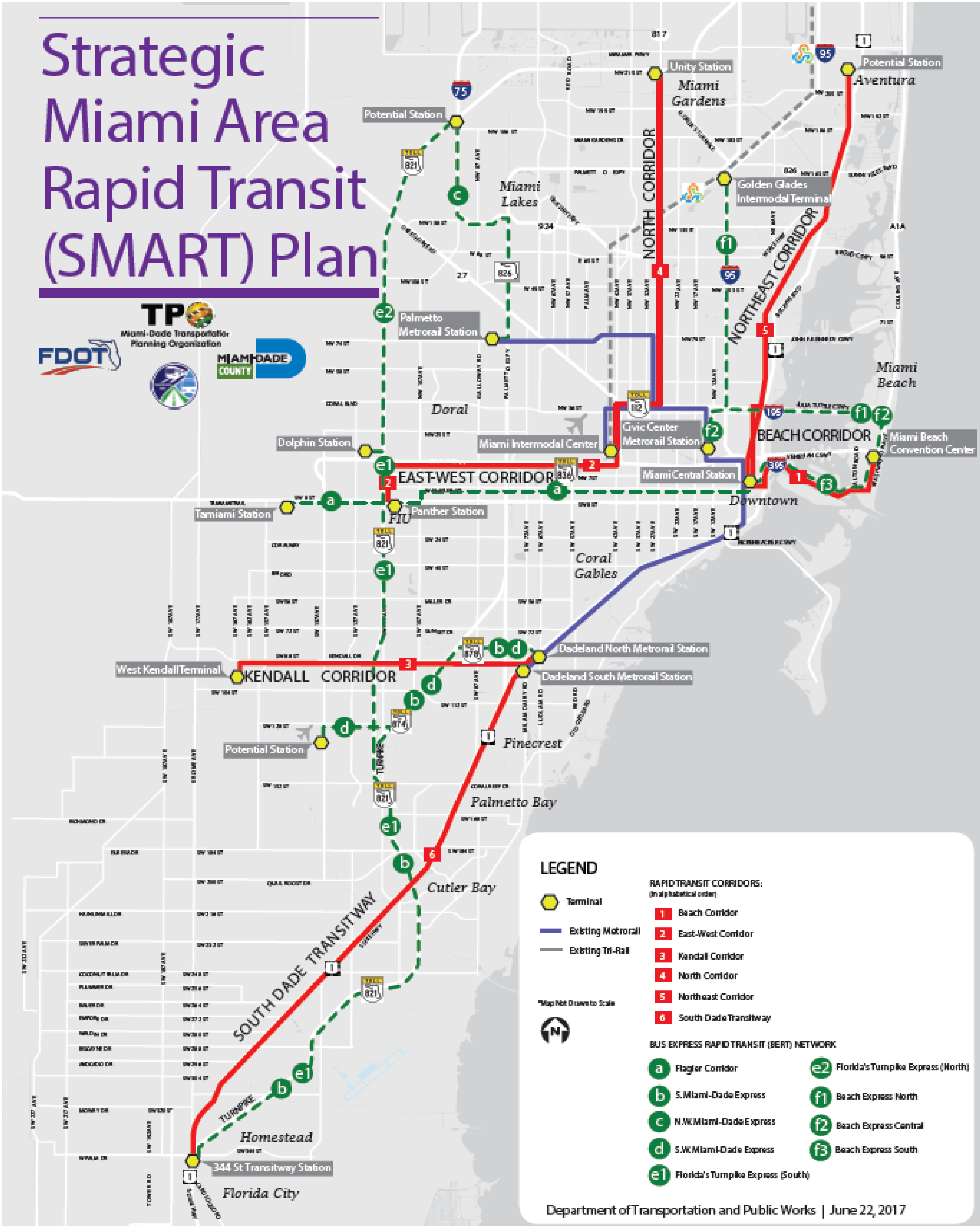

Figure 1 - SMART Plan Map

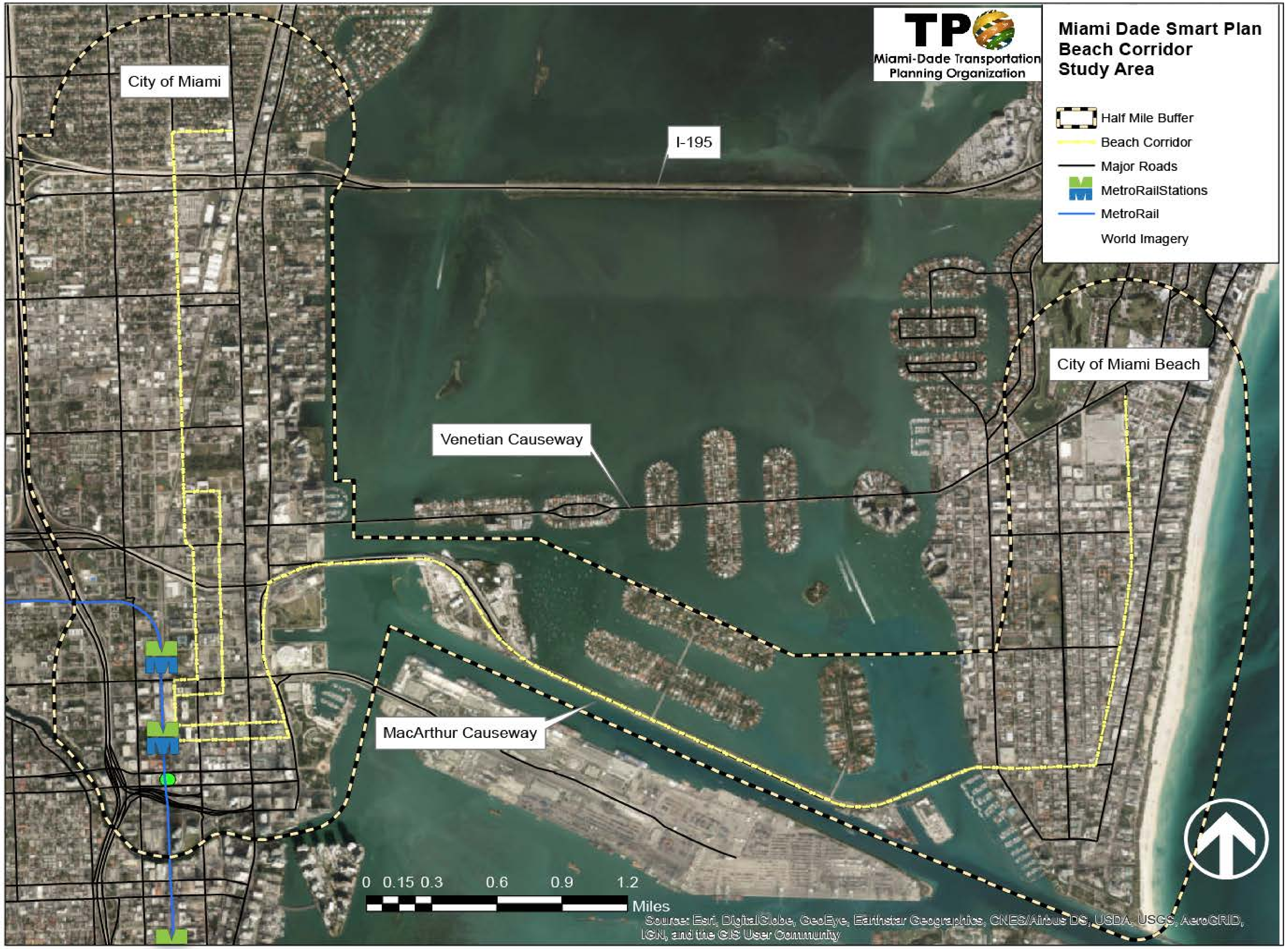

Figure 2 - Study Area Beach Corridor and Half Mile Buffer

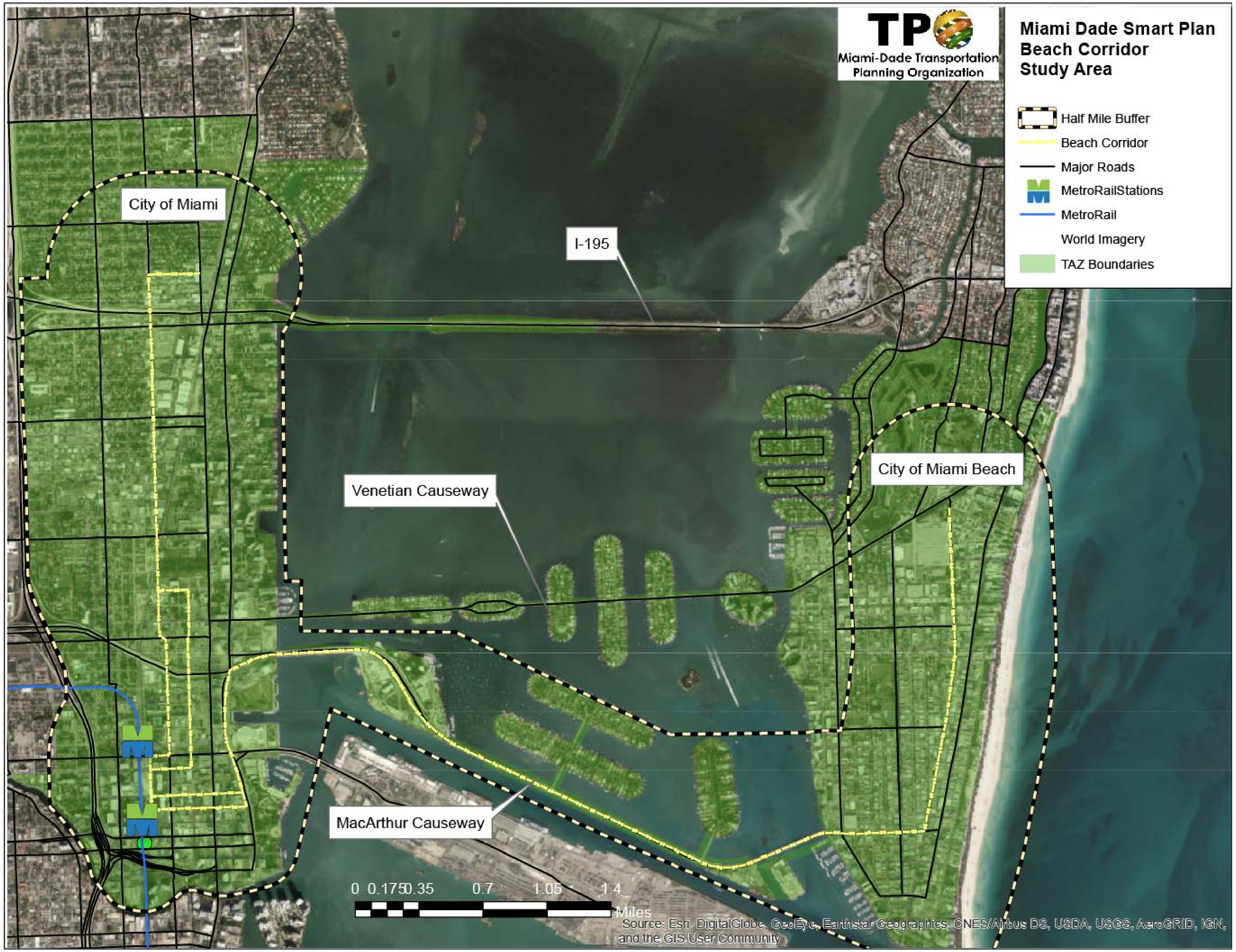

Figure 3 - TAZ Boundaries of Study Area

2. Literature Review

Following is a listing of transit supportive strategies that were identified through regional and nationwide review of planning initiatives that focus on the transportation/land use connections and the implementation measures taken. The purpose of listing this information is to provide insight into lessons learned and to expose best practices with the intent to apply them to the SMART corridor study. In all cases the sources are listed. Some parts are summarized, while the majority of the information was copied from the source.

2.1. Land Use Impacts of Bus Rapid Transit (BRT):

Effects of BRT Station Proximity on Property Values along the Pittsburgh Martin Luther King, Jr. East Busway[1]; which is a two-lane bus-only highway serving the city of Pittsburgh and many of its eastern neighborhoods and suburbs.

This research has identified the need to have a better understanding of the relationship between land uses and BRT systems. While recognizing that existing land uses have an important and complex influence on the development costs and benefits of fixed-guideway projects, this research is focused on the impacts that BRT projects have on surrounding property values.

Methodology

The methodology applied for this effort is a hedonic price regression model. This type of analysis estimates a price, in this case a housing value, based on a number of variables believed to influence that price. This report presents the results of a cross-section analysis to isolate the marginal effect of distance to a BRT station on property values at one point in time.

Hypothesis

It is assumed that accessibility benefits accrue for properties with proximity to a transit station. These benefits, in turn, are hypothesized to capitalize into land values. Therefore, this research aims to show that, as the distance to a transit station decreases, the accessibility benefits accrued by homeowners will be greater, resulting in a higher property value.

The Model

As in much of the previous research reviewed, in this effort a hedonic price model was used to estimate the mean effect of distance to the nearest transit station on property value. Using such a model allows the researchers to control for the other variables that affect property values and thereby allows for the isolation of the effect of distance.

[1] https://www.nbrti.org/docs/pdf/Property%20Value%20Impacts%20of%20BRT_NBRTI.pdf

Property value was regressed on vectors of variables controlling for distance, property characteristics, locational amenities, and neighborhood characteristics. The conceptual hedonic model is: *P = f (**D, H, L, N**).*

Where the dependent variable, *P*, is the appraised property value in dollars, which is a function of four vectors of independent variables. The four vectors are ***D***, a vector of variables that measures the distance of parcels to transit stations; ***H***, a vector of variables that describes housing characteristics; ***L***, a vector of variables that describes locational amenities; and ***N***, a vector of variables that describes neighborhood characteristics. Each of the variables included in these categories is discussed further below.

Economic theory does not indicate an appropriate functional form for the model. This being the case, a levels model (the number and size of levels would vary by area for they are depending on the specific property values in the area and the ease of access to the transit station) is estimated to determine the mean effect on appraised values of a residence being one additional foot closer to a BRT station. A levels model will measure the dependent variable, price, in unit dollars, and the coefficients on the independent variables (representing slopes) will measure the change in price in dollars in response to a one unit change in the given independent variable.

Results

This research found that value of a property increases as the distance from the property to a transit station decreases. For example, moving from 101 to 100 feet away from a station, property value increases approximately $19.00, while moving from 1,001 to 1,000 feet away from a station increases property value approximately $2.75. This result is somewhat large in comparison with the findings of previous literature assessing the impact of proximity to light-rail transit. There may be some factors introducing upward bias in this key result which could be identified and accounted for in a subsequent effort. Future research should explore a refined methodology and include applications to other U.S. cities with BRT.

2.2. METRO Green Line Transit Signal Priority

Implementation and Lessons Learned[2]

Background

The METRO Green Line (formerly Central Corridor LRT) is the second light rail line in Minneapolis. It links five major centers of activity in the Twin Cities region: downtown Minneapolis, the University of Minnesota, the Midway area, the State Capitol complex and downtown St. Paul. The Green Line runs for much of its length through the Central Corridor, a highly developed urban environment which imposes greater planning and operational challenges.

[2] [2]https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/TRB-APTA_Green-Line-Signal-Priority_rev02.pdf

Green Line trains pass through 68 traffic signals along the length of the alignment, with typical signal spacing of 300 feet in the downtown areas and one-quarter mile along University Avenue. The busy commercial corridor has high volumes of pedestrian traffic, and intersects with major arterial streets.

When the Green Line opened in June 2014, the line's scheduled end-to-end run time of 48 minutes was based on a goal of no more than eight minutes of total signal delay, which equates to an average of less than eight seconds of delay per signal. In order to achieve this goal the Green Line had to rely primarily on transit signal priority (TSP) which also provides opportunities for schedule recovery after minor disruptions. The search for an effective TSP solution focused on the busiest corridor with the most closely spaced traffic signals. The approach was known as "Predictive Priority" and it had three main objectives:

- Maximize the opportunity for LRT to receive a green signal, based on the predicted arrival of the train at an intersection;
- Minimize disruption of signal sequence and traffic operations, especially skipping of phases;
- Avoid causing significant additional delay to road vehicle or pedestrian signal phases.

Predictive Priority is based on the detection of a train at an upstream intersection, typically 25 to 60 seconds prior to arrival at the next signalized intersection. The advanced detection is received by the signal controller via the fiber optic communication network and is used to transition the signal timing – ending phases early or extending phases as needed - so that the signal will be "green" for the LRT phase at the expected time of its arrival. During the transition, the controller utilizes logic within the controller, which was developed specifically for the Green Line, to continue to serve other vehicle and pedestrian phases until the train's expected arrival at the intersection.

Lessons Learned

- Predictive Priority is a data-driven approach to transit signal priority that relies on a robust detection system for both light rail vehicles and on-street traffic.
- Collect reliable vehicle, pedestrian and LRT data to optimize signal phases and minimize disruption.
- The approach requires strong integration with traffic signal controllers, and Metro Transit's experience shows the benefits of involving signal controller vendors early in the process in order to maximize the capabilities of the controller software.
- It is critical to identify operational priorities and understand trade-offs between competing priorities when seeking to modify the signal operations strategies to accommodate a new mode.

2.3. Lesson Learned from Penta-P and RTD FastTrack's

Following is an outline of Denver's Regional Transportation District (RTD) FasTracks Plan's implementation and the lessons they learned during the implementation[3]. The FasTracks plan included the following projects:

- 122 miles of new light rail and commuter rail
- 18 miles of Bus Rapid Transit (BRT)
- 31 new park-n-ride lots with over 21,000 new spaces
- Enhanced Bus Network & Transit Hubs (FastConnects)
- Redevelopment of Denver Union Station

Challenges

- Achieving political consensus
  - Largely in place as part of ballot initiative
  - Continuing strong support
- Schedule adherence
  - Many projects coming on line simultaneously
  - Integrated network requires close coordination
- Meeting budget
  - National pressures on commodity prices
  - "Normal" scope creep needs careful attention
- Resource availability
  - Labor –professional and unskilled
  - Materials

How P3s address the challenges

- Schedule adherence
  - PPPs are proven to deliver projects quickly
  - Single point of responsibility assures integration
- Meeting budget
  - Speed of delivery reduces overall costs
  - Performance specifications reduce likelihood of scope creep
- Resource availability
  - International interest in large projects increases resource pool for labor
  - Large consortia have greater "pull" to obtain materials

[3] https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/middleton_atl090326.pdf

The source lists the risk management steps that were undertaking for three different projects that are discussed in the presentation. These risk management steps were outlined by different phases. The identified phases were Development, Procurement, Implementation, and Operations. This information is not summarized since the SMART Plan Corridors are still in the planning phase. However, the source provides some good guidelines to consider as the SMART Plan Corridors move forward.

Following is a list of the lessons learned:

- Develop a plan and stick to it
    - Define scope of work
    - Define approach –acquisition plan
    - Define schedule
- Be prepared but flexible!
    - Development and procurement process takes time, things will change.
    - Make sure key objectives are not compromised without full disclosure, agreement and understanding.
- Risk transfer comes at a cost
    - Allocating the risks to the right party is good for all
    - If a risk cannot be managed the agency should be responsible
    - Share when appropriate
- Third PPP is critical
    - Think of the project as a long term relationship
    - Success comes from working together
- Streamlining of approvals
- Combining stages (Final Design/Full Funding Grant Agreement) accelerates development phase and saves money
- Discounting private at-risk equity protects public interest while facilitating more projects

2.4. Living Streets Denver

Denver's Living Streets Initiative was born in 2007 as part of a citywide strategy to connect land use and transportation decisions. This multi-sector partnership seeks to explore and discuss new opportunities for building a multimodal street network; determine which opportunities were relevant and appropriate for Denver; evaluate the benefits and trade-offs associated with the opportunities; and, finally, to understand the best path towards implementation. Each Living Street projects results in valuable lessons that include:[4]

- Partnerships with the private sector are key, especially for the maintenance of new street improvements.
- Public art that is integrated into the streetscape is a unique and effective way to create an attractive, vibrant street.
- Green infrastructure practices, such as street plantings that treat storm water runoff, can be explored as part of a project.
- Creative solutions such as a flex lane, which serves both parking and travel functions depending on the location, can help to create multimodal balance on a street constrained by existing right-of-way width.
- Streetscaping and multimodal improvements to a street are an effective way to promote marketing and economic development for a business corridor.

2.5. Bus Rapid Transit, Volume 1: Case Studies in Bus Rapid Transit

As BRT systems become more popular in the United States, several efforts have been made to identify areas of best practices and guidelines to design and implement BRTs. Case Studies in Bus Rapid Transit (Volume 1) provides information on the potential range of BRT applications, planning and implementation background, system description, and lessons learned. The study gathered data from 26 BRT systems in urban areas around the world that include North America, Australia, Europe, and South America. Valuable lessons learned and key concepts learned from this 26 case studies are summarized below.

Lessons Learned

Although each urban area has unique characteristics and challenges, this study has found several key aspects and lessons that can be apply to rapid transit planning and development in general. The main areas of focus are:

- Planning and Implementation Process
- System Concepts and Packaging,
- Running Ways
- Stations
- Vehicles
- Fare Collection

[4] https://www.denvergov.org/content/denvergov/en/community-planning-and-development/planning-and-design/completed-plans/living-streets-initiative.html

- ITS Applications
- Service Plan and Operations,
- Traffic-Transit Integration
- Performance

Planning and Implementation Process

The planning of BRT systems should be a joint effort among all key players from the private and public sector. Community involvement plays an important role in the planning of BRT, open and continues community involvement is necessary to address all issues and concerns.

Community and Agency Support

Public outreach and continuous communication is an essential step in the planning process of BRT systems. All prospective actors should be involved in the planning process. Planning for BRT should be approached from the perspectives of the communities and agencies involved. The costs and benefits of BRT, along with other alternatives, should be clearly described.

Agency Coordination

State, regional, and local cooperation is important in developing and implementing BRT projects. Traffic engineers, and urban planners must work together to address the many issues related to BRT systems. Political commitment and appropriate institutional arrangements are essential. Fragmented responsibilities among multiple agencies should be avoided.

Incremental Development

BRT lends itself to incremental development. In many cases, it may be useful to identify a BRT segment for immediate, early implementation (Less than 2 years including environmental study). Early action is essential to retain community support and continuity of public agency staff. This will demonstrate BRT's potential benefits as soon as possible to riders, decision makers, and the public at relatively little cost while still enabling system expansion and possible future upgrading (e.g., to more technologically advanced vehicles). Examples of staging opportunities include the following:

- The initial segment, for example, could include curb bus lanes that may be upgraded to busways in the future. A BRT line can also serve as a means of establishing the transit market for a possible future rail line.
- BRT service along a busway does not preclude ultimate conversions to rail transit when and if such a conversion is warranted by ridership or other considerations.

- Ottawa's approach of providing broader coverage through "outside-in" priorities has proven more cost-effective in attracting riders and influencing travel choices than has the traditional concentration on shorter, more costly, inner-city sections.

Parking Policy

BRT system performance can be influenced by parking supply and demand. Parking policies are important to BRT and all rapid-transit modes in two important respects:

- Enough parking should be available to accommodate commuters around transit stations. Parking supply can expand the catchment area and reduce the need for extensive feeder bus service in low-density residential areas.
- Park-and-ride facilities along proposed transit developments provide a parking option for commuters. The proper level of parking supply along BRT lines or systems is an area that requires further analysis. Parking for those who choose to drive to work should be limited where major BRT developments are planned.

Land Use Coordination and Economic Development Effects

The successful implementation of BRT relies significantly on the land use regulations around transit stations. BRT and land use planning should be integrated as early as possible and done concurrently to maximize the potential and benefits of the transit systems. A "transit overlay" zoning district may be an appropriate strategy for encouraging transit-oriented development. Density bonuses may also promote mixed residential and commercial developments near transit stations. Close working relationships with major developments may be necessary to address issues of building orientation, connections to stations, and setbacks. BRT can achieve land use and economic development benefits similar to those produced by rail transit. Encourage transit supportive actions along BRT corridors.

BRT Markets

The case studies indicate that BRT systems are mainly utilized in larger urban areas as an alternative or complement to rail transit. Some characteristics and guidelines of BRT markets include:

- Urban areas with more than a million residents and CBD employment of at least 75,000.
- It is beneficial to penetrate major catchment areas rather than to skirt them. It is essential to match rights-of-way with transit markets.
- The presence of an exclusive right-of-way is not necessarily sufficient to ensure the effectiveness of BRT services, especially when the right-of-way is removed from major markets, or the stations are inaccessible to transferring passengers or pedestrians.

System Concepts and Packaging

BRT should include as many attributes of any high-quality, high-performance rapid-transit systems that include:

- Segregated and prioritized rights-of-way
- Attractive stations with passenger amenities
- Off-vehicle fare collection
- Attractive, multi-door vehicles

To optimize the potential benefits of BRT, there should be a focus on service, station and vehicle amenities, system integration, and development of a coherent image. The image or identity of the BRT system should be emphasized in the design of all BRT system physical elements including stations, vehicles, running ways, and graphics.

Running Ways

HOV facilities can also be effective in certain markets. Bus lanes have been used to reduce traffic delays in congested. The use of separate rights-of-way can enhance speed, reliability, safety, and identity, as seen in Ottawa, Brisbane, and Pittsburgh. Mechanical, electronic, and optical guidance systems are used in several cities (e.g., Adelaide and Rouen) to reduce rights-of-way or to improve bus operations.

Busways

Rights-of-way for busways should be purchased or reserved as early as possible. Alignments that may pose barriers to implementation should be avoided. Railroad and freeway rights-of-way offer opportunities for relatively easy land acquisition, minimum property impacts, and low development costs. Busways can be provided as integral parts of new town development or as an access framework for areas that are under development. Where BRT commuter express service operates on an HOV facility, it should have its own direct access and egress ramps to and from stations. Such services should also feature intermodal terminals Requiring BRT vehicles to weave across multiple lanes of general traffic to get to median HOV lanes should be avoided.

Arterial Street Bus Lanes and Median Busways

The placement and design of bus lanes and median busways on streets and roads should take into account the diverse needs of buses, motorists, delivery vehicles, pedestrians, and turning and cross traffic.

Curb bus lanes have the advantages of good pedestrian access, curbside passenger boarding and alighting, and the ability to be installed on most roadways. Curb lanes are widely used to expedite bus flow and to feed or distribute busway vehicles. The New York City case study indicates that extensive systems of curb bus lanes can be implemented in densely developed central areas to expedite bus flow. The positive aspects of BRT facilities in arterial street medians are identity, the avoidance of interference with access to adjacent land uses, and minimum side impedance. The negative aspects are interference with left turns and potential pedestrian access problems. Facility design must allow safe pedestrian access to and from bus stops and suitable accommodations for left turns. Traffic signal phases for left turns should minimize the likelihood of same-direction bus-car accidents, which is a common occurrence with several LRT lines. Where there are nearby parallel one-way streets, left turns could be prohibited along busways and indirect routings could be provided.

Speeds

Limited-stop BRT operations on city streets can achieve overall speeds between 15 and 20 miles per hour. BRT operations on busways can achieve speeds of 30 miles per hour with stops and up to 55 miles per hour nonstop, with overall route revenue speeds of 25 to 35 miles per hour. Therefore, to provide speeds that are competitive with driving an automobile, a BRT should operate off-street on busways, with wide spacing between stations wherever possible.

Stations

Stations are a key element in providing adequate capacity along a BRT line. They are also a critical element in achieving bus system identity and image. Station design should provide sufficient capacity for the likely peak-hour bus flows. Generally, several loading positions are provided. Stations along busways often provide passing lanes to enable express buses to pass stopped vehicles. Sometimes fences are used to preclude random crossings by pedestrians. Safe pedestrian and automobile access to stations, as well as to feeder bus services, are critical in achieving ridership objectives. Major BRT stations should have as many amenities as possible, including those normally found at heavy rail and commuter rail stations. Station capacity is enhanced when fares are collected off board and multiple-stream boarding is provided through multiple doors.

Vehicles

Greater attention needs to be given to vehicle design and identity. Key considerations to vehicle design are sufficient capacity, ease of passenger entry and exit, improved comfort, adequate circulation space, and reduced noise and emissions.

Fare Collection

On-board fare collection may be desirable to minimize operating costs in many environments, especially at low-volume stations or during certain times of the day. Off-vehicle fare collection is desirable at major boarding points, especially during peak periods, to reduce passenger service times, station dwell times, and bus travel times. ITS and smart card technology applied at multiple doors may be the key to allowing simultaneous on-board fare payment and multiple door boarding without increasing revenue shrinkage. Onboard magnetic card readers for fare payment may actually increase dwell times more than requiring exact change or token payment.

ITS Applications

ITS applications can be used to convey passenger information in a variety of venues, to monitor or control bus operations, to provide priority at signalized intersections, to enhance safety and security on board vehicles and at stations, and even to provide guidance for BRT vehicles.

Service Plan and Operations

The service plan should be designed for the specific needs of the BRT environment and may include a variety of services. Provide point-to-point one-seat rides. BRT should minimize transfers to attract choice riders. Where transfers are necessary, they should take place in station facilities that are attractive, that offer amenities, and that are designed to minimize walking distances and level changes. Service frequencies should be tailored to market demands. When frequent and reliable transit services are desired, maximum headways of 10 minutes in peak periods and 15 minutes in non-peak periods will minimize the need for set passenger schedules on BRT all-stop service routes. Where two services operate on the same BRT line (e.g., limited-stop BRT and local bus operations, or BRT express and all stop), it is preferable to have minimum combined frequencies of about 5 minutes in the peak period and 7.5 minutes in the base period to minimize the need for set passenger schedules. The maximum number of buses operating during peak hours should be governed by (1) meeting ridership demands, (2) minimizing bus congestion, (3) operating costs, and (4) operational constraints.

Traffic-Transit Integration

Close working arrangements between traffic engineers and transit planners are essential in developing busway and bus-lane designs, locations of bus stops and turning lanes, and application of traffic controls. Excessively long traffic signal cycle lengths to accommodate exclusive bus phases should be avoided. A modest “advance” or “extension” of the traffic signal green time (or a delay of the red signal time) of up to 10 seconds per cycle can reduce bus delays with negligible impacts on cross street traffic Bus headways should not be less than 2.5 to 3.0 minutes to enable major cross streets to “recover” from the time lost. Far-side stops are essential.

Performance

The case studies indicate that BRT can provide sufficient capacities for most corridors in most North American cities. Revenue speeds of 25 to 35 miles per hour can be obtained on grade-separated busways. Wide Spacing between stops can increase BRT operating speeds. Traffic signal priorities can increase travel speeds. A fixed-transit facility with frequent service can increase ridership. Regardless of travel time advantage, the presence or identity of the service can enhance ridership.

Conclusion

The case studies show that when implemented correctly BRT systems can provide sufficient capacity to the peak-hour travel demands for most corridors in the United States. Key components of a successful BRT system include:

- Reliable and rapid service can be achieved when a large segment of the service can be provided on separate right-of-way.
- Any major BRT investment should be reinforced by transit supportive land-development and parking policies.
- BRT should be an integral part of land use, transportation, economic development, and master-planning efforts.
- BRT should be safe for all transit riders.

3. Existing Conditions Assessment and Analysis

This section of the report has four areas of focus. The first section lists the studies that have been conducted on the Beach corridor since 1988. Section 3.2 discusses the characteristics of the corridor such as socio-economic data, land use, vehicular traffic and transit ridership. All these characteristics are summarized to provide an insight into the travel behavior and potential travel options for the corridor. Section 3.3 includes a needs analysis of the corridor, while section 3.4 discusses the Transit-Oriented Development guidelines that currently exist in both municipalities.

3.1. Completed Studies

The following major studies of an improved high capacity transit connection between Miami and Miami Beach have been conducted over the last 27 years. Summaries of these studies are provided in chronological order.

1988 – Miami Beach Light Rail Feasibility Study by the City of Miami Beach

In 1988, the *Miami Beach Light Rail Transit (LRT) System Feasibility Study* was conducted to determine the feasibility of constructing an LRT line to connect downtown Miami to Miami Beach via the MacArthur Causeway. The proposed line was an 8.6-mile link from the Bayside/Omni area to the Miami Beach Convention Center and then northward to W 63 Street. One of the goals of the project was to support the revitalization efforts of the City of Miami Beach in the South Beach area. As a result of the study, state law was amended to allow the expenditure of the Tourist Development Tax for construction of an LRT system. Opposition from residents north of the Miami Beach Convention Center effectively stopped the progress of the project.

1993 – Transit Corridors Transitional Analysis by the Miami-Dade County Metropolitan Planning Organization

In the Year 2010 *Miami-Dade Long Range Transportation Plan*, six major corridors were identified as “Priority Transit Corridors” within Miami-Dade County. These six corridors included: North Corridor; East-West and Beach Corridors (combined and evaluated in the Major Investment Study/Final Environmental Impact Statement (MIS/FEIS) for the East-West SR 836 Multimodal Corridor Study); Northeast Corridor; Kendall Corridor; and the South Corridor (operated in conjunction with Stage 1 Metrorail, and built by FDOT as the South Dade Busway). A preliminary evaluation of costs, impacts and ridership was conducted for each corridor and the results were presented in the *Transit Corridors Transitional Analysis* completed by the Miami-Dade County MPO in 1993. The studies performed under the *Transit Corridors Transitional Analysis* served to satisfy a portion of Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) requirements for System Planning, which is the first step in the federal capital investment project development process. These planning studies provided the technical basis for the selection of corridors for additional analysis. The East-West and the Beach corridors were identified as a higher priority than other corridors at the time and were to be examined jointly as a single corridor.

1995 – East-West Multimodal Corridor (DEIS) Study by FDOT, District VI

The East-West Multimodal Corridor Draft Environmental Impact Statement (DEIS) Study addressed possible solutions to extreme congestion along SR 836/Dolphin Expressway, which is considered to be the most traveled east-west roadway in Miami-Dade County. Potential solutions included a Metrorail line that would extend from Florida International University (FIU) in the west to Port Miami in the east. A separate LRT system was proposed from downtown Miami to Miami Beach. The LRT portion of the project extended from Flagler Street, along Biscayne Boulevard in downtown Miami, across the MacArthur Causeway to south Miami Beach, and then north along Washington Avenue to the Miami Beach Convention Center. The segment along the MacArthur Causeway was to be built on the south side of the roadway entirely on a special structure constructed on fill.

2002 – Miami-Miami Beach Transportation Corridor (Bay Link) Study by the Miami-Dade County Metropolitan Planning Organization

The *Miami-Miami Beach Transportation Corridor Study*, commonly referred to as the *Bay Link Study*, analyzed project modifications and impact changes from what was previously studied in the East-West Multimodal Corridor Study Draft Environmental Impact Study (DEIS). Unlike the East-West study, which covered a broader geographic area, the Bay Link DEIS study area included downtown Miami, the MacArthur Causeway, and South Beach. This is because the Miami-Miami Beach segment was not part of the LPA adopted for the East-West Multimodal Corridor Study. Extensive coordination was done with the City of Miami Streetcar Study being conducted at the same time, whereby alignments and stations were shared wherever possible. The adopted LRT/modern streetcar system was endorsed by the cities of Miami and Miami Beach.

2004 – Phase 2 Miami-Miami Beach Transportation Corridor (Bay Link) Study by the Miami Dade County Metropolitan Planning Organization

In April of 2004, the MPO Board approved the conduct of a second phase of the *Bay Link Study* that consisted of refining the LPA description and preparing the Preliminary Engineering (PE) and Final Environmental Impact Statement (FEIS). The Refined LPA consisted of a two-way loop within downtown Miami, partly following separate streets, a two-track connector line across the MacArthur Causeway on the south side, and a counter-clockwise one-way loop within South Beach. In addition, a clockwise one-way loop called the Beach Circulator was also part of the Refined LPA, providing additional circulation on the Beach. It is this Refined LPA that was revisited in this current study.

The LPA approved by the Miami-Dade MPO Board in April 2004 was based on a refinement of the LPA that started with station area planning through a series of “Form and Fit” meetings in Miami and Miami Beach. In total, 44 station area planning meetings were conducted to obtain input from project stakeholders and the public; over 25,000 public information newsletters were distributed; project video was prepared; and the website was regularly updated. Modifications to the LPA resulted in the Refined LPA.

2004 City of Miami Streetcar Study by City of Miami

The intent of the Miami Streetcar Feasibility Study was to assess the feasibility of a streetcar operation between downtown Miami and NE 79 Street on four north-south corridors. The 6-month feasibility study covered alignment options, station location/planning, economic development opportunities, traffic, parking, capital and operating costs, ridership, connectivity to transit, and other important elements.

Potential Benefits: In addition to complementing the urban scale and amenities of commercial and residential streets, streetcars have been shown to be a very efficient transit circulator, at one-third or less the cost of a LRT (Light Rail Transit) system, that do not require dedicated right-of-way. That is, they operate in mixed traffic with little or no impact to traffic flow or on-street parking. Like Light Rail, streetcars are relatively quiet, extremely reliable, and have low maintenance costs compared to buses.

As demonstrated in Tampa, Portland, Oregon and Tacoma, Washington -- cities that recently re-introduced streetcars -- residents and the business community have been some of the strongest advocates for streetcars. In those cities, streetcars have been signified as the catalyst for redevelopment. Portland's streetcar, which was built in an abandoned rail yard purchased by the City, has accompanied more than $1.4 billion in private investment since 2001, with market values exceeding $300/square foot.

Location: Evaluation of the following four north-south corridors between downtown Miami and NE 79 Street: Biscayne Boulevard, NE 2 Avenue, NE 1 Avenue, N Miami Avenue.

Project Scope: To evaluate physical and financial feasibility of a streetcar service, including: alignment, station locations, connectivity to other transit services economic development opportunities, costs and financing, ridership, impact to traffic and parking, environmental analysis, and implementation requirements

2015 Beach Corridor Transit Connection Study by the Miami-Dade County Metropolitan Planning Organization

In this particular study the locally preferred alignment was refined as were the station locations. A technology assessment was conducted which include capital and operation and maintenance costs. Funding analyses and environmental screening was conducted. Over 30 alignment options were screened. Several extensions were identified.

The Policy Executive Committee, formed for the study, recommended the following:

- Concentrate on an affordable, most direct first phase
- Use the MacArthur Causeway; most direct route between Government Center and Miami Beach Convention Center
- Consider "hybrid" circulator option in Miami Beach on Alton Road in next phase
- Light rail system shall operate in exclusive right-of-way

2017 Beach Corridor Rapid Transit Project Re-initiation by Miami Dade County Department of Public Works

The Beach Corridor is one of the six rapid transit corridors in the SMART Plan, and the corridor will connect the Miami Design District with the Miami Beach Convention Center via the MacArthur Causeway. The Beach Corridor Rapid Transit Project will examine several rapid transit systems to connect centers of population, tourism and economic growth in Miami-Dade County. Various modes, technologies and alignments will be evaluated, which may result in one or multiple rapid transit options that may be implemented along the corridor.

3.2. Corridor Profile

In this section, the corridor will be summarized based on an analysis of existing land use and zoning, the socioeconomic data and in particular the characteristics of the persons and households living within a half mile buffer. The employment and school enrollment data and the characteristic of the transportation network will be summarized as well.

3.2.1. Existing Land Use

There are many land uses in the study area. Within the half mile buffer, residential land use is the dominant land use covering 34% of the study area. The residential land use categories are characterized as follows:

- Single-family, medium-density, residential developments 8.3%
- Multi-family and single-family, low-density 10.3%
- Single-family, high-density 2.8%
- Townhouses 0.5 %
- Two family (Duplexes) 2.6%
- Multi-family, high-density 8.1%
- Residential SF-government subsidized 0.4%
- Residential MF-government subsidized 0.7%

Only a 1.2% of the total land is dedicated to mixed-use, high-density, developments with office/retail space on the lower floors. These mixed-use, high-density developments are predominately found scattered adjacent to Washington Avenue and Collins Avenue in Miami Beach, and along Biscayne Boulevard in the City of Miami.

Within the study area of Miami Beach residential low and high density multi-family land uses are predominantly found west of Washington Avenue, and in the South Pointe area. Commercial developments are found along the Lincoln Road Shopping Mall area, and adjacent to Washington Avenue on the eastern side of the road. Hotels are mostly found east of Washington Avenue.

Single family residential land use is mainly found in Hibiscus Island, Palm Tree Island, Star Island and north of Dadeland Boulevard in Miami Beach. In the City of Miami single family land use is found on the northern section of the study area just north of I-195, and west of N Miami Boulevard between NW 36 Street and NW 29 Street.

The City of Miami segment is heavily characterized by the institutional land use which represents 13% of land in the City of Miami, and 7.5% in the study area. Commercial land use represents 16.3% of land in the city of Miami and it is mostly found south of I-395, and 12.4 % in the study area. The middle section is characterized by low and high density residential land uses on the eastern side of the segment from the bay to Biscayne Boulevard, between I-195 and I-395; Office and commercial land uses between Biscayne Boulevard and N Miami avenue, south of I-195 and north of I-395. Industrial activity is mainly found in the middle segment of the City of Miami, west of N Miami Boulevard.

Privately owned vacant land can be found scattered within a half mile of the corridor mostly on the City of Miami segment and represent 9.5% of land in the study area. Privately and government owned vacant land parcels vary in size and account for 324 acres or 10.8 % of land within the study area. The largest privately owned vacant parcel is 21.7 acres, and it is located in the western part of the corridor south of I-395 between N Miami Ave and NE 2 Ave.

Figure 4 geographically portrays the land use distribution within a half mile buffer of the Beach Corridor. While Figure 5 show the percentages of the distribution.

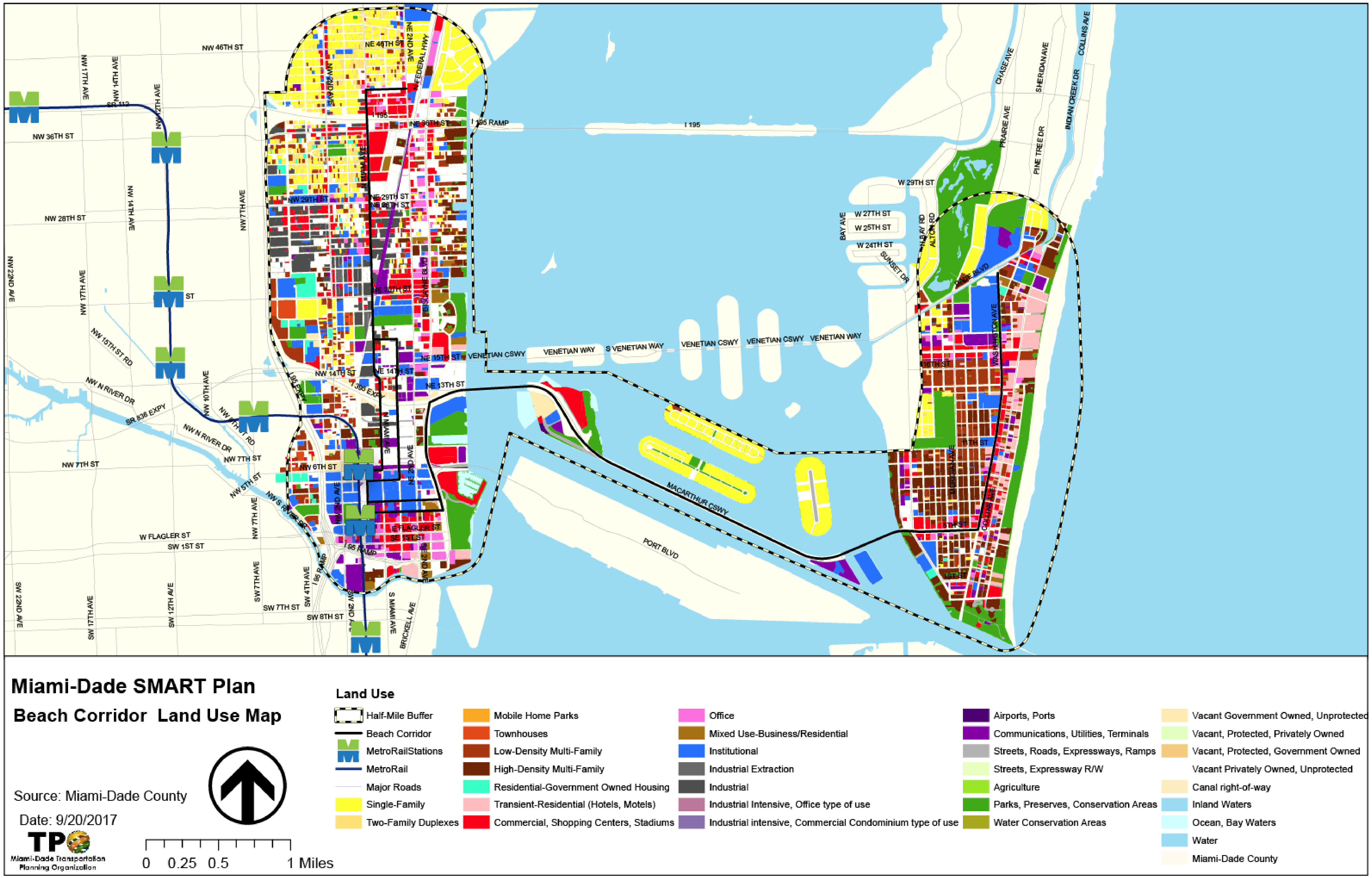

Figure 4 - Beach Corridor Existing Land Use Map

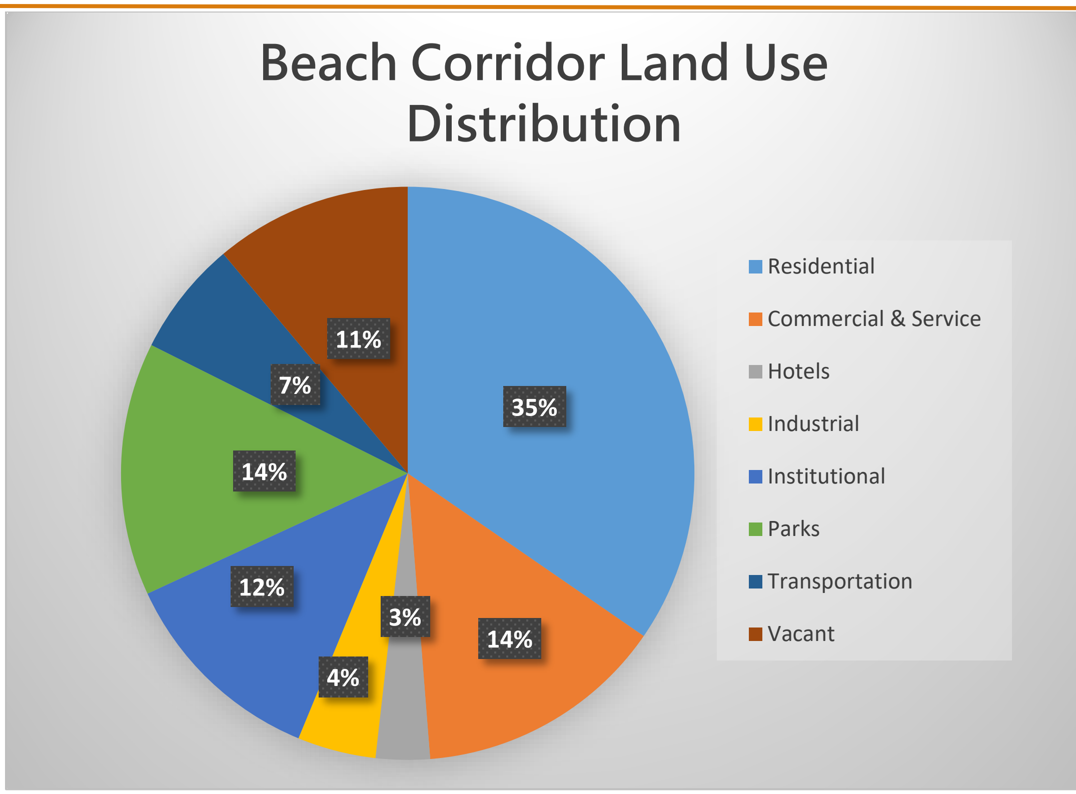

Figure 5 - Beach Corridor Land Use Distribution

3.2.2. Future Land Use

The Comprehensive Development Master Plan (CDMP) contains directives to promote urban centers in places where mass transit, roadways, and highway are highly accessible. The CDMP provides for three types of urban centers: community (CUC), metropolitan (MUC) and regional (RUC). The area within the boundaries of an urban center is divided in three Sub-districts: Core, Center and Edge. The highest density and intensity within an urban center is to be allocated to the Core Sub-districts, a mixed-use area adjacent to the transit station(s) or major transit stop(s). The densities and intensities shall then gradually decrease from the Core to the Center Sub-district where mixed-uses are still permitted and then further decrease to the Edge Sub-district which is characterized by single uses, including low density residential[5].

The future land use designation found in the CDMP is consistent with the existing land use map. There are designated Community Urban Centers (CUC) at the Government Center Metro Station, and one at the Overtown/Arena Metro Station in the City of Miami. Additionally there is one Regional Urban Center in the Downtown area of Miami. In the City of Miami Beach one proposed Municipal Urban Center (MUC) was observed in the Lincoln Road Shopping Center. These Urban Centers are areas identified by the CDMP as areas desirable for moderate to high density

[5] https://www.miamidade.gov/zoning/library/reports/standard-urban.pdf, page 1

development with vertically and horizontally integrated uses. The circles on the CDMP are symbols that mark the general location of each center and do not graphically depict the extent or boundary of a particular center. Urban Centers permit mixed-use developments that include retail trade, business, professional and financial services, restaurants, hotels, institutional, recreational, and cultural and entertainment uses, and moderate to high density residential uses. Development density and intensity standards are also provided for Urban Centers. For CUC, average floor area ratios (FAR) should range from greater than 0.5 at the edge of an urban center to greater than 1.5 in the core; for residential development, the maximum dwelling units per acre permitted is 125. Where Urban Center uses and intensities differ from those of the underlying land use designated on the Land Use Plan (LUP) map, the Urban Center uses are permitted.[6] The Urban Center land use has been developed in an effort to create a community that allows for increased walkability and bicycle activities as well as increased transit use. It should be noted that future premium transit is depicted along existing railroad infrastructure in adopted 2020-2030 CDMP.

[6] https://www.miamidade.gov/zoning/library/reports/west-kendall-corridor-planning-report.pdf

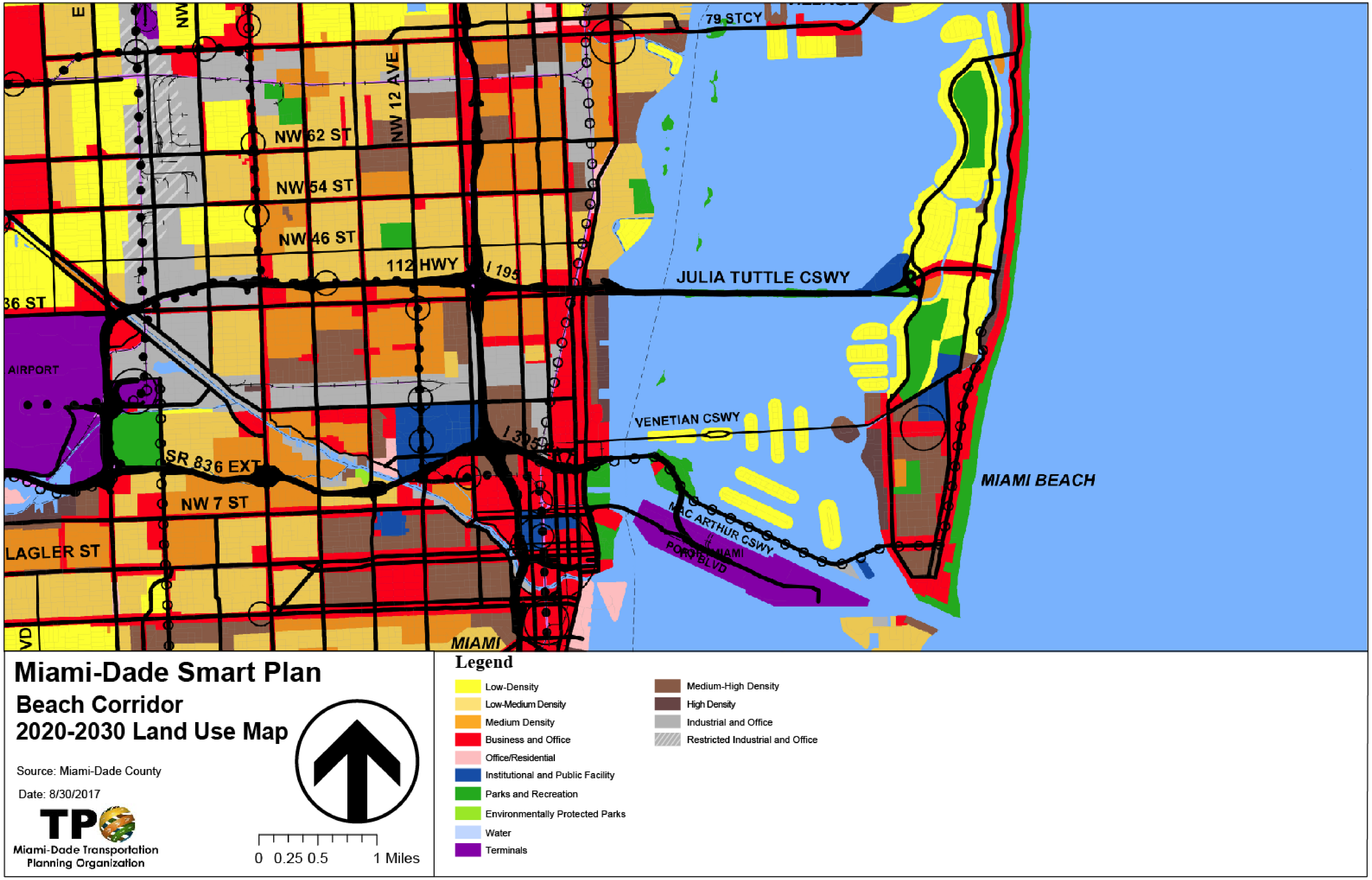

Figure 6 - Adopted 2020-2030 Land Use Map

3.2.3. Property Value

The total parcel area with residential-single family units is 378 acres which represents about 13 percent of the total parcel area within a half mile buffer of the Beach Corridor. The total market value for the residential-single family units along the corridor is $2.7 Billion, an average of $6.7 Million per acre.

There are about 38,791 acres dedicated to condominiums with a total market property value of $18.6 Billion, an average of $481 K per acre or 29.8 Million per parcel.

The highest private property value in the study area is the Southeast Financial Center at $419 Million in the City of Miami followed by the Lowes Hotel in Miami Beach at $233 Million. Concentration of higher value properties can be observed in the hotel area east of Washington Avenue, the convention center, and Flamingo Park in Miami Beach. In the City of Miami higher property values are mostly found in the downtown area south of I-395. Figure 7 shows a complete map of property values along the corridor, those properties with market values greater than $30 Million are depicted in red.

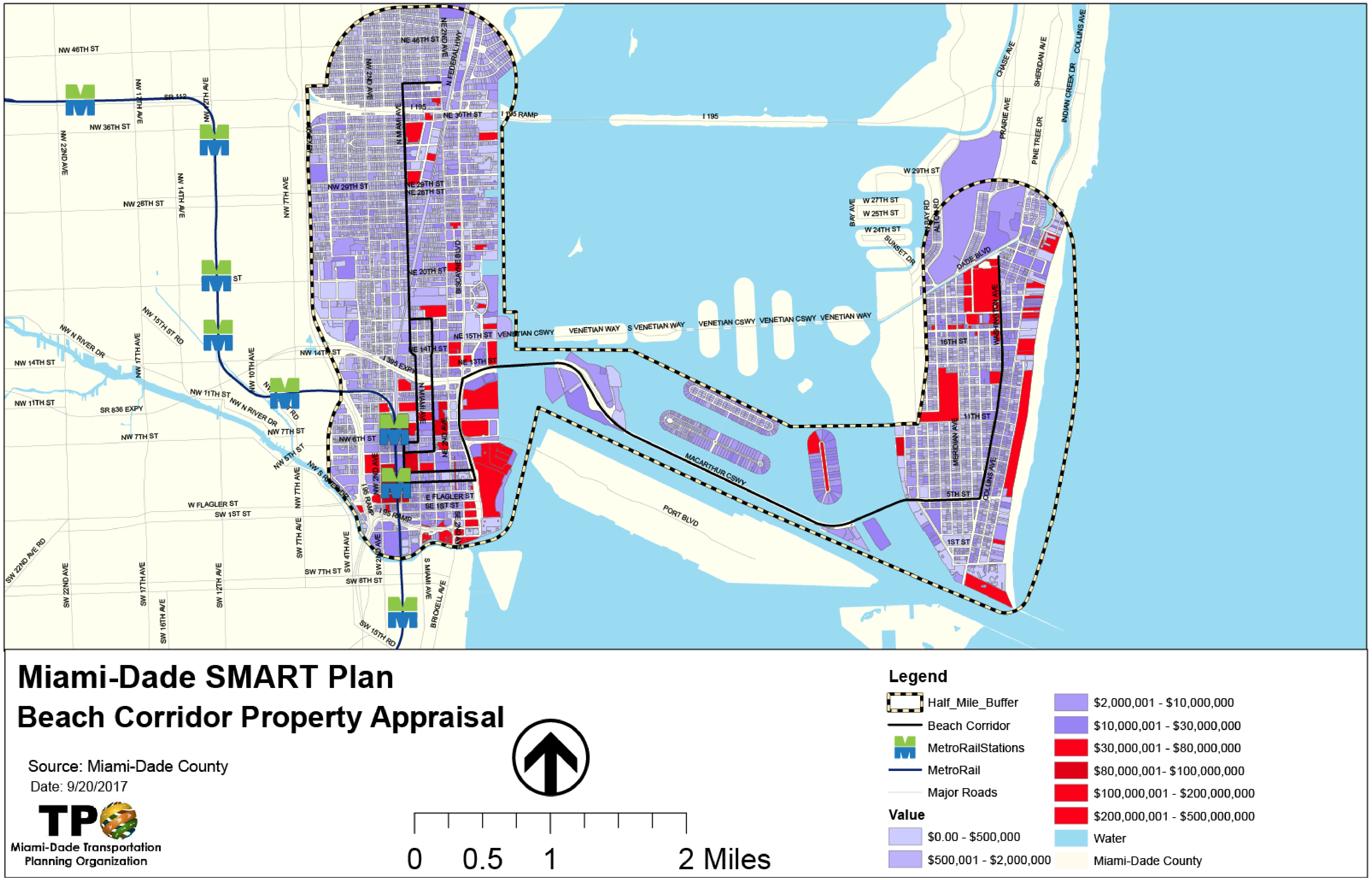

Figure 7 - Property Appraisal Parcels

3.2.4. Socioeconomic Data

The socioeconomic data used in this report is based on the SERPM-V7 data for the year 2015 and 2040, the year 2010 Census data, and the American Community Survey (ACS) data. The data listed in these sources are the typical "markets" that are considered in a travel demand model. In this particular corridor, however, there are other significant markets that should be considered. These are the universities, and the tourist and events markets. Data for these markets are typically difficult to obtain and are seasonally driven. Nevertheless, they should play a role when analyzing a transportation system for the Beach corridor.

3.2.4.1. Population

The socioeconomic data for the year 2015 was obtained from the SERPM-V7. In total approximately 107,010 people lived within the half mile buffer of the corridor in the year 2015. In the City of Miami study area this number is 61,010, while on the Miami Beach side the population is 46,000. Figure 8 shows the location of population along the corridor, while Figure 9 shows the density of the population by acre by TAZ. Normalizing the population numbers by acres provides a comparison of the distribution and the density since not all TAZ are the same size.

As can be seen in Figure 8, the greatest number of people live along the shore line between the two bridge on the City of Miami side and just south of the MacArthur Causeway on the City of Miami Beach side. The population densities (Figure 9) are spread more evenly on the City of Miami Beach side, while in the City of Miami there are several pockets of higher densities.

The characteristics associated with the residents of the corridor reviewed and summarized include: number of workers associated with household, whether there are children in the household, age groups, and lastly income groups.

The number of trips made by a household are affected by whether there are workers in the household or children in the household or both. Taking a closer look at these two study areas, the total number of workers within the half mile buffer is 42,400 (Figure 10). On the City of Miami portion of the study area there are 22,200 workers. In the Miami Beach area there are 20,200 workers.

The density of the workers by acre is fairly consistent on the City of Miami Beach side, while it varies quite a bit on the City of Miami (Figure 11) side. There are 2,000 less workers in the Miami Beach study area. When comparing the number of workers as a percent of the population, 34 % of the population living in the City of Miami portion of the study area are employed while on the City of Miami Beach side of the study area this percentage is 44 %.

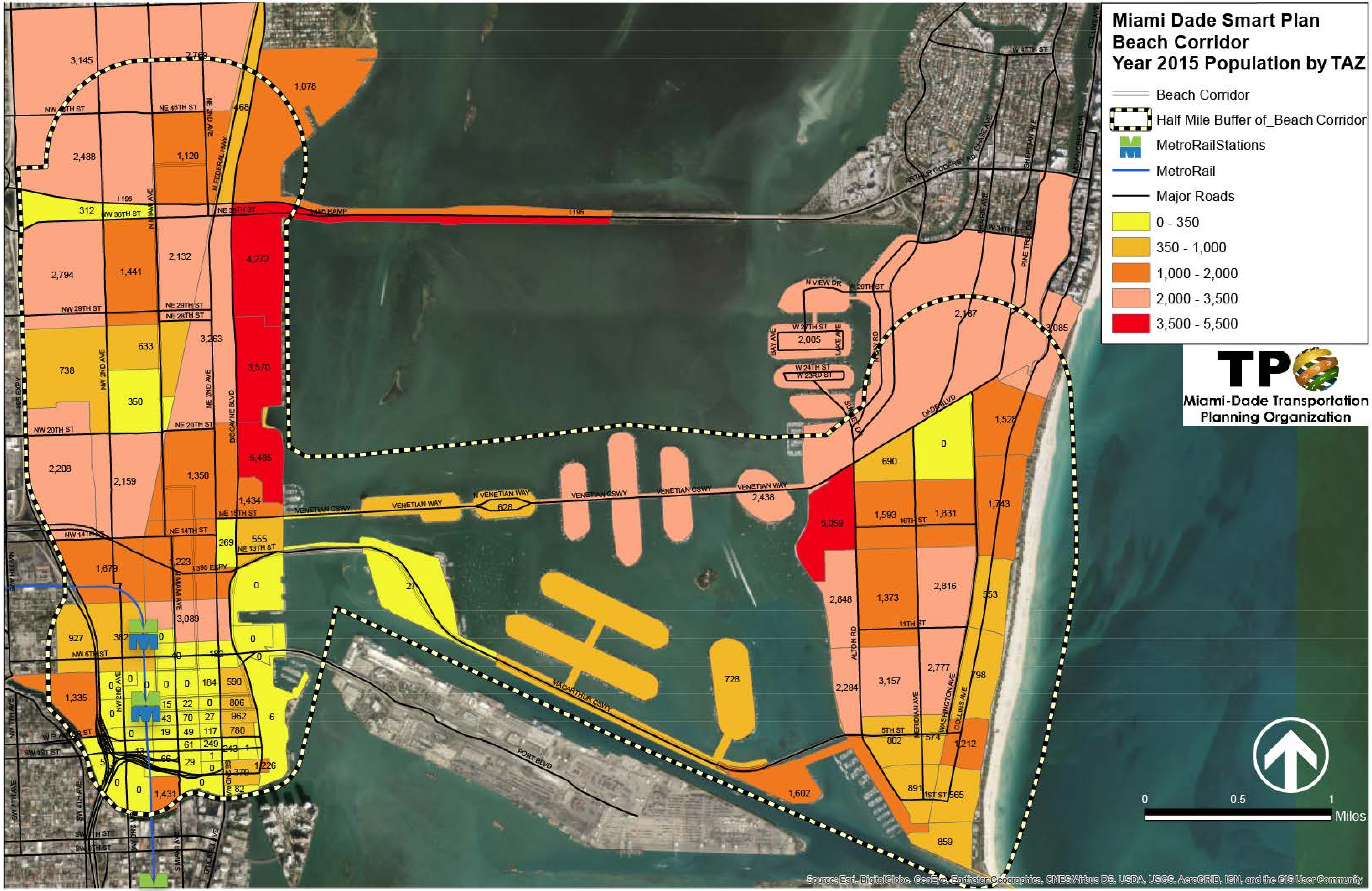

Figure 8 - Population by TAZ

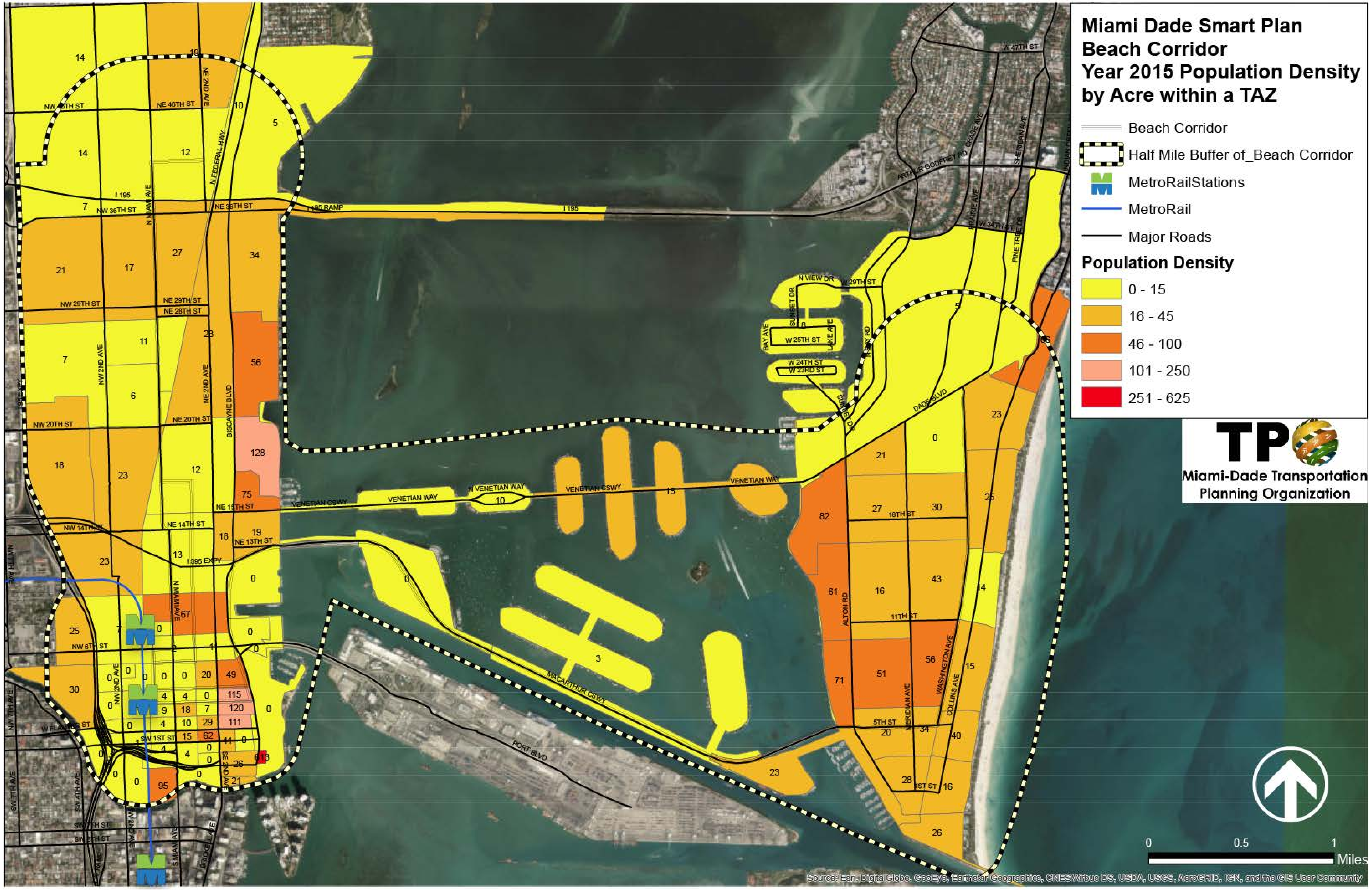

Figure 9 - Density - Population by Acre within a TAZ

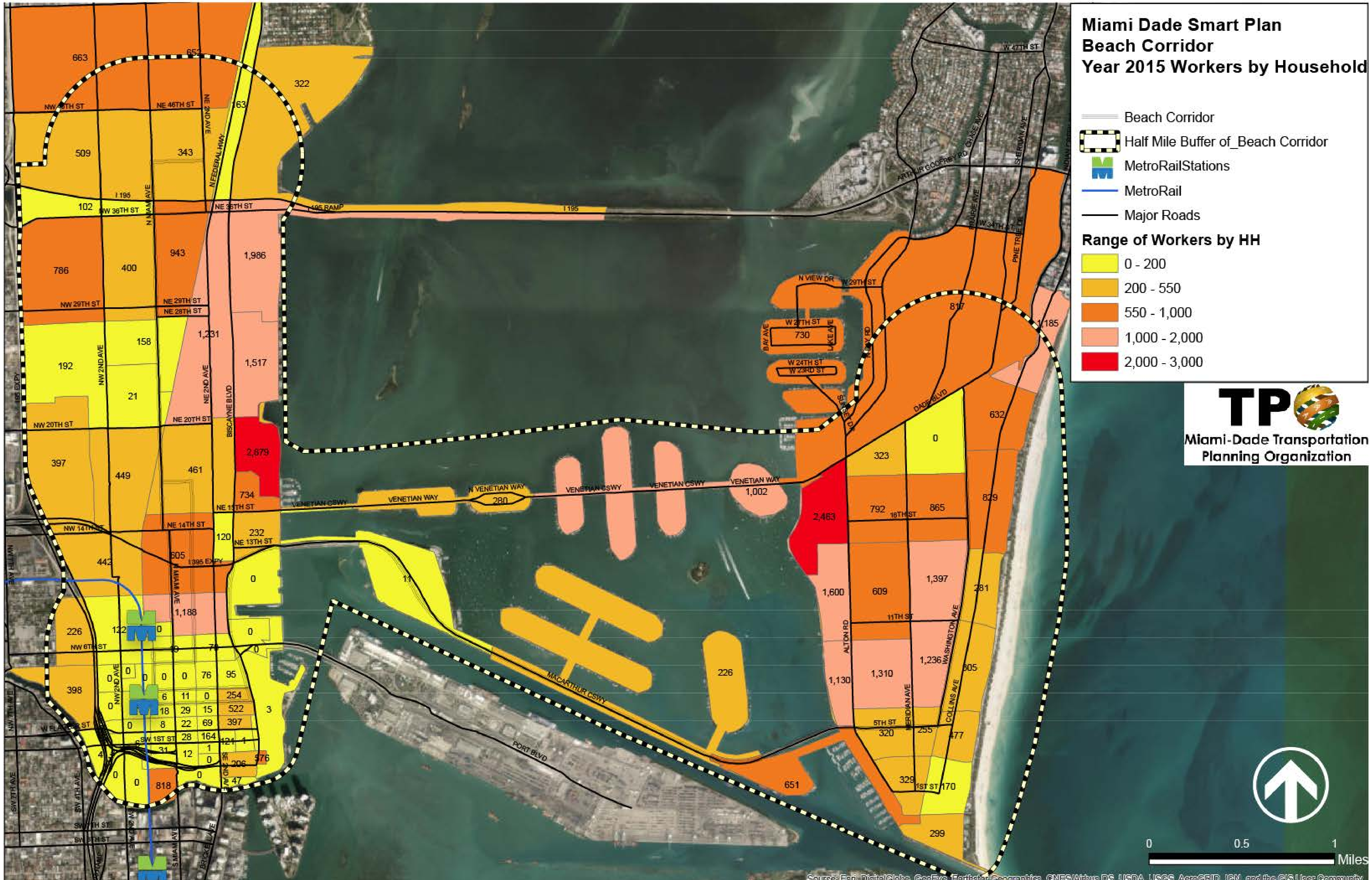

Figure 10 - Number of Workers by Household within a TAZ

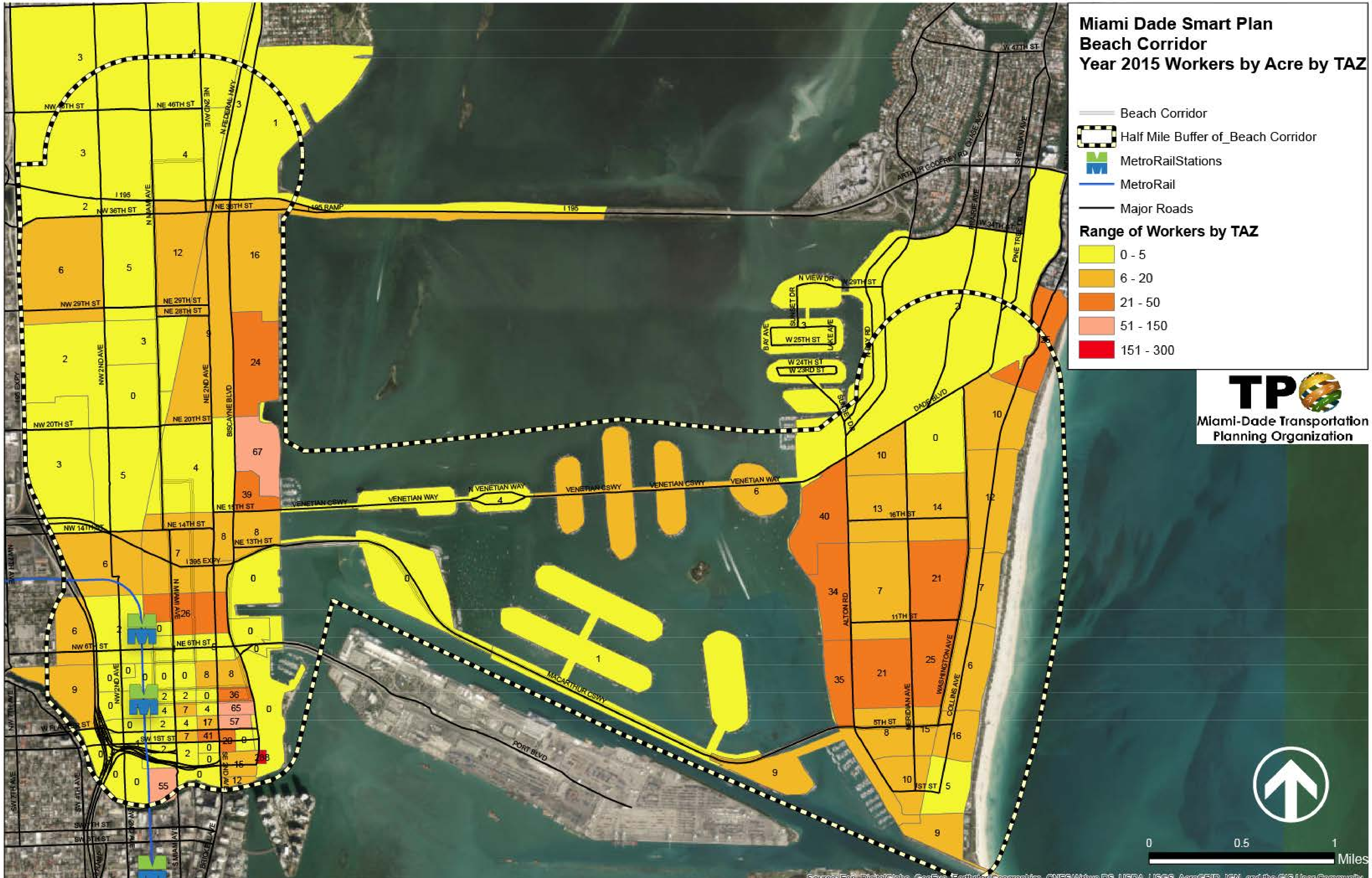

Figure 11 - Density of Workers by Household by Acre by TAZ

Overall, there is not a significant difference in the number of workers by household. Within the study area in the City of Miami the number of households with zero workers is 24%, 4 % of the households have more than three workers, while 25% have two workers, and 47% have one worker.

In Miami Beach, the percent of households with zero workers is 25% and 3% of the households have more than 3 workers. The percent of households with two worker is 20% and 52% of households have one worker. These percentages are reflected in Figure 12.

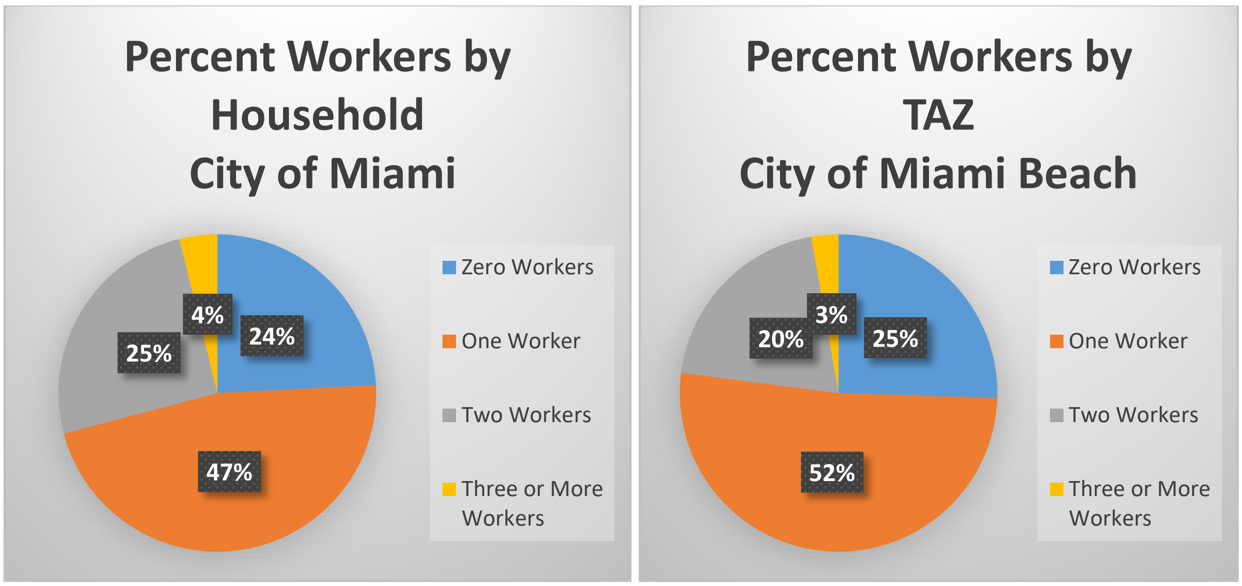

Figure 12 - Percent Number of Workers by Household

The analysis of age distribution of the population shows that the City of Miami has 9,600 persons in the age group 0 to 17, while it is approximately 4,000 in the City of Miami Beach. The age distribution is shown in Figure 13.

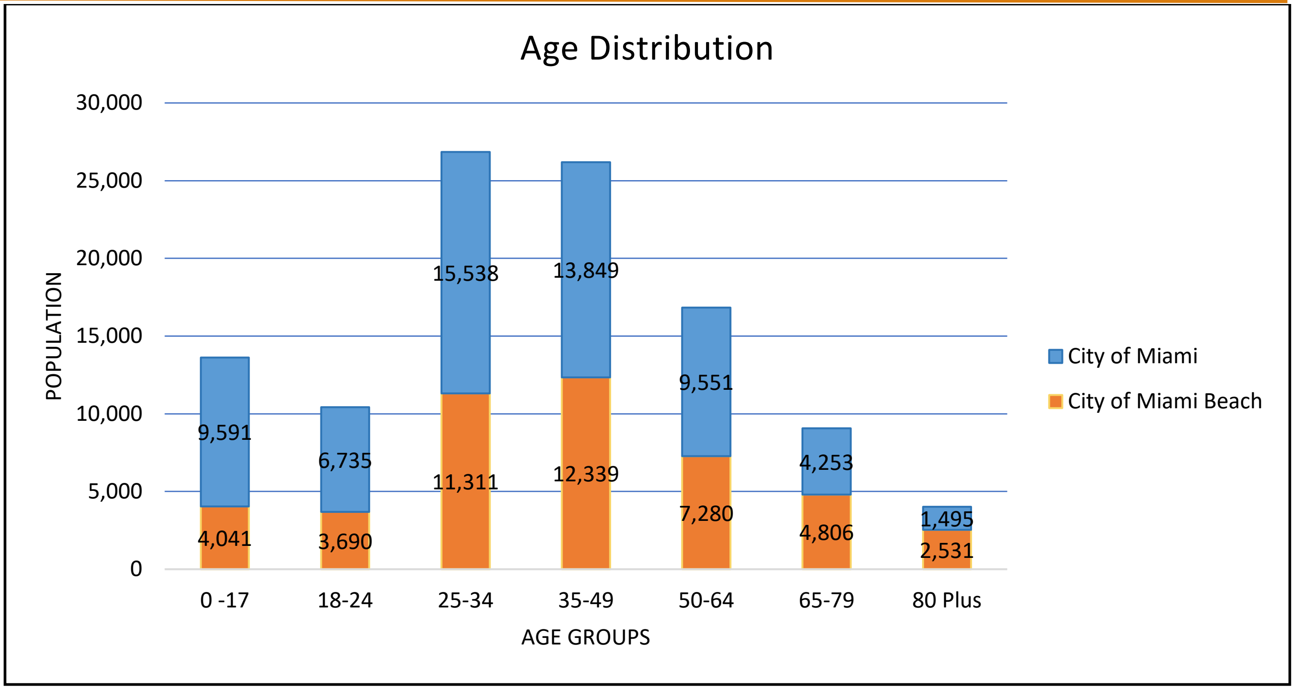

Figure 13 - Age Distribution of Population

In Figure 14 we take a closer look at the age group 0 to 17, by summarizing the households with and without children. The only area where more than 25% of the households have children is in the northwest portion of the study area (shaded grey).

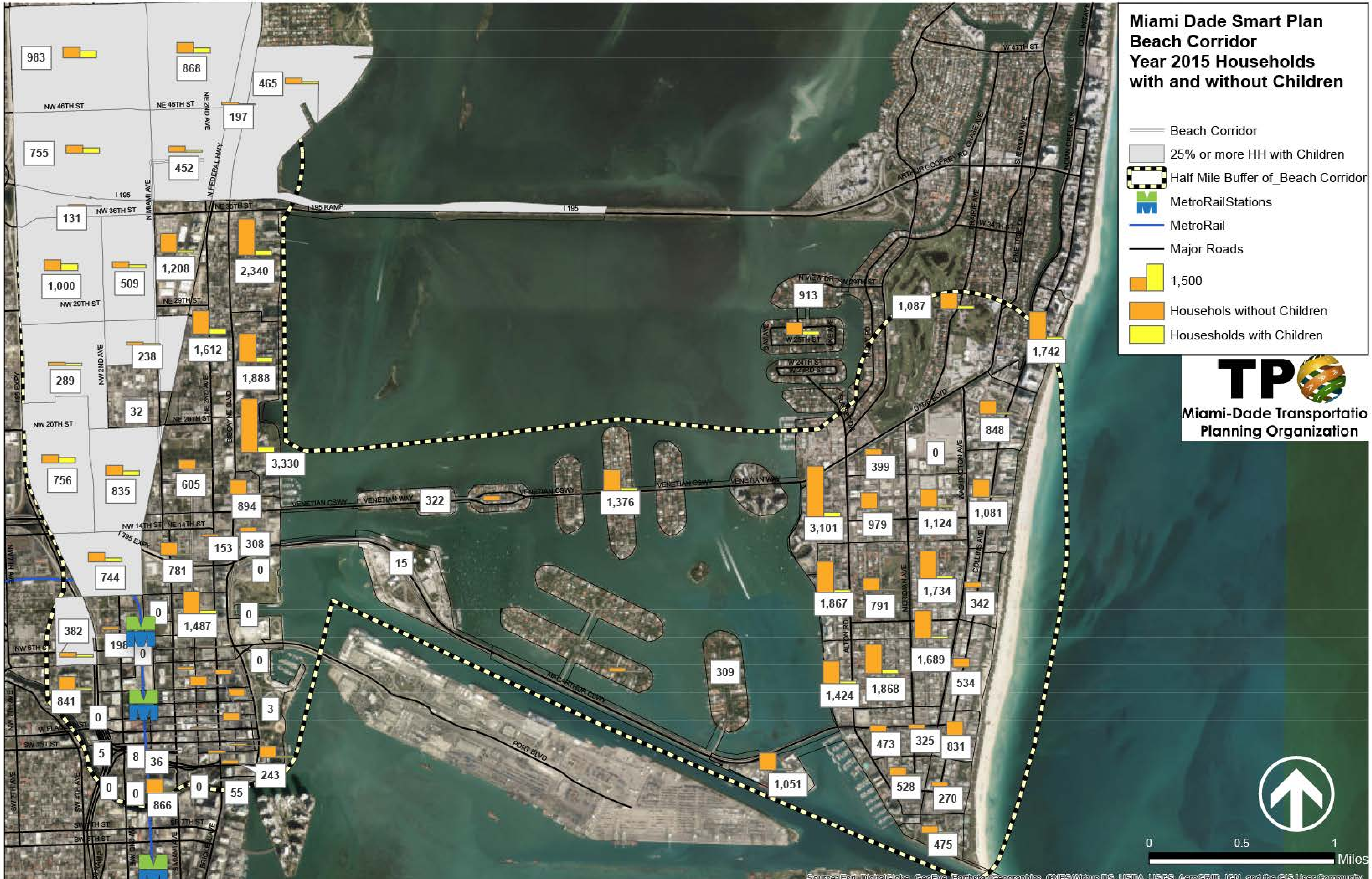

Figure 14 - Household with and without Children

Another characteristic effecting travel behavior is the level of income of the household. In the SERPM-V7 there are five income groups identified. These are less than $25,000, between $25,000 and $50,000, between $50,000 and $75,000, between $75,000 and $100,000 and greater than $100,000. The different income levels are shown in Figure 15. There is not a significant difference in the distribution of the different income levels for the households among the TAZs. Referring to the same figure, the two areas where there is a larger portion of the households in the higher income level are the southern and the northern part of the City of Miami Beach. The island communities in the middle of the study area also show a larger percentage of the higher income group.

Focusing on the distribution of the income group less than $25,000, we see 35% (10,366) in this bracket in the City of Miami, while in the City of Miami Beach this percentage is 30% (8,109). In the highest income group, 15% (4,479) of the households fall in this category in the City of Miami, while 23 % (6,375) of the households in the City of Miami Beach have an income greater than $100,000.

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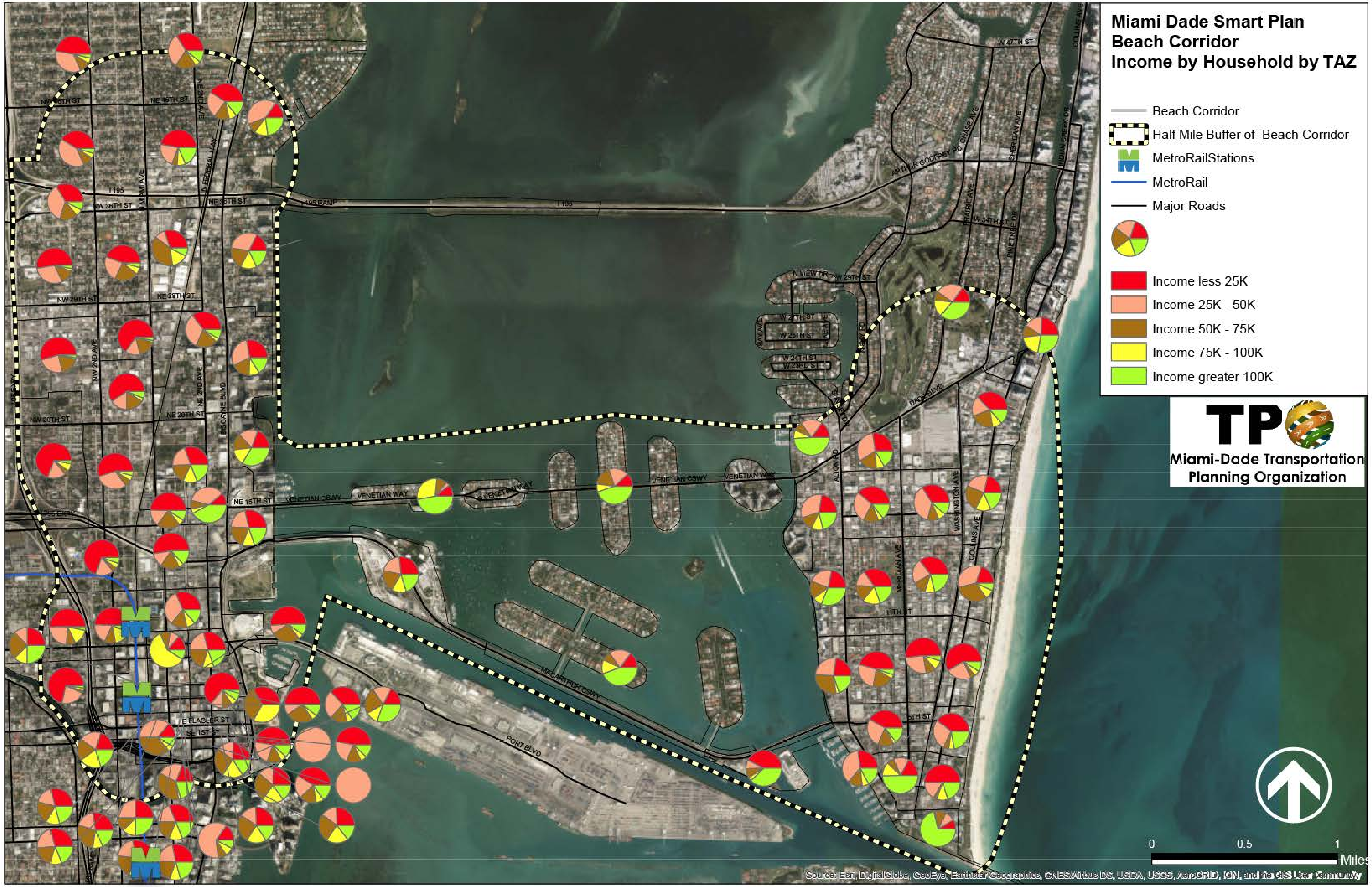

Figure 15 - Income Levels by Household by TAZ

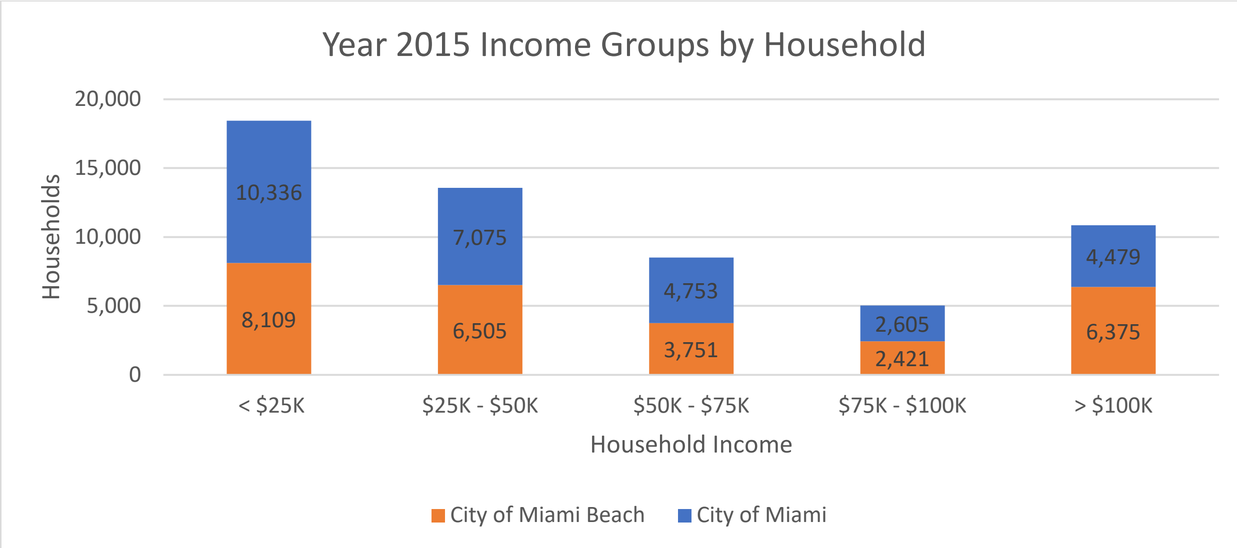

Figure 16 - Year 2015 Income Groups by Household

Figure 17 shows the location of the largest concentration of households with an income of $25,000 or less by TAZ. As can be seen the higher income levels are located on the shore sides and the northern portion of the City of Miami Beach.

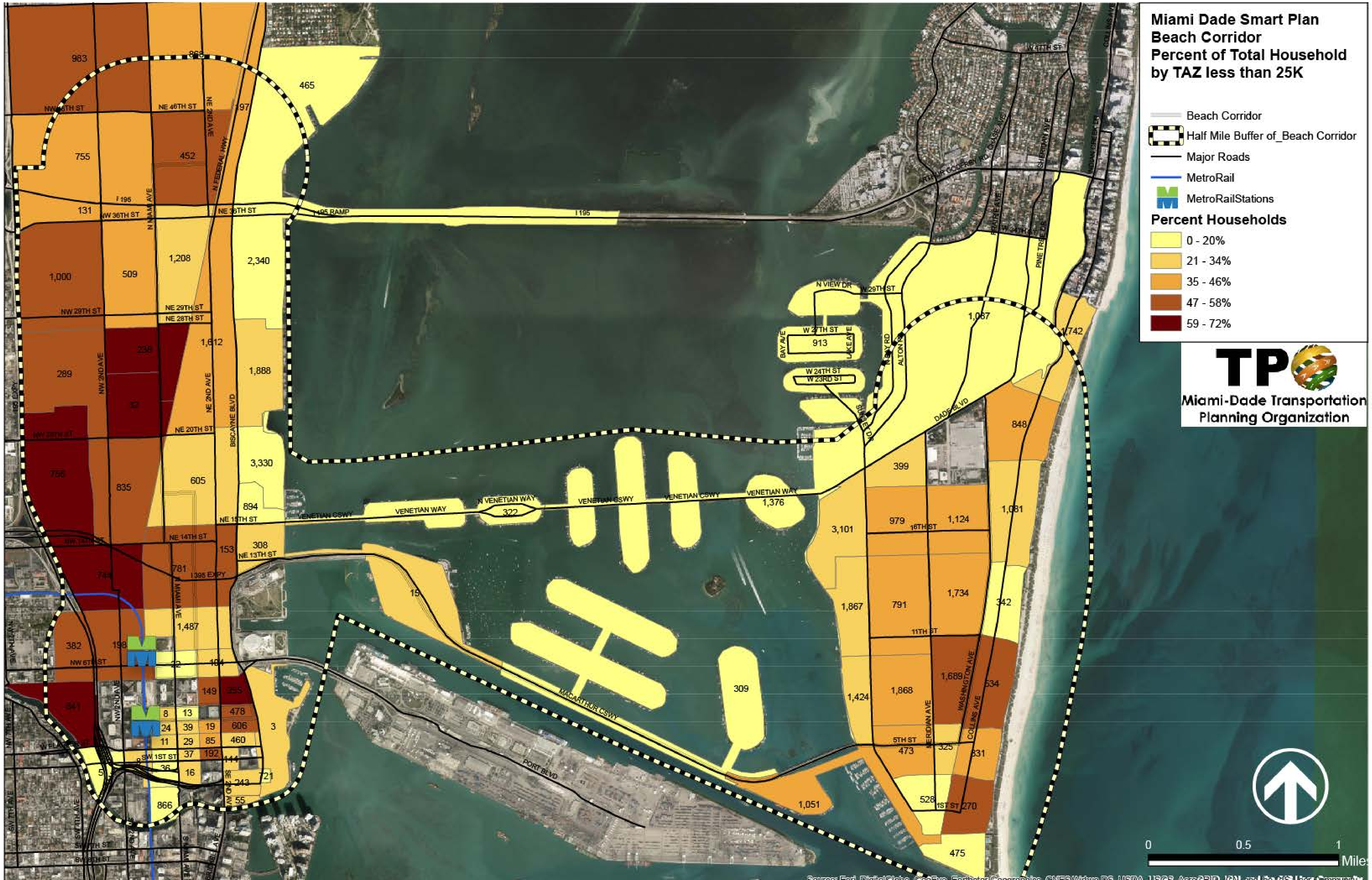

Figure 17 - Percent of Households with income less than $25,000

3.2.4.2. Employment

Based on the SERPM-V7 year 2015 data, the total employment in the study area is 108,651 workers. On the City of Miami side the employment figure is 65,464, while on the City of Miami Beach side this number is 43,187. As shown on Figure 18, the employment on the City of Miami side is concentrated in several of the TAZs, while on the City of Miami Beach side the employment is more evenly spread out.

The density of employees by acre by TAZ is highest in the southeast tip of the study area, which is downtown Miami (Figure 19).

The SERPM-V7 has over thirty employment categories. Not all of the categories exist within the study area. Figure 20 shows the employment categories that exist within the study area. The largest employment category is professional and business services. The second largest group are the retail, restaurant and government employees.

The type of employment is important because it typically affects the travel times of the employees. Professional and business services, education, and government employees, typically start their work day between 8:00 am and 9:00 am and leave between 5:00 pm and 6:00 pm.

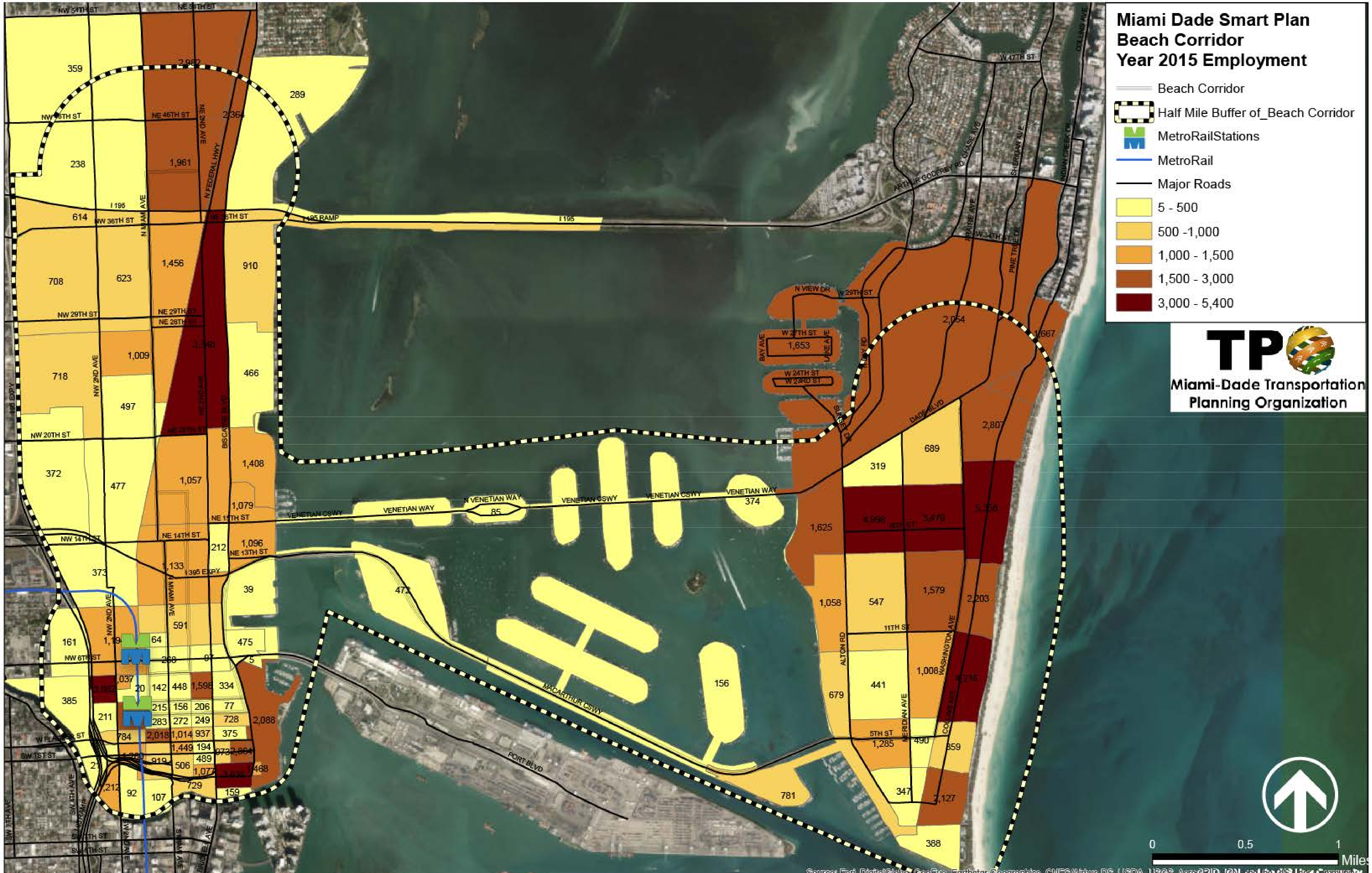

Figure 18 - Year 2015 Employment Totals by TAZ

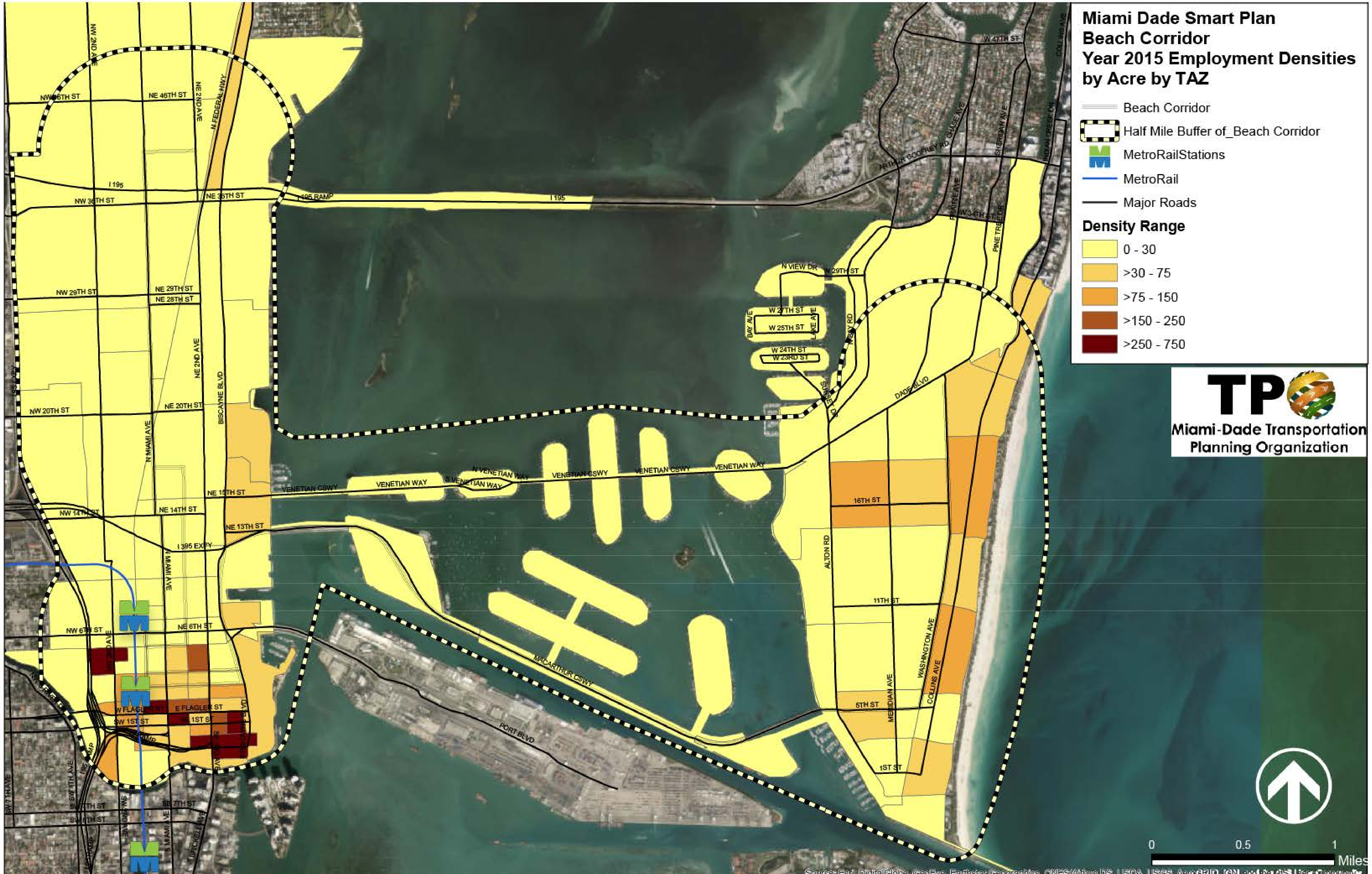

Figure 19 - Year 2015 Employment Density by Acre by TAZ

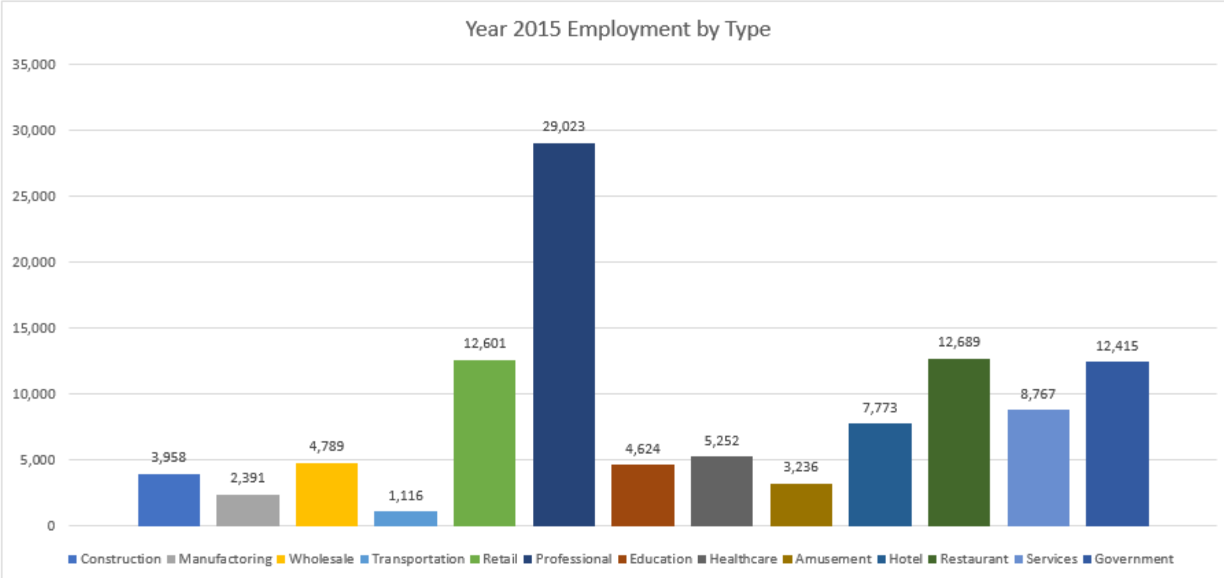

Figure 20 - Distribution of Year 2015 Employment by Type of Employment Category

Retail, hotel, restaurant, amusement employees typically start and leave later and also work in the weekends. The exact location of the construction and transportation worksite is typically hard to determine.

Figure 21 shows the location of the three different groups of employment sectors. The service, professional, government sectors account for 38,634 or 60% of the 65,464 employees in the City of Miami portion of the study area, while in Miami Beach this number is 16,195 or 37% of the 41,187 employees in the study area. The retail, restaurants, bars, hotels or the amusement industry accounts for 13,463 or 21% employees in the City of Miami and 22,836 or 53% employees in the City of Miami Beach.

Approximately 60% of the workers within the City of Miami work in offices and therefore have a more typical work day, while in the City of Miami Beach over 50% of the employment works in a sector which is characterized with later start times, irregular shifts, very late closing times, and weekend shifts.

Figure 22 shows the location of the hotels within the study area. Hotel locations also provide a good indication of visitors/tourist destinations. Although, with the onset of Airbnb, seasonal rentals, etc. visitors are more likely to stay in a variety of locations. Nevertheless, hotels and motels still account for the major destinations of the tourists.

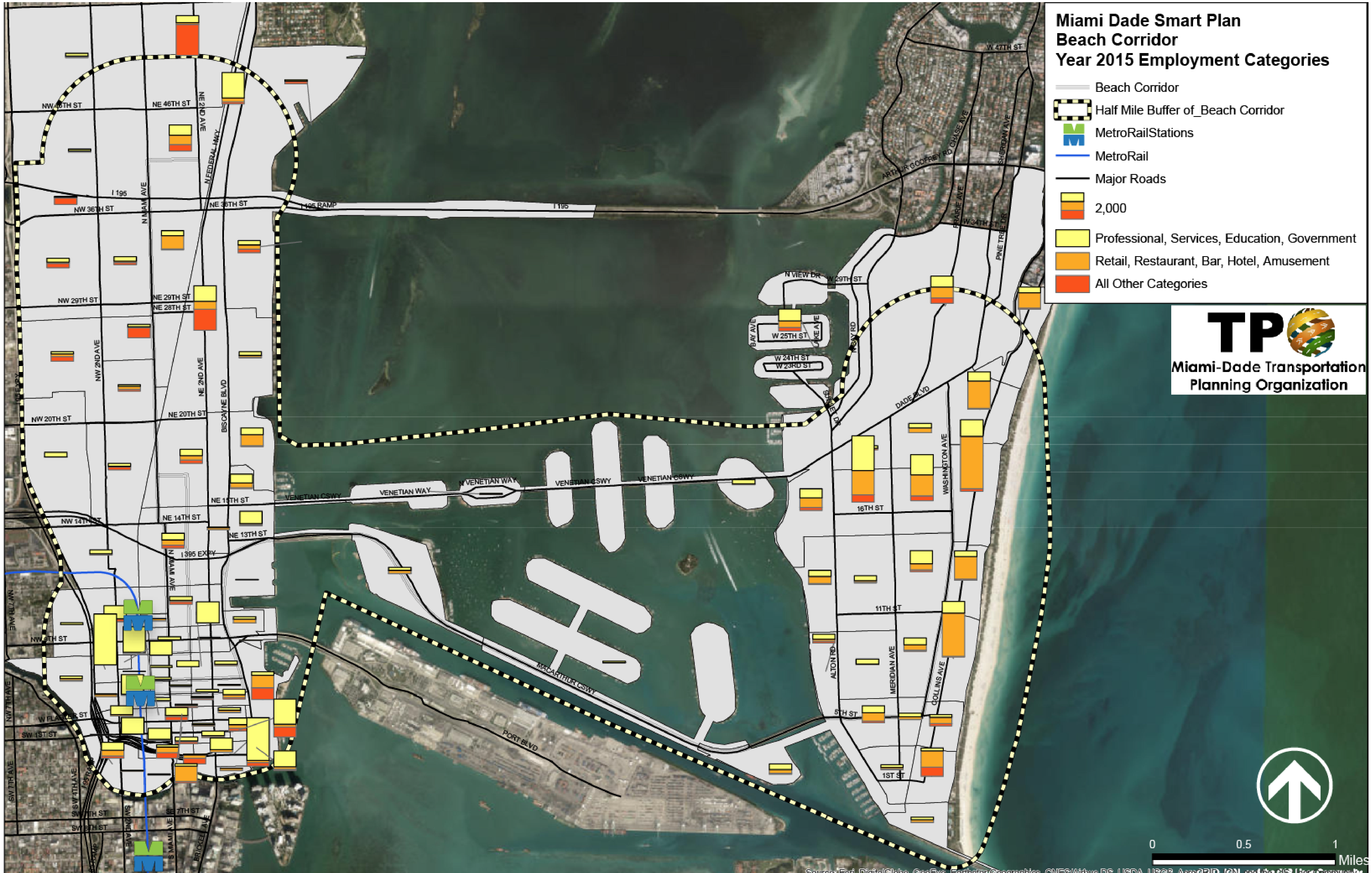

Figure 21 - Employment by Combined Categories

Figure 22 - Year 2015 Hotel Rooms

3.2.4.3. School Enrollment

Several categories of school enrollment data are identified in the SERPM-V7 data. The major groupings are: grade school kindergarten through 8th grade, grade school 9th grade through 12th grade, college enrollment, and adult school enrollment.

The enrollment data summarized and displayed in Figure 23. In this figure, the enrollment is combined in two groups; college enrollment and grade school enrollment. There are six universities/college within the study area. The largest being Miami Dade College Wolfson Campus with an enrollment of 23,720 located in downtown Miami. Another major college is the International Fine Arts College with an enrollment of 3,865.

Also listed in Figure 23 are the grade schools. The largest grade school with an enrollment of 2,946 is located in the northern portion of the City of Miami Beach. On the northwest side of the study area in the City of Miami, the second largest grade school is located with an enrollment of 1,147. Grade schools typically generate a lot of traffic early in the morning and in the early afternoon, while traffic patterns for the universities varies.

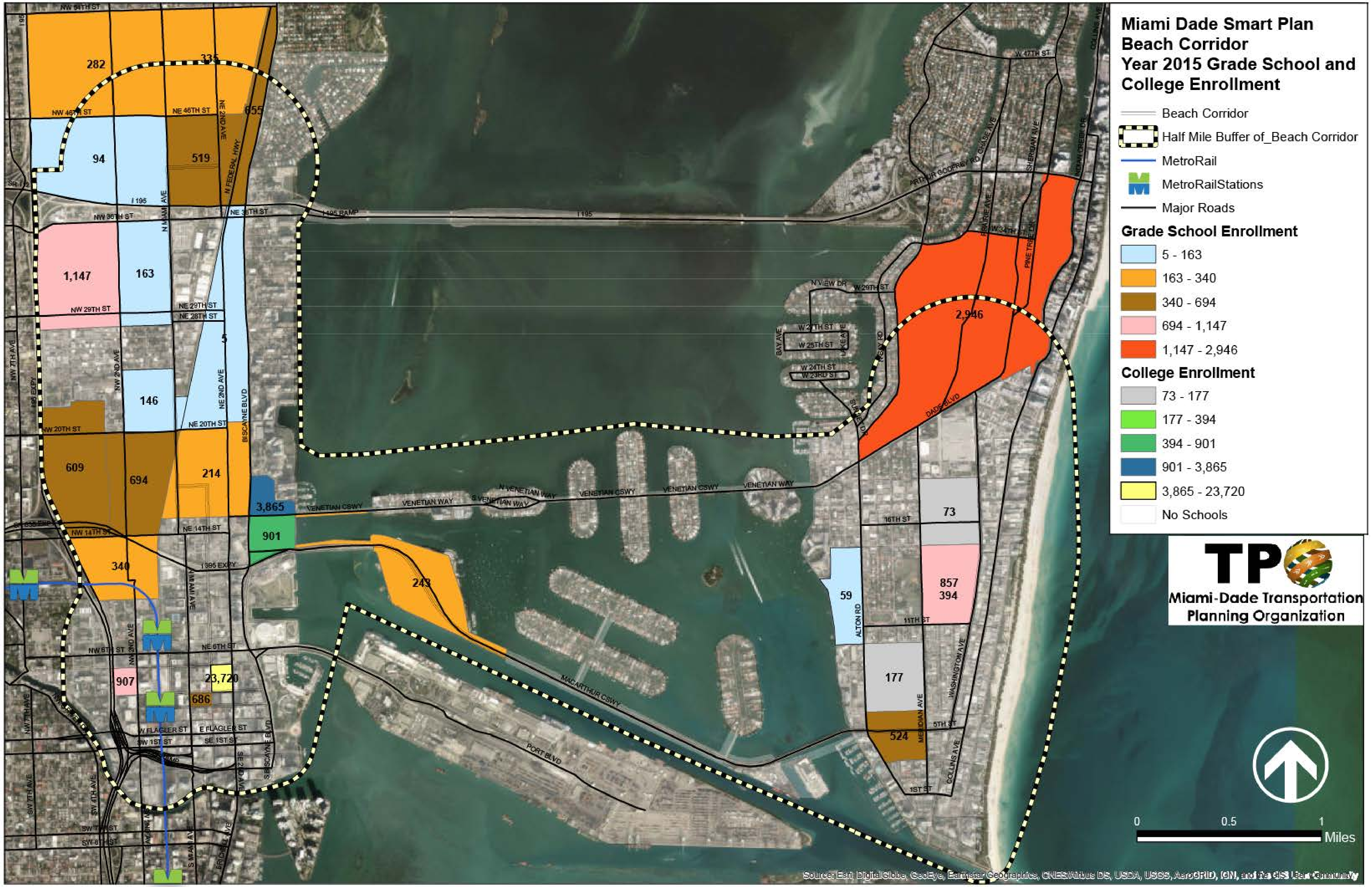

Figure 23 - Year 2015 Grade School and College Enrollment by TAZ

3.2.5. Travel Characteristics

3.2.5.1. Highway

Miami Beach Segment

The Beach segment is composed of Washington Avenue from 5th Street on the south to Dade Boulevard on the north limit; And 5th Street from Alton Road on the west limit to Washington Avenue on the east limit. This segment of Washington Avenue is classified as a major Urban Collector, 4-lane divided roadway with a 35 miles per hour (mph) posted speed limit, raised median ranging from 10 to 13 feet, and shared roadway pavement markings both directions.[7] There is a total of 20 intersections within this segment of Washington Avenue and they are all signalized. The average annual daily traffic (AADT) was found to be 20,800 vehicles per day (vpd). According to a Street Car Traffic Analysis Study conducted by Kimley Horn for the City of Miami Beach, most intersections along Washington Avenue in the study area operate at a desirable Level of Service (LOS) C or better with the exception of the 5th Street intersection operating at LOS D, and the Alton Road and 5thStreet intersection at LOS E as depicted on Figure 24.

MacArthur Causeway Segment

The MacArthur Causeway segment runs from Biscayne Boulevard on the west to Alton Road on the east. This segment of the MacArthur Causeway is classified as Urban Principal Arterial, 6-lane divided roadway with a posted speed limit of 40 mph, raised median averaging 18 feet, and painted bicycle lanes on both directions. The Robert G. Smith Bridge on the western limit of the segment is an 8-lane divided roadway. The AADT for this segment was found to be 87,500 vpd, and LOS C or better which was obtained using the Florida Department of Transportation (FDOT) 2013 Quality/Level of Service Handbook as in Figure 25.[8]

The Midtown Miami Segment

The midtown segment is composed of N Miami Avenue from NW 41 Street to NW 6 Street; Biscayne Boulevard from I-395 to NE 2 Street; NE 1 Avenue from NE 17 Street to NE 5 Street; NW 2 Street and NW 3 Street from NW 1 Avenue to Biscayne Boulevard; NE 17 Street from N Miami Avenue to NE 1 Avenue; And NW 41 Street from N Miami Boulevard to NE 2 Avenue.

N Miami Avenue: North Miami Avenue is classified as a Minor Urban Arterial with an average annual daily traffic of 6,500 vpd just south of N 6 Street (One-directional segment), and 13,400 vpd north of I- 395 (two-directional segment). N Miami is a three-lane roadway running in one direction (Southbound) from N 17 Street with three-lanes from N 17 Street to N 5th Street

[7] https://ftp.fdot.gov/file/d/FTP/FDOT/co/planning/transtat/gis/TRANSTAT_metadata/funclass.shp.xml
[8] http://www.fdot.gov/planning/systems/programs/SM/los/pdfs/2013%20QLOS%20Handbook.pdf

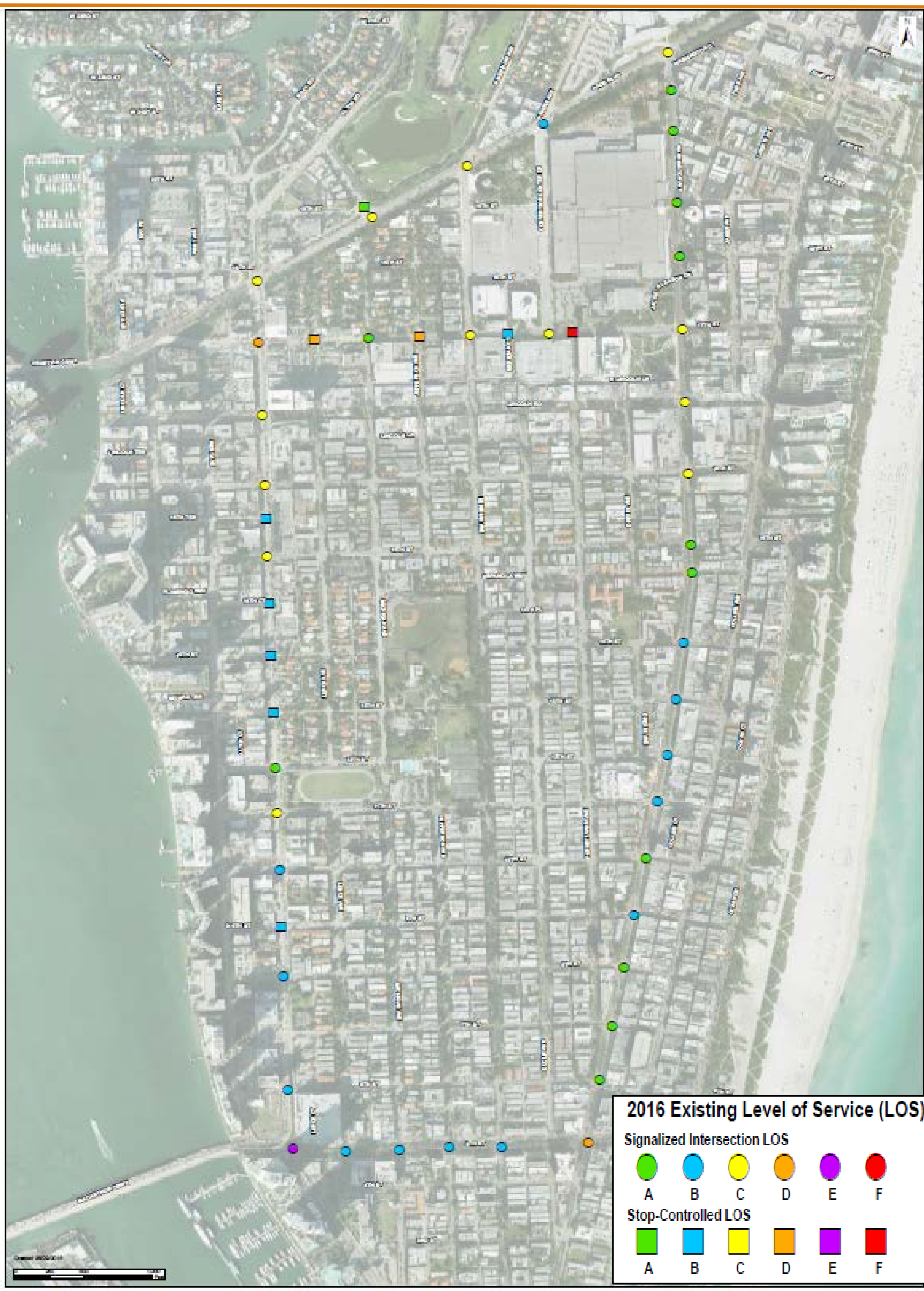

Figure 24 - Existing Level of Service- Year 2016

Source: Miami Beach Light Rail Transit (LRT)/Modern Streetcar Interim Traffic Analysis, Kimley Horn, July, 2016

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Core Urbanized

Lanes	B	C	D	E
4	47,400	64,000	77,900	84,600
6	69,900	95,200	116,600	130,600
8	92,500	126,400	154,300	176,600
10	115,100	159,700	194,500	222,700
12	162,400	216,700	256,600	268,900

Urbanized

Lanes	B	C	D	E
4	45,800	61,500	74,400	79,900
6	68,100	93,000	111,800	123,300
8	91,500	123,500	148,700	166,800
10	114,800	156,000	187,100	210,300

Freeway Adjustments

Auxiliary Lanes Present in Both Directions	Ramp Metering
+ 20,000	+ 5%

Figure 25 - Macarthur Causeway Level of Service

reducing to two lanes at N 5th Street. The northern portion of the segment (NW 41 Street to N 17 Street) is a four-lane divided roadway. The segment displays typical characteristics of networks found in urban centers with 16 signalized intersections and more than 20 unsignalized intersections, two at grade railroad crossings, two highway overpasses (I-395 and I-195), two Metromover overpasses, and on-street parking permitted in some areas of the segment. Posted speed limit is 30 mph through most of the segment except north of N 39 Street where it changes to 40 mph. The segment operates at LOS C.

Biscayne Boulevard: Biscayne Boulevard is classified as a Principal Urban Arterial with an annual average daily traffic of 40,000 vpd just south of NE 10 Street. It is a six-lane divided roadway from I-395 to Port Boulevard, and eight-lane divided roadway from Port Boulevard to NE 2 Street with a posted speed limit of 30 mph. The study segment has one railroad crossing and 10 signalized intersections. The segment operates at LOS C or better.

NE 1 Avenue: NE 1 Avenue is classified as a Major Urban Collector with an AADT of 18,500 vpd. The study segment of NE 1 Avenue is a three- lane roadway running from south to north (one-way) with a posted speed limit of 30 mph. Field observations found 10 signalized intersections, five unsignalized intersection, one highway overpass, two Metromover overpasses, and one railroad crossing in the study segment.

<u>Parking</u>

The City of Miami Beach engaged Walker Parking Consultants to conduct a parking demand analysis in South Beach Miami Beach in August 22, 2014. They divided the study area into five zones (Figure 26) and estimated the current inventory, summarized the current demand and projected the future demand.

Figure 26 - City of Miami Beach Parking Zones

Table 1 summarizes the number of spaces identified within each of the zones. Of the 27,644 spaces, the City provides roughly 60% of the public parking assets, with 28% priced on-street, 22% in City Garages, and 10% in surface parking lots. The fact that the City manages more than half of the parking spaces, provides an opportunity to incentivize transit use through pricing.

Three future growth scenarios were developed based on known projects within each zone combined with data from the *Current Economic Conditions* report compiled and provided by the Tourism, Cultural & Economic Development Department. Factors considered include annual hospitality sales; average daily population statistics; hotel occupancy rate; jobs; building permits; and the food and beverage tax receipts. The annual growth rates are calculated for each period using data from 2006 – 2012.[9] Based on Scenario 1, which projects the smallest average annual growth (3.1%), Zone 1 will experience a parking shortage in 2017, Zone 2 in 2019, Zone 3 in 2016, Zone 4 in 2015, and Zone 5 in 2020.

Table 1 - Parking Inventory City of Miami Beach

Zone	Description	On-Street	Off-Street					
			City Garage	City Lot	Public Garage	Public Lot	Private	Total
1	Alton Road	978	1,050	93	698	71	4,004	6,894
2	North of 17th	930	1,081	1,391	300	50	858	4,610
3	Residential	2,944	1,460	776	780	0	120	6,080
4	Ocean Drive	1,616	2,424	126	1,897	213	1,029	7,305
5	South Pointe	1,101	0	342	311	182	819	2,755
	Total	**7,569**	**6,015**	**2,728**	**3,986**	**513**	**6,830**	**27,644**

Source: Parking Demand Analysis, Walker Parking Consultants, August 2014

City of Miami

In the City of Miami, the Public Parking operation is managed by the Internal Services Department (ISD). There are approximately 5,000 parking spaces in downtown Miami. Table 2 list the number of spaces by location, while Figure 27 shows the location of the parking facilities.

[9] South Beach Parking Demand Analysis, Walker Parking Consultants, August 2014, page xiv

Table 2 - Parking Spaces downtown Miami

Lot Name	Location	Number of Spaces	
		Regular	Disabled
140 W Flagler St. Garage	140 W. Flager Street	263	
Courthouse Center	175 NW 1st Avenue	326	
Downtown Government Center	NW 1 Street & NW 1 Ave		13
Hickman Garage	270 NW 2 Street	1,059	
Hickman Lot	275 NW 2 Street	45	
Miami-Ddae Cultural Center	50 NW 2 Avenue	623	
Overtown Transit Village	701 NW 1 Court	886	
West Lot Garage	202 NW 3 Street	800	
Graham Building Lot	1350 NW 13 Avenue	341	
Civic Center Jury Lot	1250 NW12 Street	149	
Civic Center Lot 25	1355 NW 12 Ave	240	
Total		**4,732**	

Source: http://www.miamidade.gov/facilities/public-parking.asp

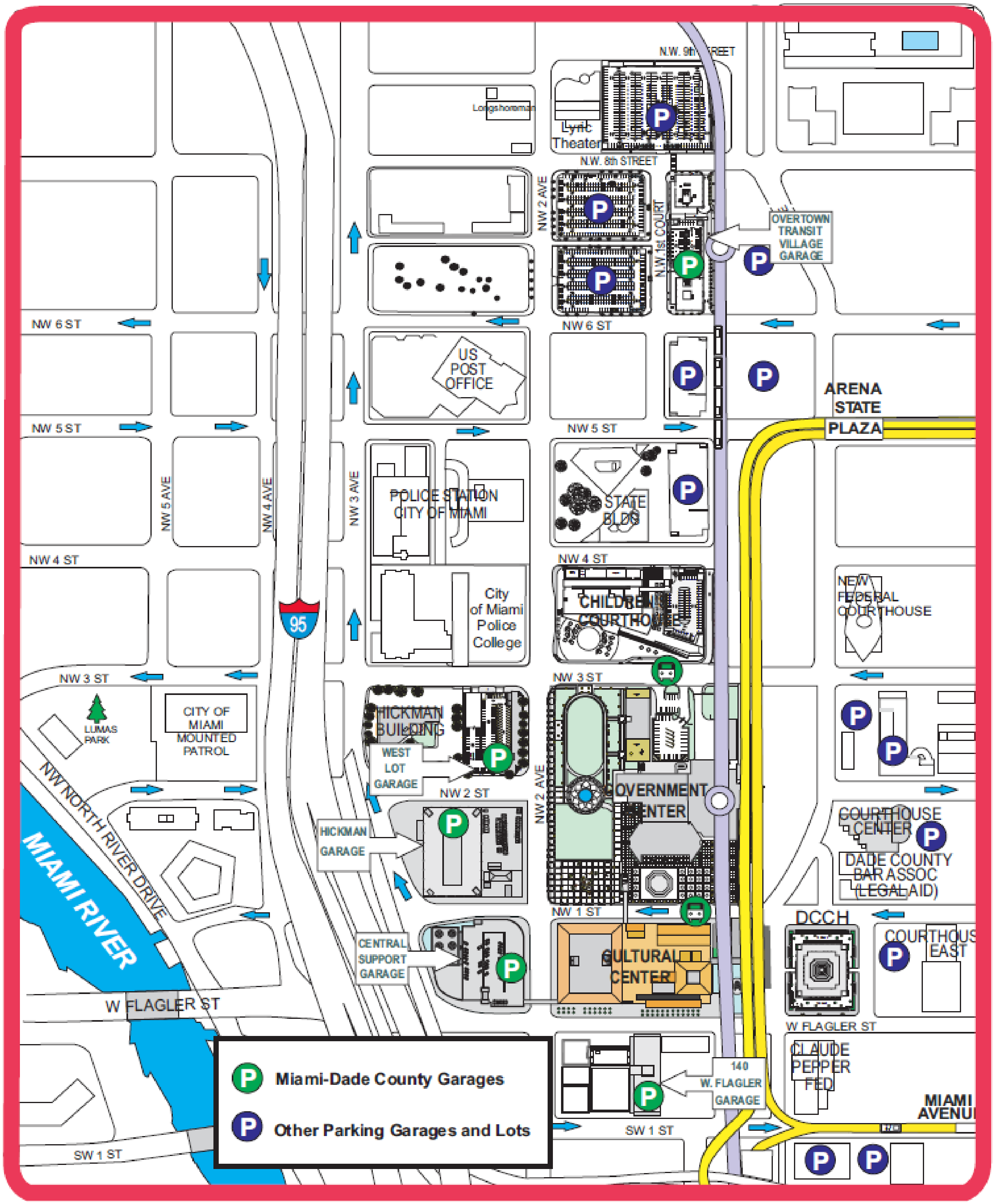

Figure 27 - Parking Locations Downtown Miami

3.2.5.2. Transit

In 2015 there were 38 bus routes that served the study area. Figure 28 shows the bus route coverage in the study area. All major roads on the City of Miami side have bus service, except on North Miami Avenue between NW 29 Street and NE 36 Street and North of I-195. NW 46 Street and on NW 2 Avenue between NW 14 Street and NW 20 Street. On the City of Miami Beach side, there is only east-west service on 5th Street and 17th Street. No buses run on 1st, 11th, and 16th Streets. In the north south direction, there is service on Alton Road and Washington Avenue. There is no service on Meridian Avenue or Collins Avenue.

Seven routes provided service in the City of Miami as well as in the City of Miami Beach (Figure 29). All three bridges were used to provide this service. Four routes primarily served the City of Miami Beach (Figure 30).

The ridership numbers in Table 3 reflect the average daily ridership of the routes that provide service between the City of Miami and the City of Miami Beach.

On an average weekday there are 21,444 boardings on these routes. The routes that used the most northern bridge (I-195) carry 3,941 boardings, the middle bridge (Venetian Causeway) carries 70, while the routes on the southernmost bridge (MacArthur Causeway) carries 17,433 daily boardings.[10] The service span on these routes is quite extensive.

Table 4 provides a quick oversight of the hours of operation. (The numbers in the table were rounded to the nearest hours and/or half hour.) The S route which runs on Collins and Alton Road, runs until 4:00 am, while the J Route runs until 1:00 am and the Miami Beach Airport Flyer runs until 12:00 am. The headway varies between the 20 and 40 minutes during the day, while some routes switch to hourly in the later hours. The daily boardings of the routes that primarily serve the City of Miami Beach are listed in Table 5 shown, while the routes are shown in Table 6. The average daily weekday boardings on those four routes is 2,306.[11]

[10] Ridership Technical Report, Miami-Dade County, Transportation and Public Works, May 2017.
[11] [11] Ridership Technical Report, Miami-Dade County, Transportation and Public Works, May 2017.

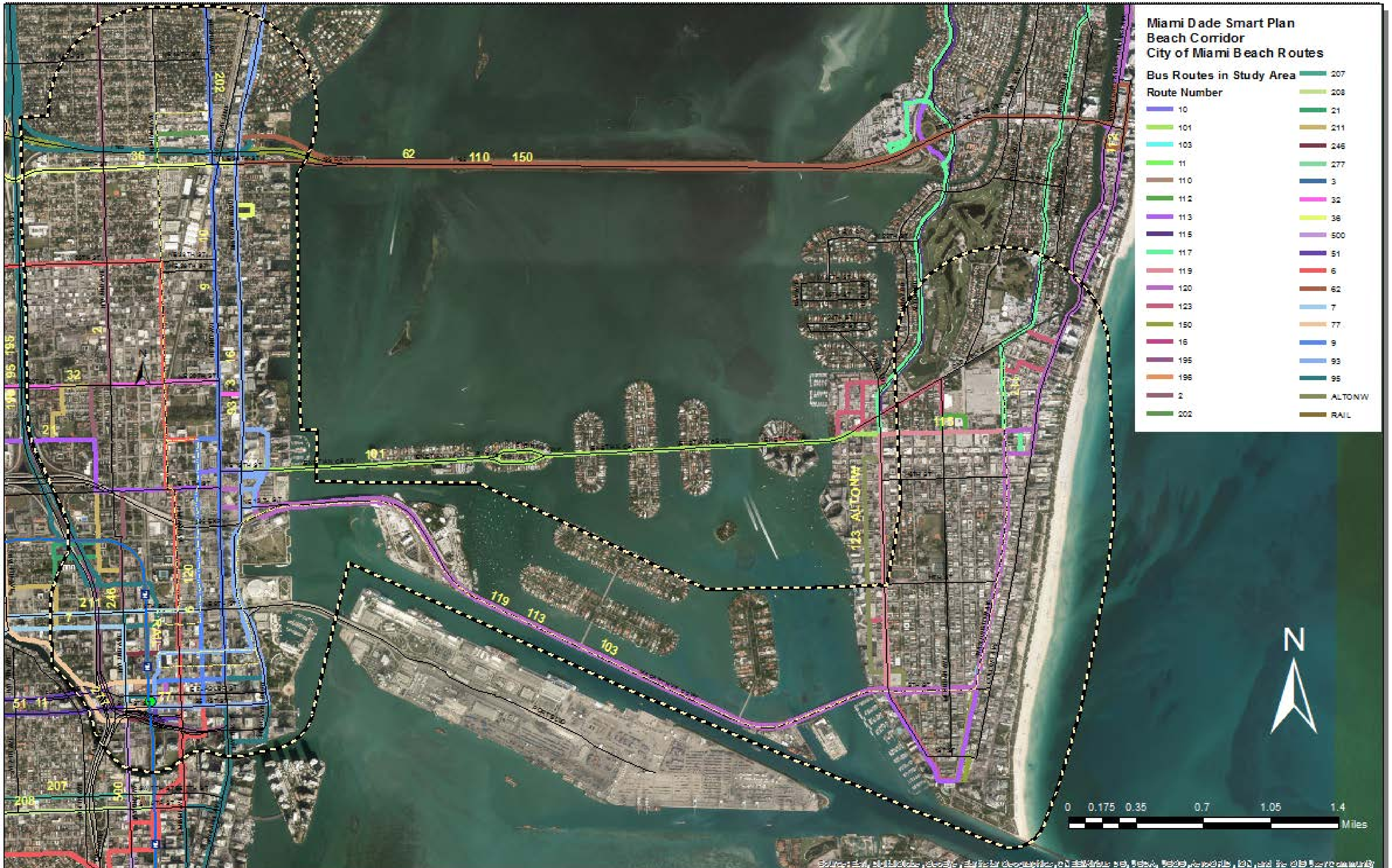

Figure 28 - Bus Route Coverages in Study Area

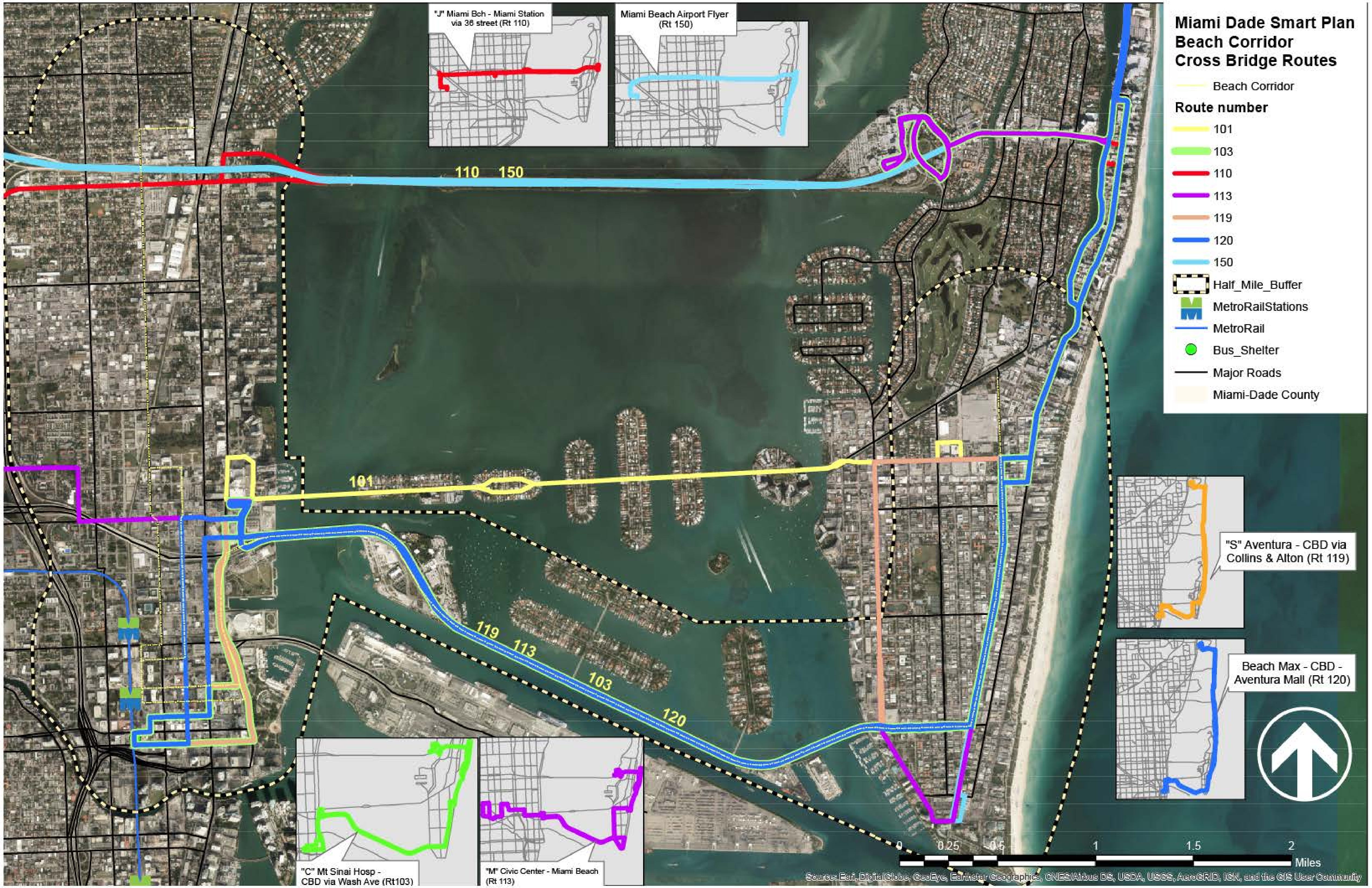

Figure 29 - Routes Serving both City of Miami and City of Miami Beach

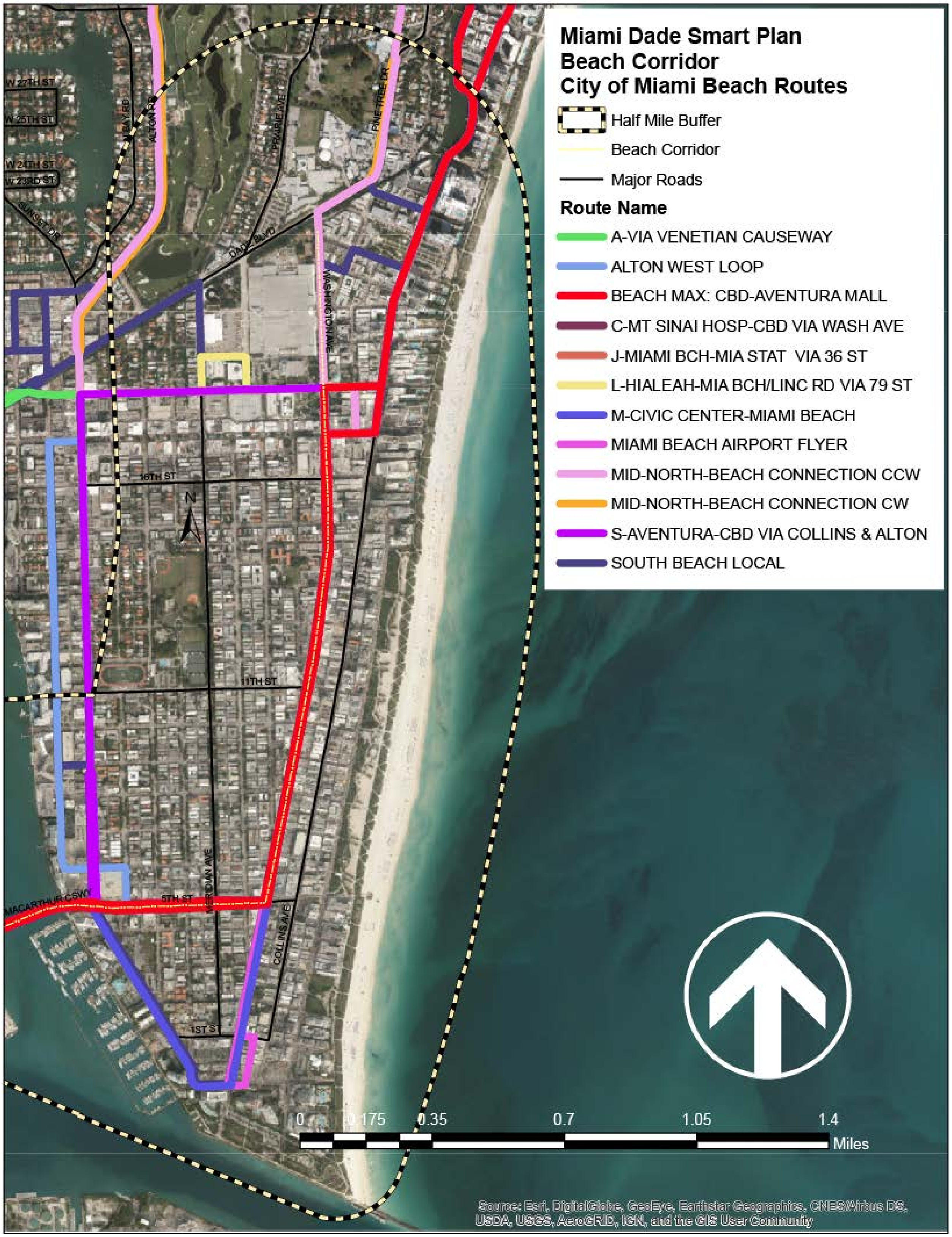

Figure 30 - Bus Service City of Miami Beach

Table 3 - Year 2015 Average Daily Ridership – Intercity Routes

Route Number	Route Name	Bridge	Average Daily Boardings by Route		
			Weekday	Saturday	Sunday
110	J - Miami Beach - Miami Station via 36th St	I-95	2,339	1,510	1,370
150	Miami Beach Airport Flyer	I-95	1,602	1,304	1,358
Subtotal			***3,941***	***2,814***	***2,728***
101	A - Via Venetian Causeway	Venetian Causeway	70	70	70
Subtotal			***70***	***70***	***70***
103	C - Mont Sinai Hospital - CBD via Washington Ave	MacArthur Causeway	2,462	1,852	1,473
113	M - Civic Center - Miami Beach	MacArthur Causeway	712	373	383
119	S - Aventura - CBD via Collins Ave & Alton Rd	MacArthur Causeway	8,636	5,656	6,632
120	Beach Max: CBD - Aventura Mall	MacArthur Causeway	5,623	3,692	2,924
Subtotal			17,433	11,573	11,412
Total			***21,444***	***14,457***	***14,210***

Table 4 - Service Span Routes - City of Miami and City of Miami Beach

Route Number	Route Name	Bridge	West bound & Northbound		East bound & Southbound	
			20 to 40 minutes	1 hour	30 minutes	1 hour
110	J - Miami Beach - Miami Station via 36th St	I-95	5:00 am - 9:00 pm	9:00 pm - 1:00 am	4:30 am - 8:00 pm	8:00pm - 12:00 am
150	Miami Beach Airport Flyer	I-95	5:00 am - 11:00 pm		6:00 am -12:00 am	
101	A - Via Venetian Causeway	Venetian Causeway	7:00 am - 7:00 pm		7:00 am - 7:00 pm	
103	C - Mont Sinai Hospital - CBD via Washington Ave	MacArthur Causeway	6:00 am - 10:00 pm		6:00am - 10:00 pm	
113	M - Civic Center - Miami Beach	MacArthur Causeway	6:00 am -10:00 am	10:00 am - 9:00 pm	not posted	not posted
119	S - Aventura - CBD via Collins Ave & Alton Rd	MacArthur Causeway	5:00 am - 1:00 am	1:00 am - 4:00 am	4:00 am - 1:00 am	1:00 am - 4:00 am
120	Beach Max: CBD - Aventura Mall	MacArthur Causeway	5:00 am - 9:30 pm		6:00 am - 11:00 pm	

Source: https://www.miamidade.gov/transit/

Table 5 - Daily Boardings Routes – City of Miami Beach

Route Number	Route Name	Average Daily Boardings by Route		
		Weekday	Saturday	Sunday
115	Mid - North - Beach Connetion CW	215		
117	Mid - North - Beach Connetion CCW	203		
123	South Beach Local	1,888	1,404	1,368
Alton W	Alton West Loop			
Total		**2,306**	**1,404**	**1,368**

Figure 31 shows all the routes that service the City of Miami within the study area, while Table 6 list the average daily boardings.

Table 6 - Average Daily Boardings Routes in City of Miami

Route Number	Route Name	Weekday	Saturday	Sunday
2	CBD-163 ST MALL VIA NW 2 AVE	2,487	1,426	1,118
3	AVENTURA MALL-CBD VIA BISC.BLVD.	6,053	6,485	4,762
6	CENT.PLAZA-ROUND TOWERS VIA CBD	462	338	280
7	CBD-DOLPHIN MALL/MIA STA.VIA NW 7ST	3,747	2,441	1,746
9	AVENTURA - CBD VIA NE 6 & 2 AVE	5,906	3,719	2,586
10	SKYLAKE - OMNI - VIA NE12 & 2AVE	2,506	1,933	1,492
11	FIU-CBD VIA FLAGLER ST	8,975	6,574	5,218
16	163 ST-OMNI VIA 16AV & BISC. BLVD	2,463	1,676	1,106
21	NORTHSIDE - CBD	2,015		
32	MIAMI GRDNS-OMNI VIA NW 32 AVE-20ST	2,729	1,054	831
36	DOLPHIN-DORAL-MIA.SPGS-VIA NW 36 ST	2,430	1,216	979
51	FLAGLER MAX: WEST DADE TO CBD	2,825		
62	HIALEAH-BISC BLVD VIA 62 ST	2,891	1,577	1,140
77	NORWOOD - CBD VIA NW 7 AVE	8,910	4,866	3,223
93	BISCAYNE MAX: CBD-AVENTURA	3,491		
95	I-95 GOLDEN GLADES EXPRESS	1,345		
112	L-HIALEAH-MIA BCH/LINC RD VIA 79 ST	8,148	5,856	4,832
195	DADE-BROWARD EXPRESS (BROWARD BLVD)	545		
196	DADE-BROWARD EXPRESS (SHERIDAN ST)	427		
202	LITTLE HAITI CONNECTION	193		
207	LITTLE HAVANA CONNECTION	1,290		
208	LITTLE HAVANA CONNECTION	1,113		
211	OVERTOWN CIRCULATOR	90		
246	NIGHT OWL	62	47	63
277	7 AVE MAX	658		
500	MIDNIGHT OWL	57	39	46
RA	REGULAR METRORAIL SCHEDULE	69,600	31,200	24,000
Total		141,418	70,447	53,422

Figure 31 - Routes Serving Primarily the City of Miami

3.2.5.3. Pedestrian and Bicycle

In order to assess a multimodal LOS for the pedestrian and bicyclist's experience, the Florida Quality Level of Service Handbook 2013 methodologies was used to determine the LOS measures for bicycles and pedestrian modes. The Quality Level of Service Handbook focuses on the bicyclist perspective of safety when sharing the road with vehicles. For this reason, the Q/LOS measures are based on facility attributes such as average effective speed of the outside lane, motorized vehicles volumes, motorized vehicles speeds, heavy truck traffic volumes, and pavement conditions.[12]

The equation below was used to determine a numerical LOS score. This numerical score usually ranges from 0.5 to 6.5.

Equation 1. Bicycle Level of Service Score

BLOS = 0.507 ln (Vol15/L) + 0.199SPt(1 + 10.38HV)2 + 7.066(1/PR5)2 − 0.005(We)2 + 0.760

Where:

- BLOS = Bicycle level of service score
- ln = Natural log
- Vol15 = Directional motorized vehicle count in the peak 15 minute time period
- L = Total number of directional through lanes
- SPt = Effective speed factor = 1.1199 Ln(SPp − 20) + 0.8103
- SPp = Posted speed limit (a surrogate for average running speed)
- HV = Percentage of heavy vehicles
- PR5 = FHWA's five point pavement surface condition rating
- We = Average effective width of outside through lane here

Once the numerical is determined, it is stratified to a LOS letter grade, as shown in Table 7.

12 http://www.fdot.gov/planning/systems/programs/SM/los/pdfs/2013%20QLOS%20Handbook.pdf

Table 7 - FDOT Bicycle and Pedestrian Score Threshold

FDOT Bicycle and Pedestrian LOS Score Threshold	
LOS	**Score**
A	<1.5
B	>1.5 and <2.5
C	>2.5 and <3.5
D	>3.5 and<4.5
E	>4.5 and <5.5
F	>5.5

Bicycle Level of Service

For the purpose of this study the most representative segments were used to determine the overall bicycle LOS where data was available. Bicycle LOS was assessed along Washington Avenue north of 14th Street, and along N Miami Boulevard north of NW 11th Street and NW 29th Street. The selection was based on attributes such as road geometry, traffic volumes, and location. The bicycle LOS was calculated for the northbound and southbound direction.

Traffic counts were obtained from an existing report, physical attributes of the roadway were determined by field observations, and aerial imageries and measure features in Google Earth. The highest 15-minute traffic count was selected which fell in the PM for westbound direction and in the AM for the eastbound direction.

Table 8 - Pedestrian and Bicycle LOS

Location	Pedestrian LOS		Bicycle LOS	
	Friday		Friday	
	NB	SB	NB	SB
Washington Ave. N of 14th St	B	B	C	C
N Miami Ave N of NW 11th St		C		D
N Miami Ave N of NW 29th St	C	C	D	D

As observed, the calculation the level of service (LOS) for bicycles stays constant at an acceptable LOS C in Washington Avenue, and LOS D along N Miami Boulevard in the City of Miami. Although the segments studied lack bicycle lanes they still have an acceptable LOS score due to the relatively low speeds found in these areas and low traffic volumes. Higher scores can be achieve by adding bicycle lines along these segments. It should be noted that Washington Avenue has shared roadway pavement marking which increases vehicle motorist's awareness, and a sense of safety for the cyclist.

Pedestrian Level of Service

The Florida Quality Level of Service Handbook accounts for different factors such as pedestrian perception and facility attributes to determine pedestrian LOS. The analysis tries to quantified and analyze factors that contribute or influence a pedestrian's perception of quality when using a sidewalk. These factors include the existence of sidewalks, lateral separation from pedestrian and moving traffic, traffic volumes, and average vehicle speeds. FDOT uses the equation below to determine the Pedestrian LOS (PLOS).[13]

Equation 2. Pedestrian Level of Service Score

PLOS = −1.2276 ln (Wol + Wl + fp × %OSP + fb × Wb + fsw × Ws) + 0.0091 (Vol15/L) + 0.0004 SPD2 + 6.0468

Where:

- PLOS = Pedestrian level of service score
- Ln = Natural log
- Wol = Width of outside lane
- Wl = Width of shoulder or bicycle lane
- fp = On-street parking effect coefficient (=0.20)
- %OSP = Percent of segment with on-street parking
- fb = Buffer area barrier coefficient (=5.37 for trees spaced 20 feet on center)
- Wb = Buffer width (distance between edge of pavement and sidewalk, feet)
- fsw = Sidewalk presence coefficient (= 6 − 0.3Ws)
- Ws = Width of sidewalk
- Vol15 = Count of motorized vehicles in the peak 15 minute period
- L = Total number of directional through lanes
- SPD = Average running speed of motorized vehicle traffic (mi/hr)

Once the numerical score is determined, it is stratified to a LOS letter grade, as shown in Table 7.

13

http://www.fdot.gov/planning/systems/programs/SM/los/pdfs/2013%20QLOS%20Handbook.pdf

For the purpose of this study the most representative segments were used to determine the overall Bicycle LOS where data was available. Pedestrian LOS was calculated along Washington Avenue north of 14th Street, and along N Miami Boulevard north of NW 11th Street and NW 29th Street. The selection was based on attributes such as road geometry, traffic volumes, and location. The LOS was calculated for the northbound and southbound direction.

Traffic counts were obtained from an existing report, physical attributes of the roadway were determined by field observations, and aerial imageries and measure features in Google Earth. The highest 15-minute traffic count was selected which fell in the PM for westbound direction and in the AM for the eastbound direction.

Referring to Table 8, the segments studied show that Washington Avenue in Miami Beach is operating at desirable LOS B, and this is attributed to wide sidewalks, presence of on-street parking which gives pedestrians a sense of safety by creating buffer zones between moving vehicular traffic and the pedestrian. Field observations showed that the studied segment of Washington Avenue provides users with a safe and comfortable pedestrian friendly network during the day and night taking into account other factors such as street lighting and commercial activity around the area.

In the City of Miami, N Miami Boulevard operates at a lower but still acceptable LOS C. Although the studied segments experience a considerate amount of traffic, the presence of wide sidewalks ranging from 6 feet to 10 feet enhances the pedestrian's perception of safety when using the sidewalks. Higher scores could be achieve by adding buffer zones along the length of the sidewalks.

Figure 32 show the existing bicycle lanes within the study area. .

Figure 32 - Existing Bicycle Lanes within the Study Area

Citi Bike Program

Within downtown Miami and the City of Miami Beach, The Citi Bike Program is providing access to bicycles for residents and visitors alike. The Citi Bike Program allows a rider to rent a bicycle at a "station" and return it at the same or any other station. There is a membership program that provides additional benefits when renting a bicycle. Bicycle access to a transit station is an important component of making transit use more attractive.

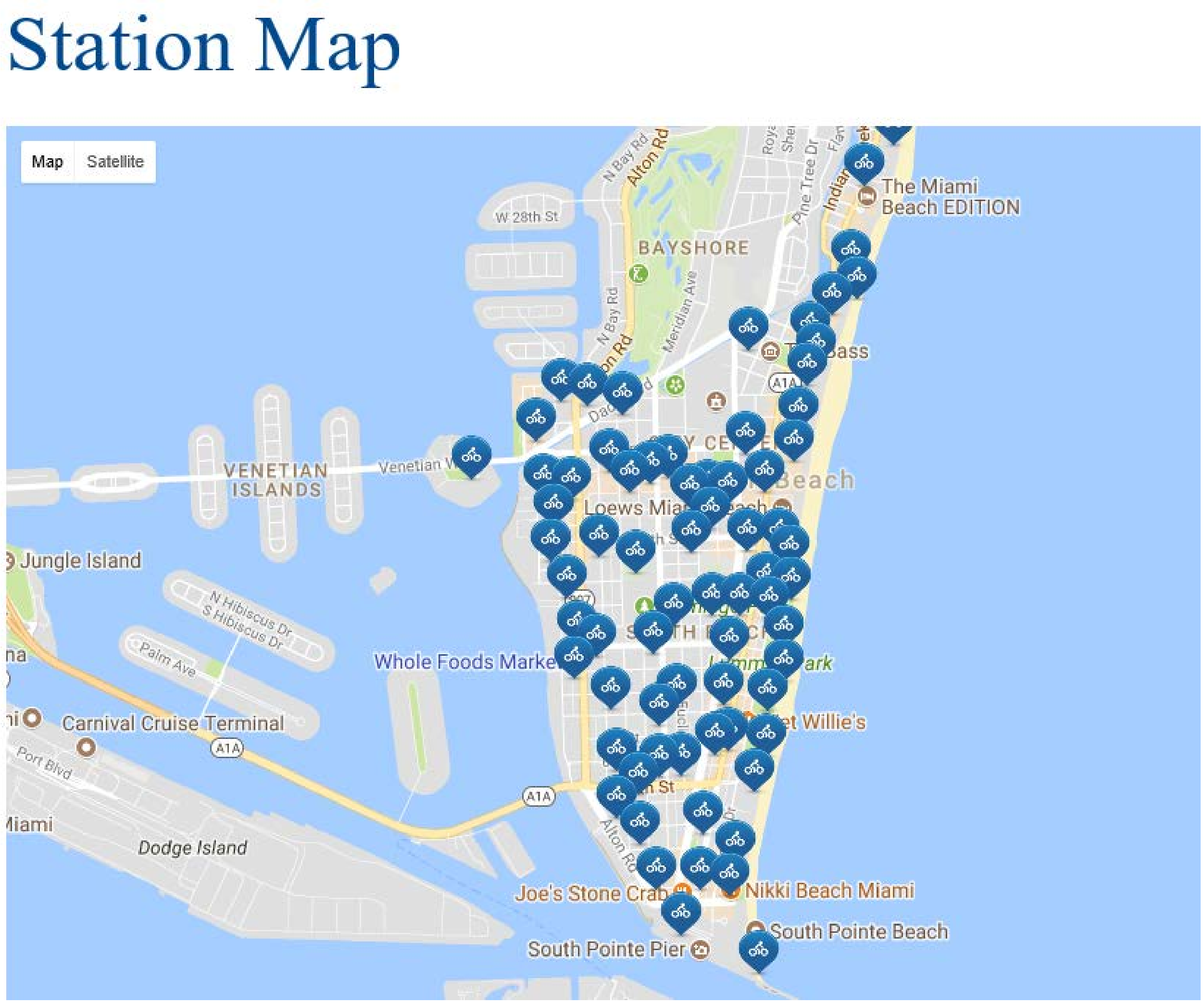

Figure 33 - Citi Bike Station – City of Miami Beach

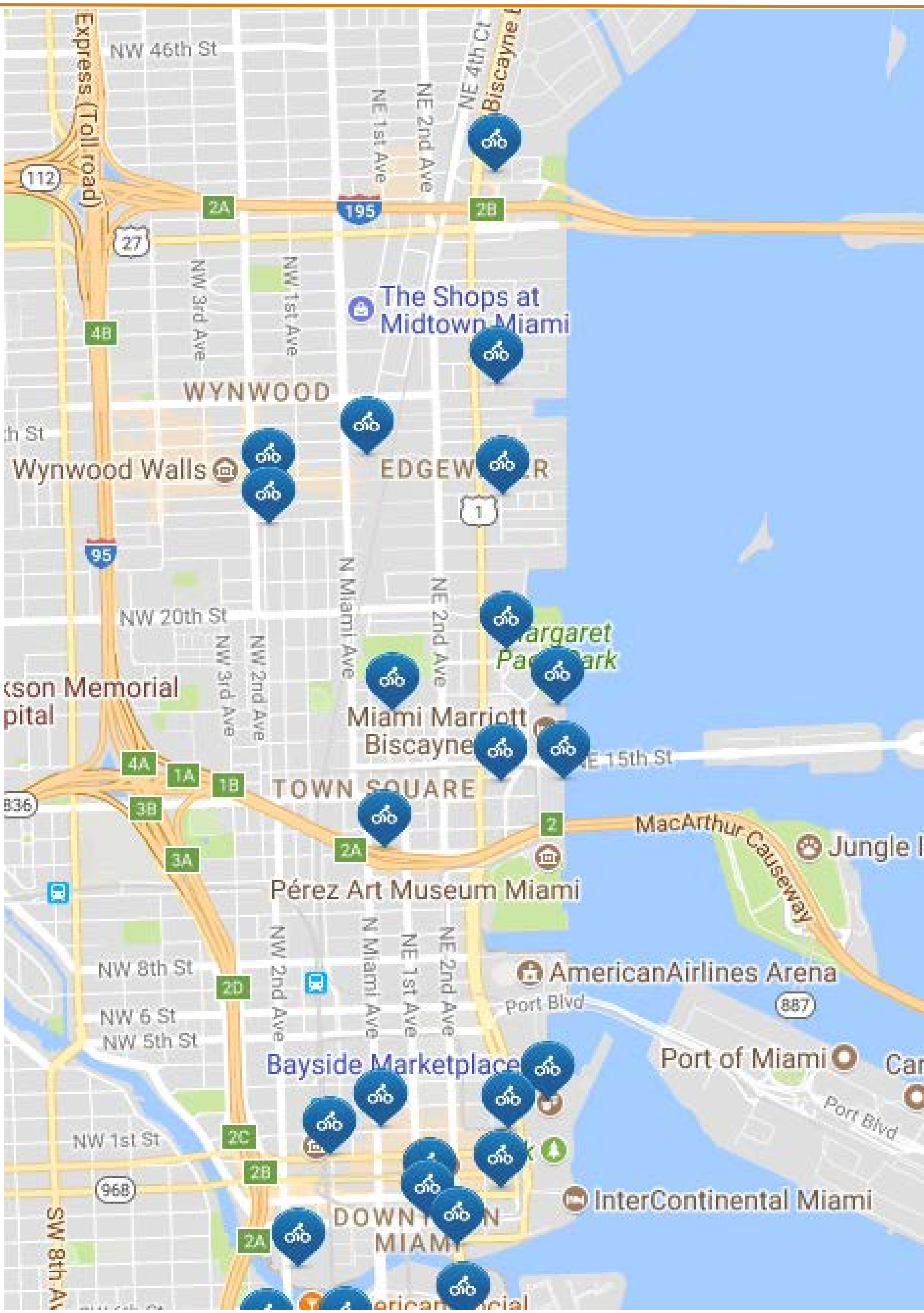

Figure 34 - Citi Bike Stations Downtown Miami

3.2.5.4 Travel Patterns

The travel patterns analyzed on the Beach Corridor focused on work flows along the corridor. Work trips make up more than 15% of the total daily traffic and are therefore the single most contributing factor to traffic congestion during peak hours. The analysis was conducted using the Longitudinal Employer-Household Dynamics (LEHD) data and the ACS/Census Transportation Planning Product (CTPP) data. The ACS/CTPP data is released periodically and at different geographic levels. Only the 5-year data has the geographic details that allow users to perform analysis for areas smaller than county. The most recent 5-year ACS/CTPP data available is for the years 2006-2010.

The work flow travel pattern analysis was performed for the Beach Corridor for both for residents that reside within the corridor but work in and out of the area; and for workers that work within the corridor but live in or outside of the area.

The profile of the workers that reside in the Beach Corridor is summarized by where they work, how they get to work, what time they leave, and the length of their driving time. Table 9 shows the profile of the workers residing in the Corridor.

As listed in Table 9, there was a total of 31,471 workers that lived within the Beach Corridor in 2014. The majority of the workers were aged between 30 and 54 years. More than 40% of them earned more than $3,333 per month or $40,000 per year. More than 18% of the workers were employed in Accommodation and Food Services, and close to 12% worked in Retail Trade Sector.

Regarding the sociodemographic composition of the resident workers, more than 75% of the workers are white, and 38% are Hispanic or Latino. Approximately a quarter of the workers (23.4%) have some college or associate degrees, and one out of five workers have a Bachelor's or an advanced degree. There are more male workers (54.1%) than female workers (45.9%) that live within the Corridor. Figure 35 lists the top 25 cities or Census Designated Places (CDP) in South Florida where residents of the Beach Corridor were employed. These locations are graphically displayed in Figure 36. More than a quarter of the residents (29.8%) worked in the City of Miami. Another 18% worked in the City of Miami Beach. Coral Gables and Doral employed 3.9% and 3.6% residents from the Beach Corridor, respectively. The local residents traveled to as far as Boca Raton to work.

Table 9 - Profile for Workers Residing in Beach Corridor

Categories	Count	Share
Total Number of Resident Workers		
	31,471	100.0%
Jobs by Worker Age		
Age 29 or younger	6,912	22.0%
Age 30 to 54	19,016	60.4%
Age 55 or older	5,544	17.6%
Jobs by Earnings		
$1,250 per month or less	7,151	22.7%
$1,251 to $3,333 per month	11,660	37.0%
More than $3,333 per month	12,661	40.2%
Jobs by NAICS Industry Sector		
Agriculture, Forestry, Fishing and Hunting	117	0.4%
Mining, Quarrying, and Oil and Gas Extraction	6	0.0%
Utilities	31	0.1%
Construction	1,028	3.3%
Manufacturing	591	1.9%
Wholesale Trade	1,545	4.9%
Retail Trade	3,606	11.5%
Transportation and Warehousing	1,524	4.8%
Information	723	2.3%
Finance and Insurance	1,603	5.1%
Real Estate and Rental and Leasing	897	2.9%
Professional, Scientific, and Technical Services	2,797	8.9%
Management of Companies and Enterprises	359	1.1%
Administration & Support, Waste Management and Remediation	2,341	7.4%
Educational Services	1,801	5.7%
Health Care and Social Assistance	3,635	11.5%
Arts, Entertainment, and Recreation	731	2.3%
Accommodation and Food Services	5,835	18.5%
Other Services (excluding Public Administration)	1,273	4.0%
Public Administration	1,029	3.3%
Jobs by Worker Race		
White Alone	23,732	75.4%
Black or African American Alone	5,910	18.8%
American Indian or Alaska Native Alone	205	0.7%
Asian Alone	1,058	3.4%
Native Hawaiian or Other Pacific Islander Alone	78	0.2%
Two or More Race Groups	489	1.6%
Jobs by Worker Ethnicity		
Not Hispanic or Latino	19,527	62.0%
Hispanic or Latino	11,945	38.0%
Jobs by Worker Educational Attainment		
Less than high school	4,725	15.0%
High school or equivalent, no college	6,011	19.1%
Some college or Associate degree	7,364	23.4%
Bachelor's degree or advanced degree	6,460	20.5%
Educational attainment not available (workers aged 29 or younger)	6,912	22.0%
Jobs by Worker Sex		
Male	17,012	54.1%
Female	14,460	45.9%

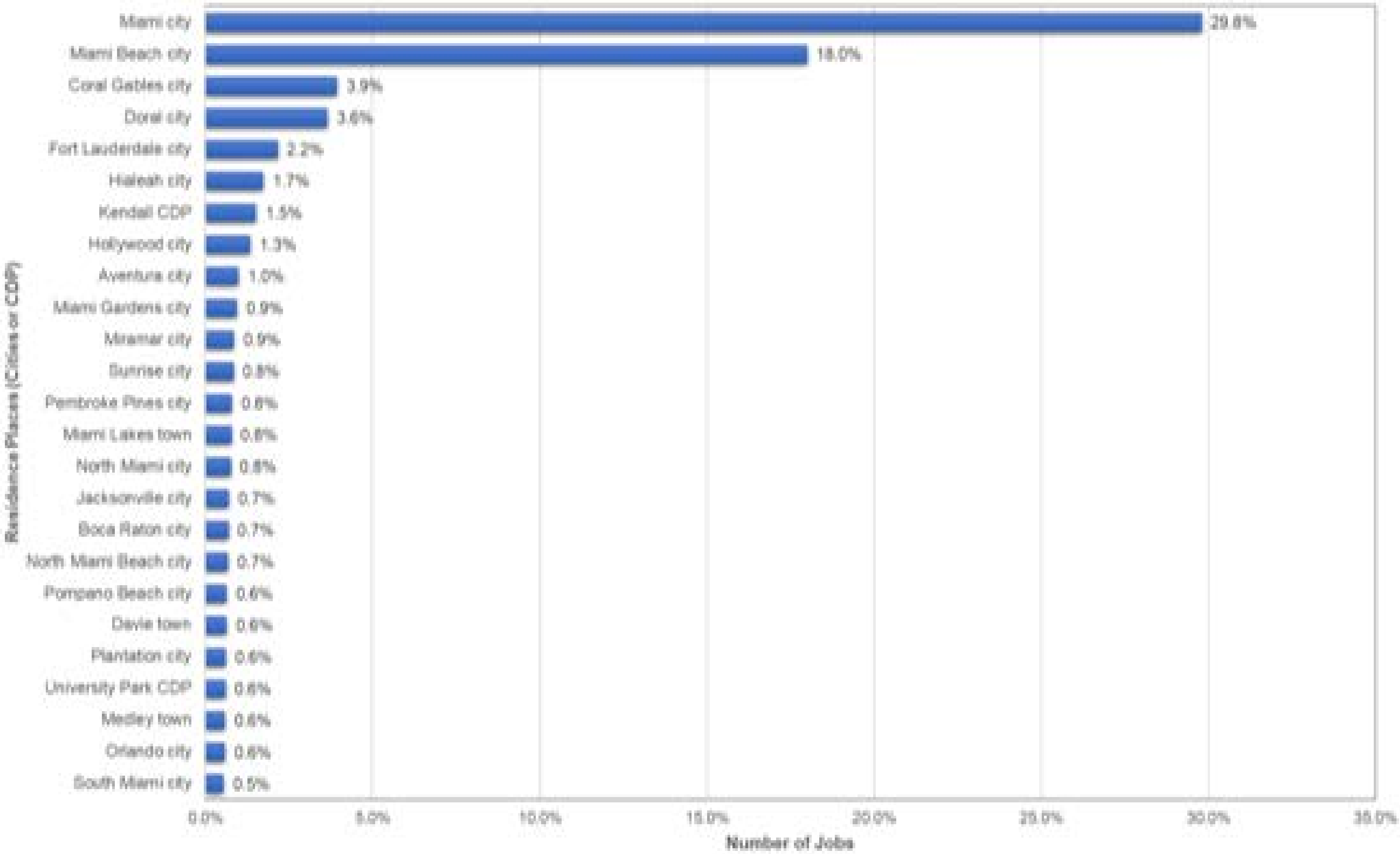

Figure 35 - Top 25 Work Locations for Beach Corridor Residents

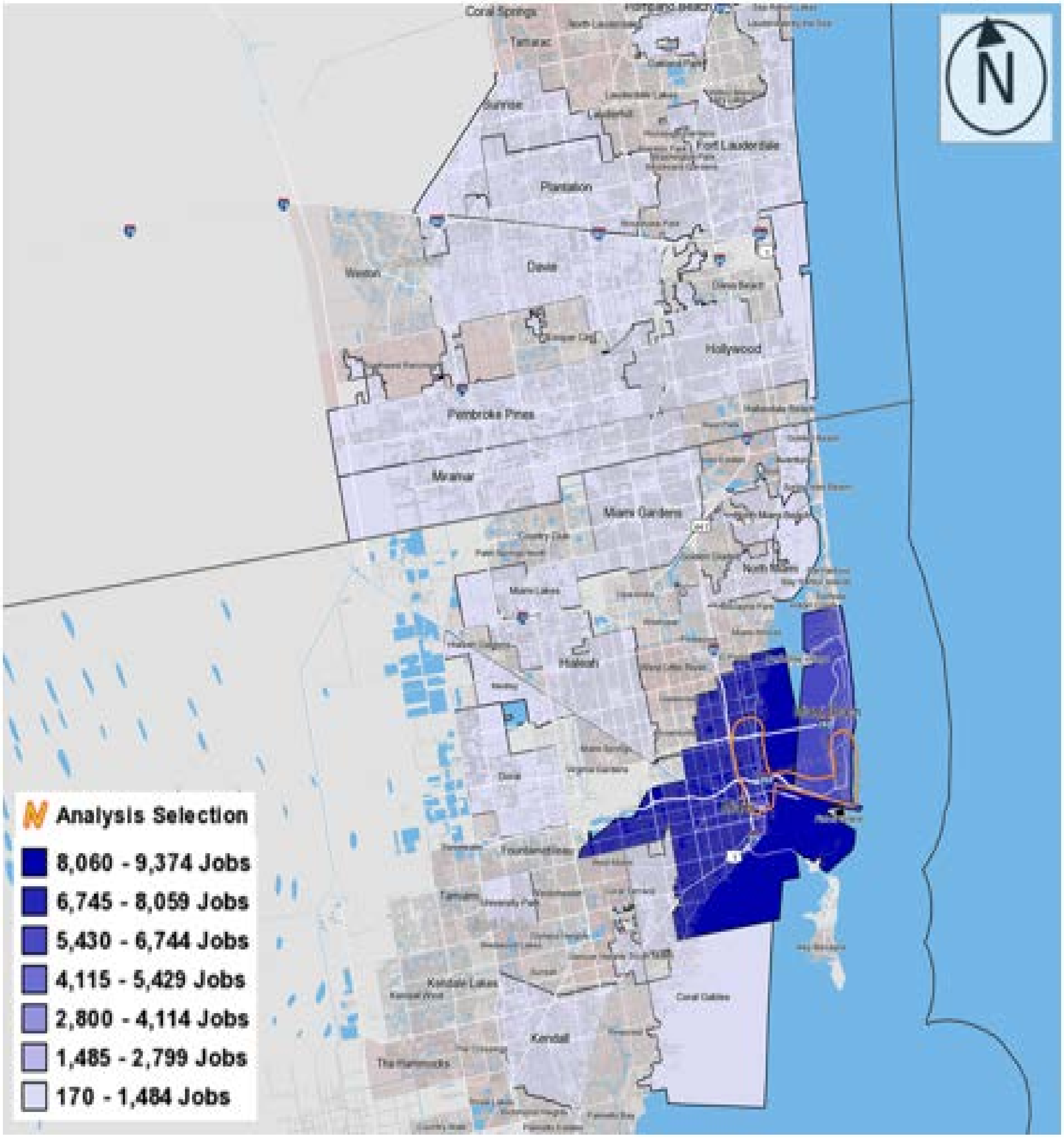

Figure 36 - Top 25 Work Locations for Beach Corridor Residents

Figure 37 shows the distribution of Means of Transportation (MOT) to work as reported in the 2006-2010 ACS/CTPP data for Beach Corridor residents. The Beach Corridor residents demonstrated a unique pattern in terms of mode usage. Unlike many other areas observed in

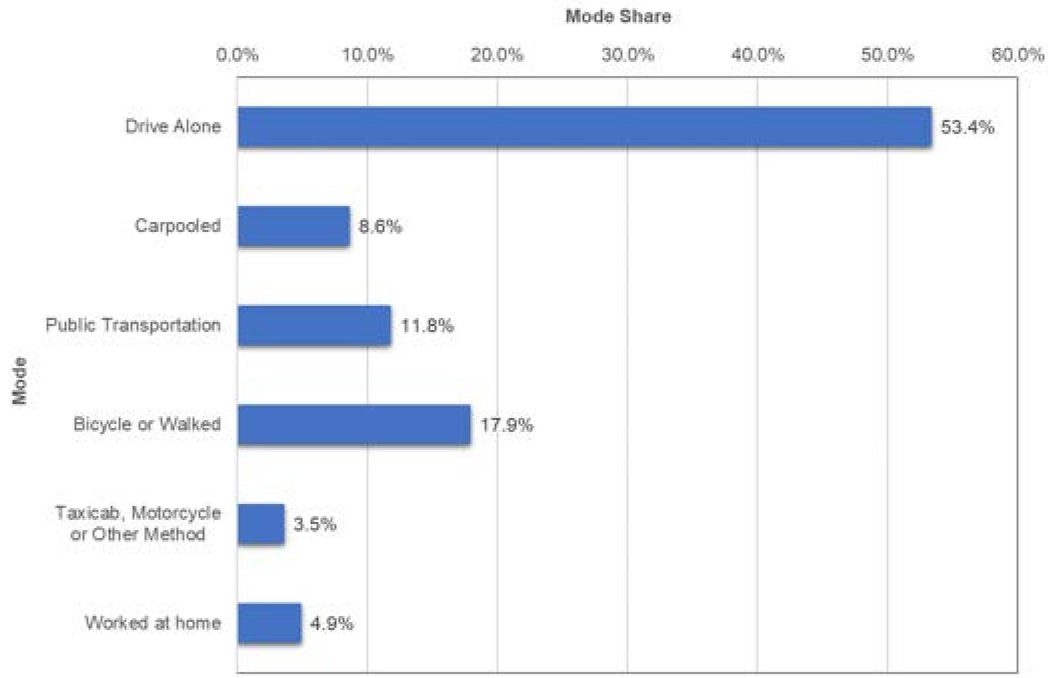

Figure 37 - Means of Transportation to Work for Beach Corridor Residents

the region, Drive Alone accounted for less than 54% of the total mode share. Nearly 12% of the Beach Corridor residents used public transportation to go to work, and more than 17% people went to work by bikcycle or walk. Approximately 5% of the residents worked at home.

Figure 38 shows the distribution of time leaving home to work according to the 2006-2010 ACS/CTPP data for Beach Corridor residents that did not work at home. About 12% of the residents left home for work between 8:00 am and 8:15 am. Close to 8% left home to work between 8:30 am and 8:45 am and between 9:00 am to 9:45 am. Next, the profile for people who work in the Beach Corridor and live inside or outside the corridor is summarized. According to the ACS data, the total number of workers in the Beach Corridor in 2014 was 178,671.

Table 10 shows the profiles of workers that were employed within the Beach Corridor based on the 2014 LEHD data. The majority of the workers were aged between 30 and 54 years old. About 51% of them earned more than $3,333 per month or $40,000 per year. More than a fourth (32.5%) of the workers were employed in Educational Services, while 13% worked in Accommodation and Food Services sector.

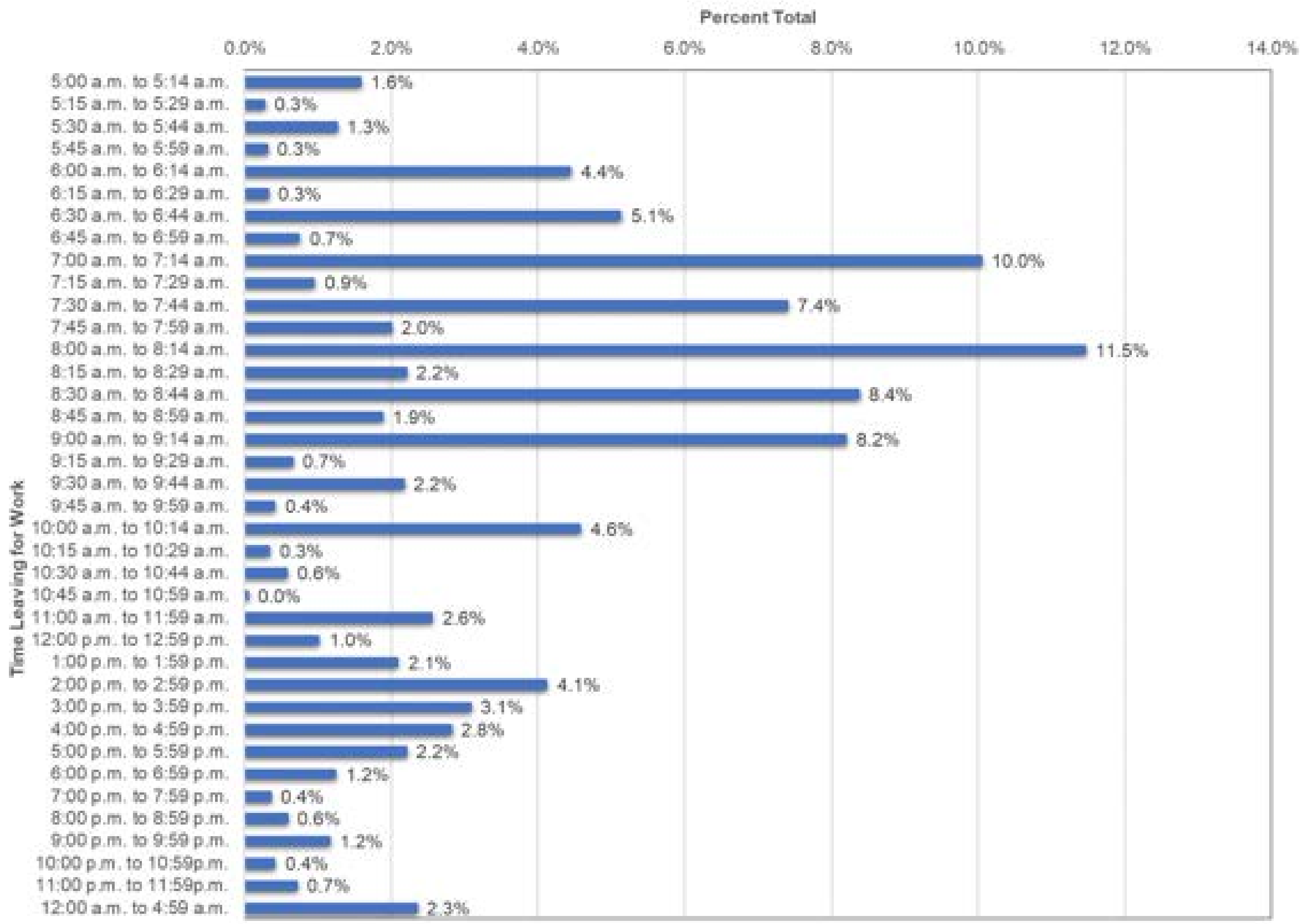

Figure 38 - Timing Leaving for Work for Beach Corridor Residents

Table 10 - Profile for Workers Employed in Beach Corridor

Categories	Count	Share
Total Number of Workers Employed in Beach Corridor		
	178,671	100.0%
Jobs by Worker Age		
Age 29 or younger	27,956	15.6%
Age 30 to 54	107,171	60.0%
Age 55 or older	43,544	24.4%
Jobs by Earnings		
$1,250 per month or less	34,503	19.3%
$1,251 to $3,333 per month	52,905	29.6%
More than $3,333 per month	91,263	51.1%
Jobs by NAICS Industry Sector		
Agriculture, Forestry, Fishing and Hunting	5	0.0%
Mining, Quarrying, and Oil and Gas Extraction	6	0.0%
Utilities	134	0.1%
Construction	1,207	0.7%
Manufacturing	901	0.5%
Wholesale Trade	2,641	1.5%
Retail Trade	8,792	4.9%
Transportation and Warehousing	1,410	0.8%
Information	2,172	1.2%
Finance and Insurance	4,997	2.8%
Real Estate and Rental and Leasing	2,147	1.2%
Professional, Scientific, and Technical Services	11,395	6.4%
Management of Companies and Enterprises	1,100	0.6%
Administration & Support, Waste Management and Remediation	5,012	2.8%
Educational Services	58,128	32.5%
Health Care and Social Assistance	13,185	7.4%
Arts, Entertainment, and Recreation	3,091	1.7%
Accommodation and Food Services	23,649	13.2%
Other Services (excluding Public Administration)	3,481	1.9%
Public Administration	35,218	19.7%
Jobs by Worker Race		
White Alone	121,056	67.8%
Black or African American Alone	50,106	28.0%
American Indian or Alaska Native Alone	767	0.4%
Asian Alone	4,232	2.4%
Native Hawaiian or Other Pacific Islander Alone	267	0.1%
Two or More Race Groups	2,243	1.3%
Jobs by Worker Ethnicity		
Not Hispanic or Latino	101,472	56.8%
Hispanic or Latino	77,199	43.2%
Jobs by Worker Educational Attainment		
Less than high school	24,201	13.5%
High school or equivalent, no college	34,057	19.1%
Some college or Associate degree	48,850	27.3%
Bachelor's degree or advanced degree	43,607	24.4%
Educational attainment not available (workers aged 29 or younger)	27,956	15.6%
Jobs by Worker Sex		
Male	80,726	45.2%
Female	97,945	54.8%

Figure 39 lists the top 25 cities or CDPs in South Florida where workers employed in the Beach Corridor lived. These locations are graphically displayed in Figure 40. The residence locations of the Beach workers seem to spread across the entire South Florida region. Only 60% of the workers came from the top 25 cities and CDPs. The City of Miami had the largest number of Beach Corridor workers with about 15%, workers living in the City. This is followed by the City of Miami Beach where more than 5% workers lived in the City. Another 4.8% of Beach workers resided in Miami Gardens.

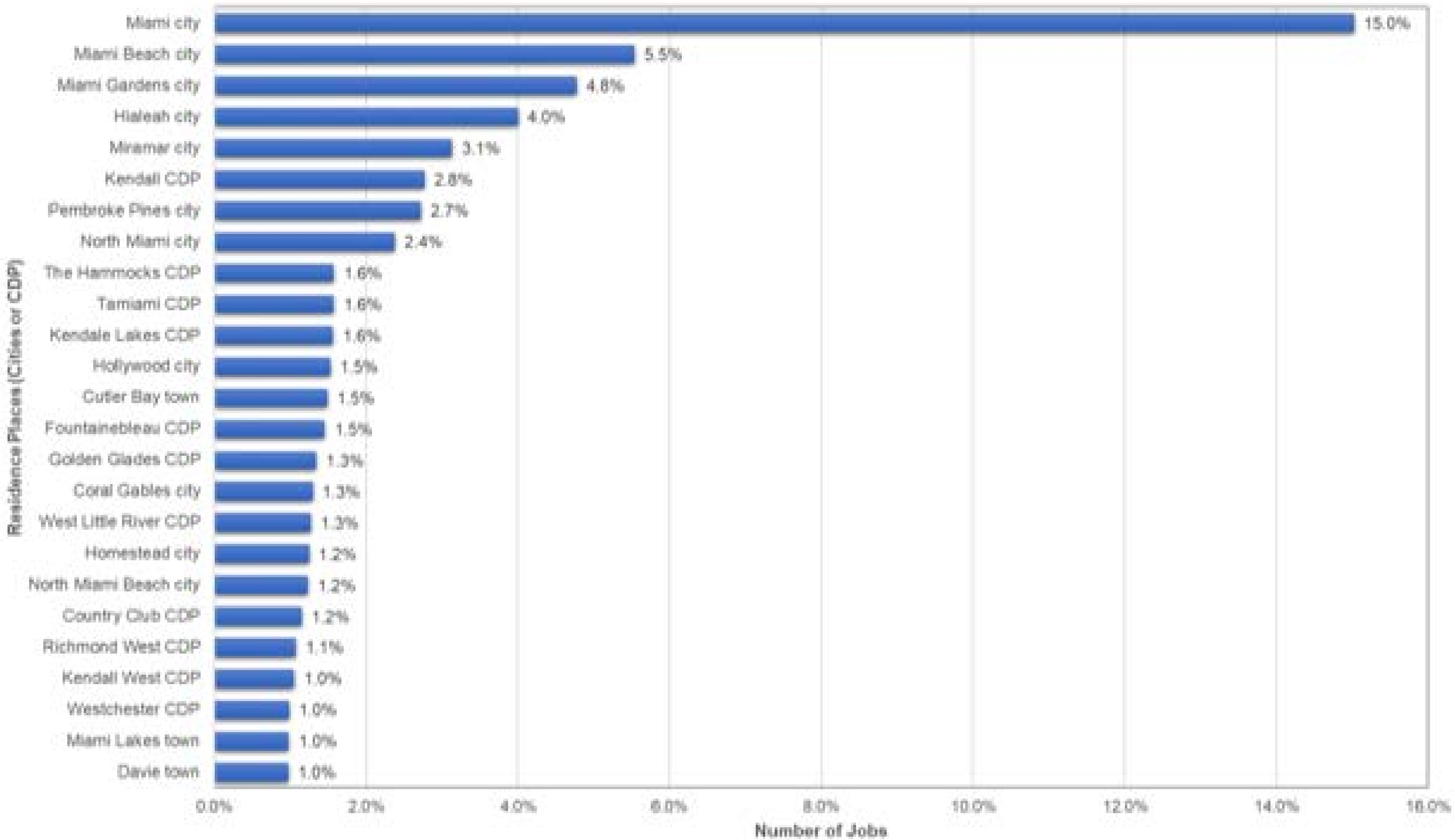

Figure 39 - Top 25 Residence Location for Beach Corridor Workers

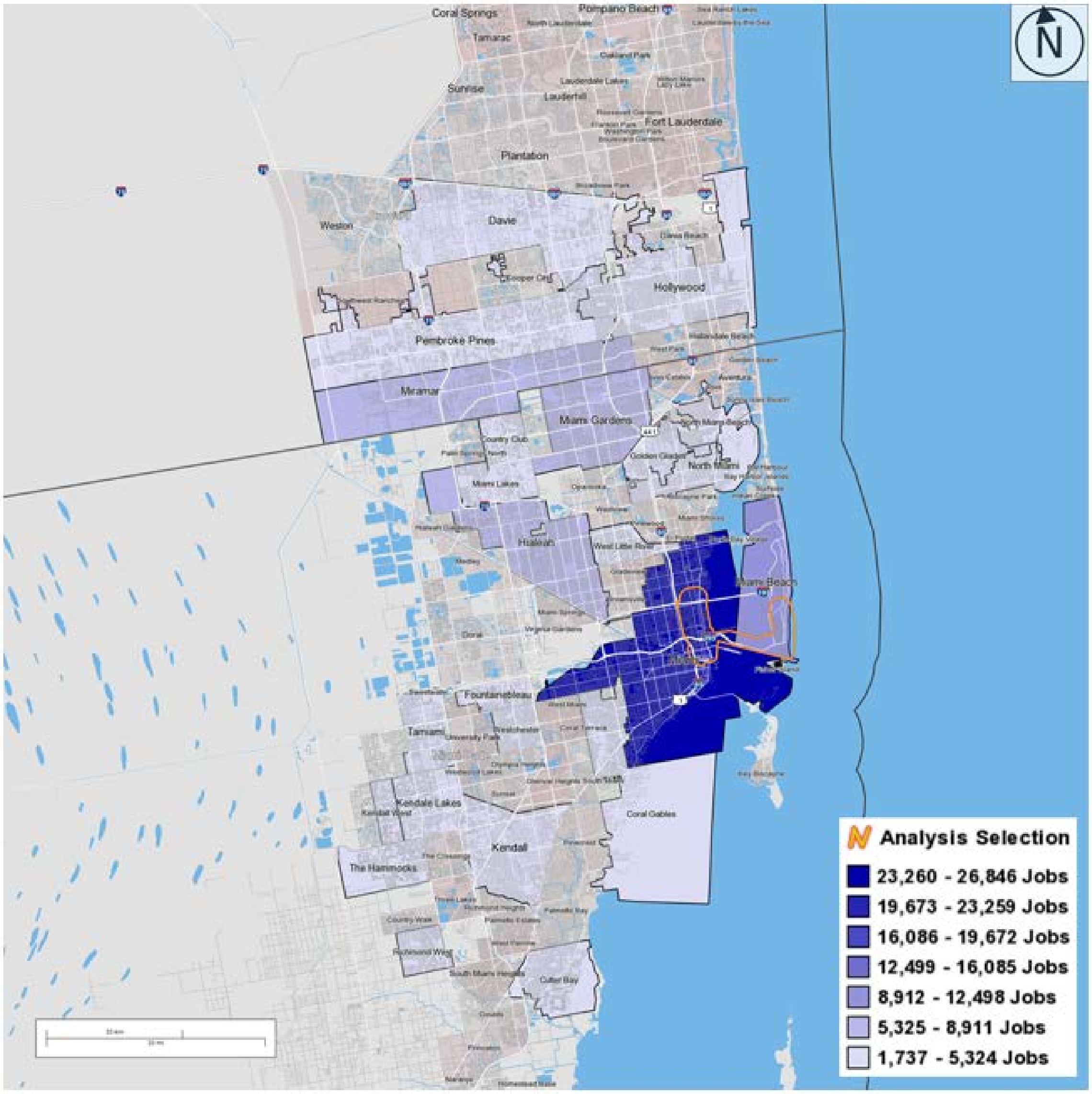

Figure 40 - Top 25 Residence Locations for Beach Corridor Workers

Figure 41 shows the distribution of Means of Transportation (MOT) to work as reported in the 2006-2010 ACS/CTPP data for Beach Corridor workers. Even though Drive Alone is still the dominant mode of transportation for people to go to work, its share of 72% is significantly lower than the typical 80%-90% mode share observed in other similar areas. More than 10% of the workers carpooled with other people. Public Transportation made up about 9% of the total travel, and 4% of the people came to work by bicycle or walk. Only 1.1% of the Beach Corridor employees worked at home.

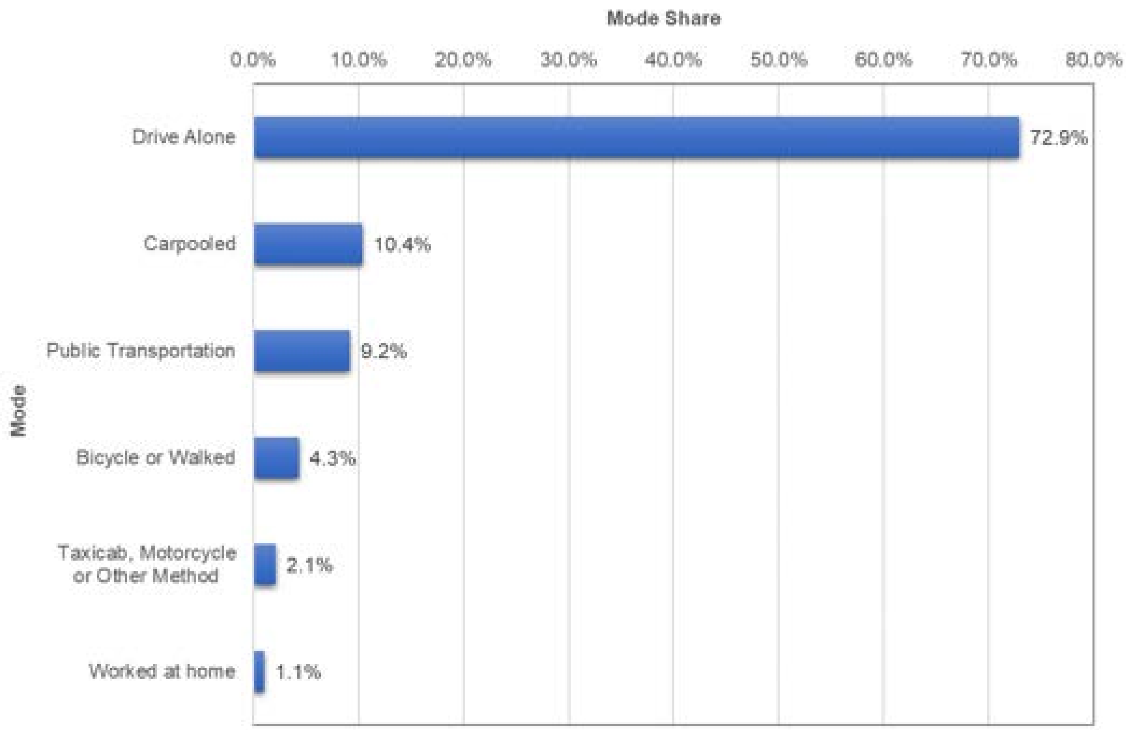

Figure 41 - Means of Transportation (MOT) to Work for Beach Workers

Figure 42 shows the distribution of time arriving at work according to the 2006-2010 American Community Survey/Census Transportation Planning Products data for Beach Corridor workers that did not work at home. About 8% of the workers arrived at work between 7:30 am and 7:45 am. The same percentage of the workers arrived at work between 8:00 am to 8:15 am. The next 15-minutes interval that had the largest arrivals was between 8:30 am and 8:45 am when over 6.7% of the workers came to work.

Figure 43 illustrates the distribution of travel time to work based on the 2006-2010 ACS/CTPP data for Beach Corridor workers that did not work at home. About 8% of the workers traveled less than 20 minutes to work, and people 20% traveled between 20 and 29 minutes to work. Thirty-percent of the workers spent 30 to 44 minutes on the road to work. Close to 12% of the workers traveled more than one-hour to get to their workplaces. The average travel time was 36.9 minutes.

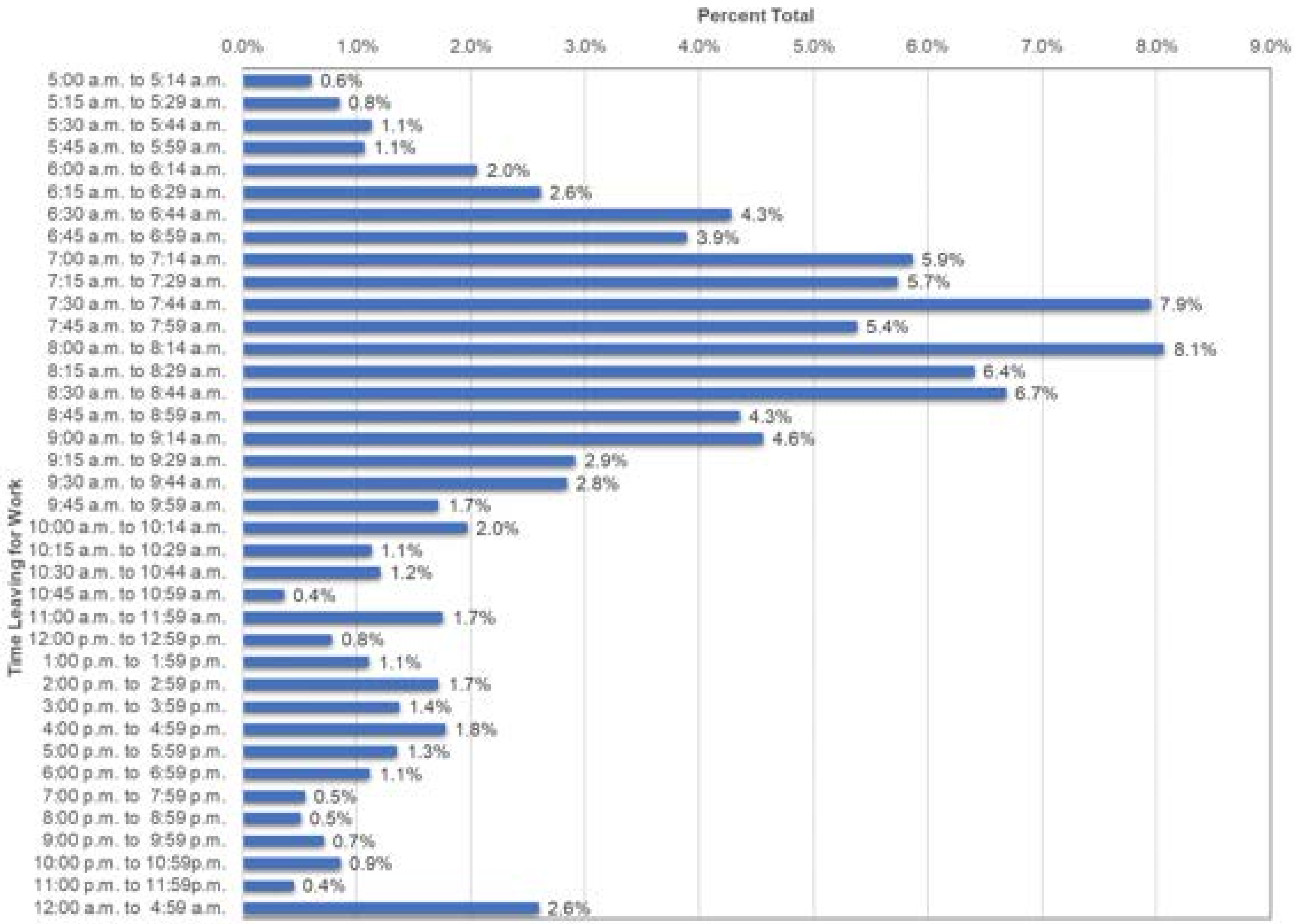

Figure 42 - Timing Arriving at Work for Beach Corridor Workers

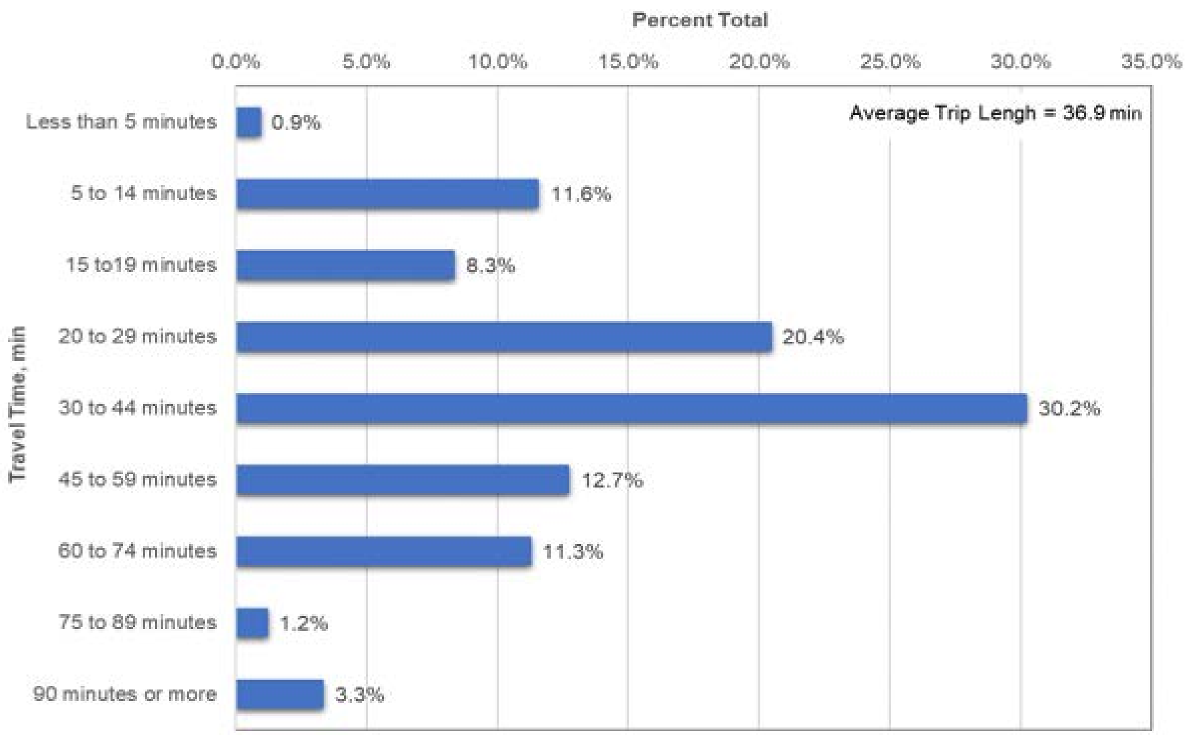

Figure 43 - Distribution of Travel Time to Work for Beach Corridor Workers

3.3. Needs Analysis

As indicated by the data discussed in the previous paragraph, the Beach Corridor is a congested corridor with limited right-of-way to increase roadway capacity. The SMART Plan corridors plan was developed to analyze alternative modes and land uses along the corridor in an effort to alleviate the current congestion but more importantly to enable an increase in development and sustainability of economic growth.

In this section, we list the improvements that have been identified and are currently programmed for the Beach Corridor. These projects were identified through a variety of completed planning studies. Although all these projects will improve the functioning of the corridor, additional changes will need to occur in order to support an increase in density of development along the Beach Corridor. In section 3.3.2., a closer look at the data summarized thus far and the travel patterns on the corridor will be analyzed.

3.3.1. Programmed Projects

The following list of projects are currently programmed to alleviate the congestion on the Beach Corridor. These projects are listed in the Year 2040 Long Range Transportation Plan (LRTP) as well as the Transportation Improvement Program (TIP) 2018.

TPO Project Number: Title: Description

- DT4293002: SR 9A/I-195: Rigid Pavement Reconstruction from NW 8 Street to NW 29th Street.
- DT4244072: SR 968/ SW 1st Street: Landscaping at SW South River Drive.
- DT4291931: SR 907/Alton Road: Flexible pavement reconstruction from Michigan Avenue to S of ED Sullivan Drive/43rd Street.
- DT4291932: SR 907/Alton Road: Intersection improvement at Michigan Avenue.
- DT4291933: SR 907/ Alton Road: Landscaping from Michigan Avenue to E of Allison Road.
- DT4293004: SR 925/NW 3 Court & NW 3 Avenue: Resurfacing from NW 1 Street to NW 8 Street.
- DT4347781: SR 112/Arthur Godfrey: Intersection improvement from Alton Road to West of Pine Tree.
- DT4365221: SR A1A/MacArthur Causeway East Bridge: Bridge-Repair/Rehabilitation.
- DT4365351: SR 907/Alton Road: Bridge-Repair/Rehabilitation at Dade Blvd Bridge.
- DT4377821: SR 968/Flagler Street: PD&E/EMO Study from SR 821/HEFT to SR 5/ Biscayne BLVD (BRT Study).
- DT4379151: SR 5/Biscayne BLVD: Intersection improvement from SW 14 Avenue to SW 2 Avenue.
- DT4380562: SR 968/West Flagler Street: Landscaping from SW 14 Avenue to SW 2 Avenue.
- DT4401691: SR A1A/ Collins Avenue Signalized Intersection Lighting: Lightning.
- DT4401701: SR A1A/Collins Avenue Signalized Intersection Lighting: Lightning from 18th Street to 65th Street.
- DT4401781: SR 907/Alton Signalized Intersection Lighting: Lightning from 6 street to Delaware Avenue.
- DT4401901: SR 5/ US 1 Signalized Intersection Lighting: Lighting from SE 1st Street to Sans Souci BLVD.
- DT4402281: I-195/SR 112 from NW 12 Avenue to SR 907/Alton Road: Transportation planning from NW 12th Avenue to SR 907/Alton Road.
- MU000055: 41 Street: Corridor improvement from Alton Road to Collins Avenue.
- PW0001010: Alton Road and 4 Street: Traffic Signal.
- PW000716: Venetian Causeway Bridge: Study from Bayshore Drive and Purdy.
- PW000925: N Miami Avenue: Resurfacing from N 17 Street to N 87 Street.
- PW000980: NE 1 Avenue and NE 6 Street: Intersection improvement.

- SP2544571: Districtwide Seaports Administration: Public Trans in-house support.
- TA4387491: Transit Connector: PTO Studies from Downtown Miami to Miami Beach.
- DT4366091: City of Miami-Metromover Station Access Improvement: Sidewalk.
- DT4386611: City of Miami Beach Beachwalk II: Bicycle path/Trail.
- DT4403031: Atlantic Greenway Trail: Bicycle path/Trail from South Pointe Park to 87 Terrace.
- SP4311261: Port of Miami, Port of Miami Post PANAMAX Cranes: Seaport capacity project.
- SP4406161: Port of Miami Upland Cargo Improvement: Seaport capacity project.
- SP4406171: Port of Miami inland cargo and container distribution center: Seaport capacity project.
- SP6410330: Port Miami Multi-modal Terminal: facilities moves.
- SP6410510: Cruise Terminal H: Terminal H- Mechanical Upgrades.
- SP641540: Federal inspection facility: Federal inspection facility.
- SP642930: Port Miami Multi-Modal Terminal: Cruise Terminal J Improvements.
- SP644010: Cargo Gateway Security Systems: Cargo Gate modifications.
- SP644300: Terminal Bulkheads Future Repairs: Program for terminal bulkhead repairs.
- SP644520: Container yard improvements seaboard: Container yard improvement.
- SP645430: Seaport improvements: Infrastructure improvements.
- SP646300: Cargo Bulkheads Rehabilitation: Cargo Bulkhead rehabilitation.
- SP647720: Sewer upgrades at various locations: Sewer upgrades ay PORTMIAMI various locations.

3.3.2. Data Assessment

The list of identified projects for the Beach Corridor is a mixture of highway, transit, pedestrian, bicycle and parking improvements. In an effort to improve traffic flow on the Beach Corridor additional changes will have to occur including changes in the land use development patterns. These patterns are driven by land use regulations/incentives and the City of Miami has created a separate set of zoning regulations for Urban Centers in an effort to increase the mix and density of the land use along the Beach Corridor. These zoning regulations are discussed in section 3.4.

In addition, incentives will need to be developed to entice people away from their drive alone experience. Without either a reduction in the number of trips, or a more evenly spreading of the trips during the 24 hour cycle, the network will experience more and more congestion.

Based on the ACS data, the residents of the Beach Corridor demonstrate a unique pattern in terms of mode usage for the work trip. Unlike many other areas observed in the region, Drive Alone accounted for less than 48% of the total mode share. Nearly 8% of the Beach Corridor residents used public transportation to go to work, and more than 25% people went to work by bicycle or walk. Approximately 6% of the residents worked at home.

Analyzing the driving patterns of the people that work in the Beach Corridor, the Drive Alone is still the dominant mode of transportation for people to go to work, but its share of 70% is significantly lower than the typical 80%-90% mode share observed in other similar areas. More than 11% of the workers carpooled with other people. Public Transportation made up about 9% of the total travel, and 6% of the people came to work by bicycle or walk. Only 1.3% of the Beach Corridor employees worked at home.

Based on this analysis, there are many people that use transit to get to work within the City of Miami Beach and downtown Miami. There are several contributing factors that are driving this. First, in both places there is a cost associated with parking. Not only in dollars but also in the time associated with finding a space. Secondly, the real estate value in the City of Miami Beach and downtown Miami cannot be supported by those in the lower income brackets, forcing this group to drive onto the island. This issue is not uncommon and the literature review provides information on how other geographical areas are dealing with this complex issue.

In the end, cost and convenience are a big influence in the travel behavior of people. However, the sensitivity to these two variables is different for different people. In addition, to the individual cost, there is the societal cost associated with pollution and noise.

The most typical incentives used, particular for trips with destinations in the downtown area or landlocked areas such as the City of Miami Beach, are parking costs. Parking policies in general are getting more attention not only as a tool to influence travel behavior but also driven by a change in need as it relates to new technologies, such as the autonomous vehicles.

3.4. Transit Oriented Development Guidelines

The access to the transit service needs to be convenient to the use of transit. The City of Miami and the City of Miami Beach have implemented several zoning methods/districts to support the development of communities which support and promote the use of transit. Areas have been designated CUC, MUC and RUC. These zoning designations are incorporated in the CDMP and have been discussed in previous sections. The different Urban Centers are shown in Figure 44.

The SERPM-V7 was summarized for the TAZs surrounding the Urban Centers along the Beach Corridor. Approximately 14% of the households and 38% of the employment along the Beach Corridor are located in a TAZ adjacent to an Urban Center. Listed in Table 11 are some of the household characteristics which influence the trip making patterns of a household. Table 12 shows the base year estimates associated with the data surrounding the Urban Center. As can be seen with the projections most relationships (number of zero workers per HH, number of HH with an income less than $25, etc.) were kept the same.

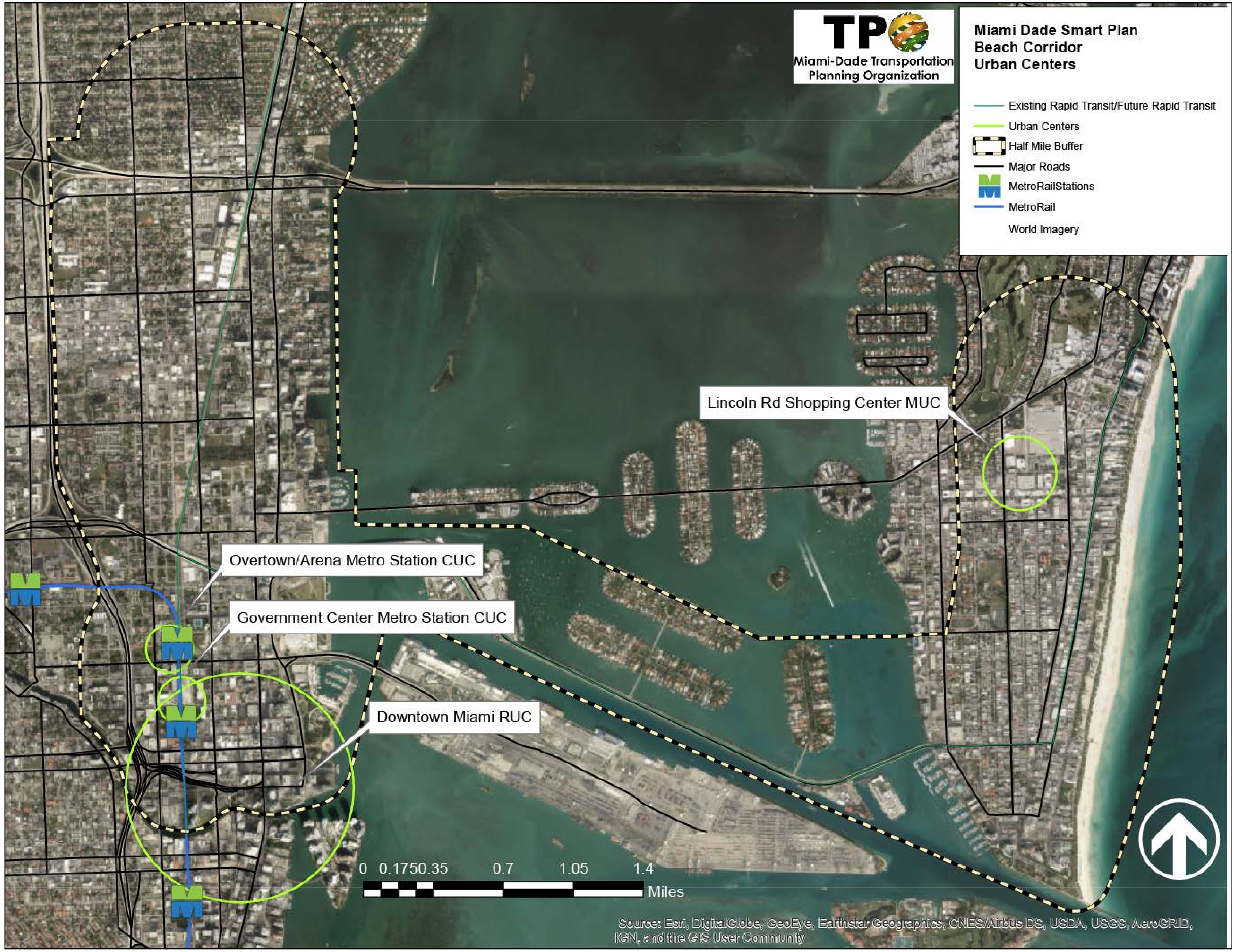

Figure 44 - Urban Centers Beach Corridor

Table 11 - Year 2015 Socieconomic Data Urban Centers

Urban Center Name	2015												
	Households	Population	Pop/HH	HH Zero Workers		HH Zero Children		HH Income less $25K		Pop Age > 79		Employment	
				Number	Percent of HH	Number	Percent of HH	Number	Percent of HH	Number	Percent of Pop	Number	Percent of Corridor
Overtown/Arena Metro Station, Government Center Metro Station, Downtown Miami	5,482	9,739	1.78	1,195	22%	4,951	90%	1,912	35%	131	1%	31,394	29%
Lincoln Rd Shopping Center	2,502	4,114	1.64	522	21%	2,274	91%	871	35%	146	4%	9,484	9%
CUC Total	**7,984**	**13,853**	**1.74**	**1,717**	**22%**	**7,225**	**90%**	**2,783**	**35%**	**277**	**2%**	**40,878**	**38%**
Beach Corrridor Total	56,409	107,010	1.90	14,007	25%	48,362	86%	18,445	33%	4,026	4%	108,651	

Table 12 -Year 2040 Socioeconomic Data Urban Centers

Urban Center Name	**2040**												
	Households	**Population**	**Pop/HH**	**HH Zero Workers**		**HH Zero Children**		**HH Income less $25K**		**Pop Age > 79**		**Employment**	
				Number	**Percent of HH**	**Number**	**Percent of HH**	**Number**	**Percent of HH**	**Number**	**Percent of Pop**	**Number**	**Percent of Corridor**
Overtown/Arena Metro Station, Government Center Metro Station, Downtown Miami	11,563	20,419	1.77	3,265	28%	10,627	92%	4,064	35%	413	2%	39,193	28%
Lincoln Rd Shopping Center	3,651	6,224	1.70	810	22%	3,218	88%	1,105	30%	230	4%	11,665	8%
CUC Total	*15,214*	*26,643*	*1.75*	*4,075*	*27%*	*13,845*	*91%*	*5,169*	*34%*	*643*	*2%*	*50,858*	*36%*
Beach Corridor Total	97,118	179,755	1.85	24,284	25%	84,390	87%	30,506	31%	6,667	4%	141,901	

Referring to Table 12, the number of households in the downtown Urban Centers will more than double, while the employment is not projected to increase significantly.

3.4.1. Zoning

City of Miami

In 2010, the Miami 21 Code became effective replacing the old zoning ordinance known as Ordinance 11,000.[14] The Zoning Map for the study area is depicted in Figure 45.

.

[14] http://www.miami21.org/PDFs/November%202006.pdf

Figure 45 - Beach Corridor Zoning Map

The form based code sets forth standards for each transect zone in the City of Miami. Figure 46, shows the transect zone in the Beach Corridor. For this study each transect zone within the study limit was analyzed, and applicable standards are summarized below. This study found that urban core areas designated as (T5 and T6) in the Miami 21 represent 56.7 percent or 1,056 acres of the total land within the study area in City of Miami, the definition of these urban zones are shown below and taken directly from the Miami 21 Code, the table below shows the uses permitted and prohibited in urban core areas.

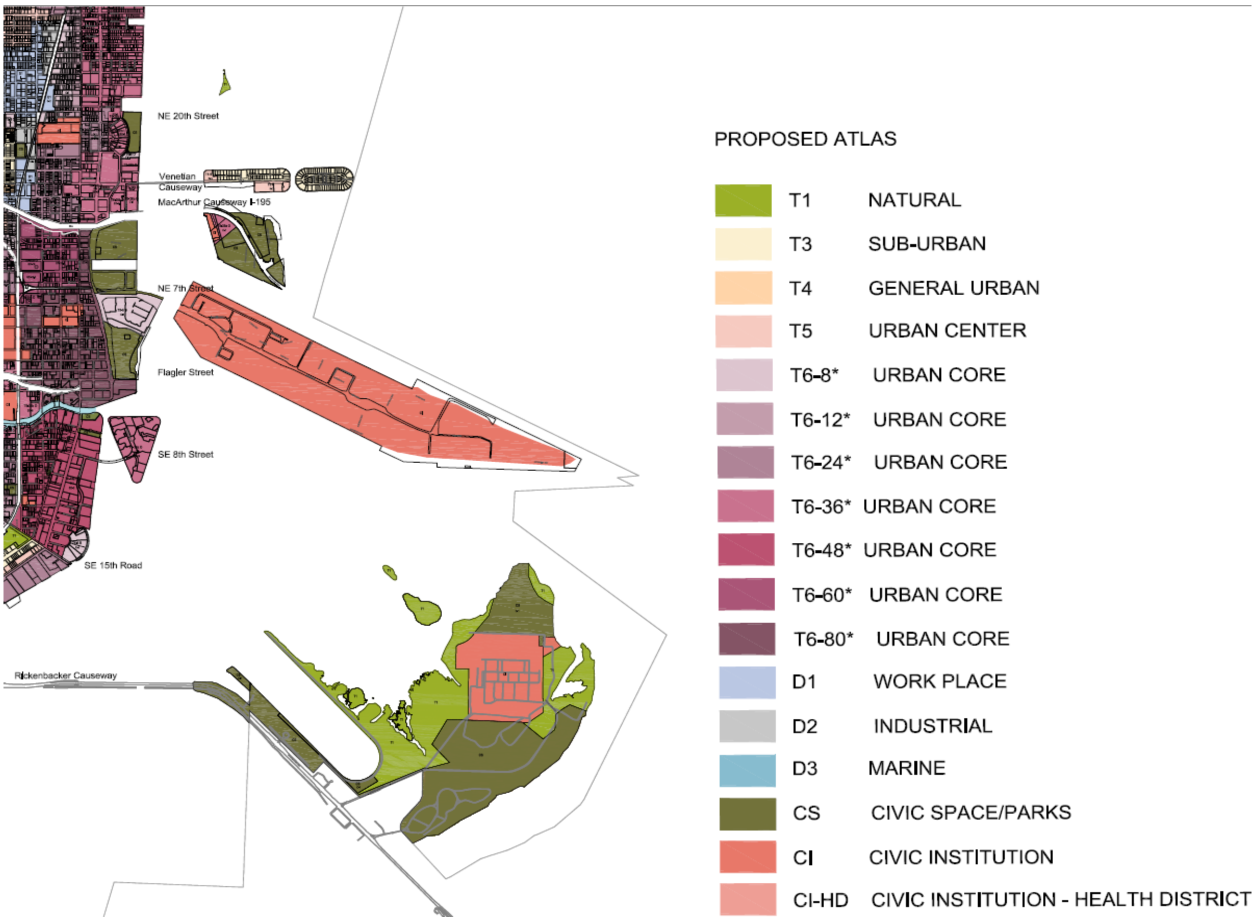

Figure 46 - Transect Zones

- **T5 Urban Center Zone:** consists of higher Density Mixed-Use Building types that accommodate retail and office Uses, rowhouses and apartments. A network of small blocks has Thoroughfares with wide Sidewalks, steady street tree planting and Buildings set close to the Frontages with frequent doors and windows.
- **T6 Urban Core Zone:** consists of the highest Density and greatest variety of Uses, including Civic Buildings of regional importance. A network of small blocks has Thoroughfares with wide Sidewalks, with steady tree planting and Buildings set close to the Frontage with frequent doors and windows.

Table 13 - Building Function: Uses

MIAMI 21

AS ADOPTED - MAY 2017

ARTICLE 4. TABLE 3 BUILDING FUNCTION: USES

	T3 SUB-URBAN			T4 URBAN GENERAL			T5 URBAN CENTER			T6 URBAN CORE			C CIVIC			D DISTRICTS		
	R	L	O	R	L	O	R	L	O	R	L	O	CS	CI	CI-HD	D1	D2	D3
DENSITY (UNITS PER ACRE)	9	9	18	36	36	36	65	65	65	150*	150*	150*	N/A	AZ**	150*	36	N/A	N/A
RESIDENTIAL																		
SINGLE FAMILY RESIDENCE	R	R	R	R	R	R	R	R	R	R	R	R						
COMMUNITY RESIDENCE	R	R	R	R	R	R	R	R	R	R	R	R			R			
ANCILLARY UNIT		R		R	R	R												
TWO FAMILY RESIDENCE			R	R	R	R	R	R	R	R	R	R						
MULTI FAMILY HOUSING				R	R	R	R	R	R	R	R	R			R			
DORMITORY					E	E		R	R		R	R		E	R			
HOME OFFICE	R	R	R	R	R	R	R	R	R	R	R	R			R			
LIVE - WORK					R	R		R	R		R	R			R			
WORK - LIVE															R	R		
LODGING																		
BED & BREAKFAST				W	R	R	E	R	R	E	R	R			R	R		
INN						R		R	R	E	R	R			R	R		
HOTEL								R	R		R	R			R			
OFFICE																		
OFFICE					R	R		R	R		R	R		E	R	R	R	W
COMMERCIAL																		
AUTO-RELATED COMMERCIAL ESTAB.									W		W	W				R	R	
ENTERTAINMENT ESTABLISHMENT						R		W	R		R	R				R	R	
ENTERTAINMENT ESTAB. - ADULT																	R	
FOOD SERVICE ESTABLISHMENT					R	R		R	R	W	R	R	W	E	R	R	R	W
ALCOHOL BEVERAGE SERVICE ESTAB.					E	E		E	E		E	E			E	E	E	E
GENERAL COMMERCIAL					R	R		R	R	W	R	R	E	E	R	R	R	W
MARINE RELATED COMMERCIAL ESTAB.								W	W		W	W	E			R	R	R
OPEN AIR RETAIL								W	W		W	W	W	E	R	R	R	W
PLACE OF ASSEMBLY								R	R	E	R	R		E	E	R	R	W
RECREATIONAL ESTABLISHMENT								R	R		R	R		E	R	R	R	W
CIVIL SUPPORT																		
COMMUNITY SUPPORT FACILITY					W	W		W	W		W	W		E	E	R	R	W
INFRASTRUCTURE AND UTILITIES	W	W	W	W	W	W	W	W	W	W	W	W	W	E	W	W	R	W
MAJOR FACILITY														E	R	E	E	E
MARINA				E	W	W	E	W	W	E	W	W	R	E		R	R	R
PUBLIC PARKING					W	W	E	W	W	E	W	W		E	R	R	R	W
RESCUE MISSION														E	R	E	W	W
TRANSIT FACILITIES					W	W	E	W	W	E	W	W		E	R	R	R	W
EDUCATIONAL																		
CHILDCARE				E	W	W	E	W	W	W	W	W	E	E	R	E		
COLLEGE / UNIVERSITY								W	W		W	W		E	R	E		
ELEMENTARY SCHOOL	E	E	E	E	E	E	E	W	W	E	W	W		E	R	E		
LEARNING CENTER					E	E		R	R		R	R	E	E	R	E		
MIDDLE / HIGH SCHOOL	E	E	E	E	E	E	E	W	W	E	W	W		E	R	E		
PRE-SCHOOL	E	E	E	E	E	E	E	R	R	E	R	R		E	R	E		
RESEARCH FACILITY					R	R		R	R		R	R		E	R	R	R	W
SPECIAL TRAINING / VOCATIONAL						E		W	W		W	W		E	R	R	R	W
INDUSTRIAL																		
AUTO-RELATED INDUSTRIAL ESTBL.																R	R	W
MANUFACTURING AND PROCESSING																R	R	W
MARINE RELATED INDUSTRIAL ESTBL.																R	R	R
PRODUCTS AND SERVICES																R	R	W
STORAGE/ DISTRIBUTION FACILITY																R	R	W

R Allowed By Right

W Allowed By Warrant: Administrative Process - CRC (Coordinated Review Committee)

E Allowed By Exception: Public Hearing - granted by PZAB (Planning, Zoning & Appeals Board)

Boxes with no designation signify Use prohibited.

Uses may be further modified by Supplemental Regulations, State Regulations, or other provisions of this Code. See City Code Chapter 4 for regulations related to Alcohol Beverage Service Estab.

* Additional densities in some T6 zones are illustrated in Diagram 9.

** AZ: Density of lowest Abutting Zone

IV.8

The form-based code format of the Miami 21 Code allows for the development of transit-oriented, pedestrian-friendly, mixed use urbanism in each of its transect zones. Some of the guidelines relating to transit oriented development are presented below and taken directly from the Miami 21 code:[15]

- New Development should be structured to reinforce a pattern of Neighborhoods and urban centers, focusing growth at transit nodes rather than along Corridors.
- Neighborhoods and Urban centers should be compact, pedestrian-oriented and Mixed-Use. Density and Intensity of Use should relate to degree of transit service.
- Establish commercial Corridors to function as Mixed-Use, transit-oriented, walkable areas for the neighborhood and its surrounding community.
- Within a Transit Oriented Development (TOD), an additional reduction of fifteen percent (15%) of required parking is permitted by Right and an additional reduction of fifteen percent (15%) of required parking is permitted for Attainable Mixed-Income Housing Projects by Waiver for residential developments. (In some cases parking reduction percentages can increase up to 50% depending on density).

The Miami 21 Code presents a Transit Orinted Development diagram (Figure 47) that depicts the location of existing and future transit sheds, pedestrian shades, proposed street car, bus routes, exiting and future metrorail, and health districts. The locations of TOD's found on the Miami 21 diagram is consistent with the location of Urban Centers found in the adopted 2020-2030 Miami-Dade County except for the future transit shed at I-195 and US-1 intersection which is depicted in the Miami 21 Code and not in the CDMP.

For a better understanding of the TOD diagram two key definitions as per the Miami 21 Code are provided below:

Pedestrian Shed: An area, approximately circular, that is centered on a common destination. A Pedestrian Shed is applied to determine the approximate size of a Neighborhood. A Standard Pedestrian Shed is one-quarter (1/4) mile radius, about the distance of a five-minute walk at a leisurely pace. A Linear Pedestrian Shed is elongated to follow a commercial corridor, measuring one-quarter (¼) mile out from the center line of the corridor. The outline of the shed must be refined according to actual site conditions, particularly along Thoroughfares. The common destination should have the present or future capacity to accommodate Transect Zones successional in Density to its surroundings. A Long Pedestrian Shed is one-half (1/2) mile radius, and may be used for mapping a Transit Oriented Development (TOD) when transit is present or proposed.

[15] http://www.miami21.org/PDFs/AsAmended-April2012.pdf

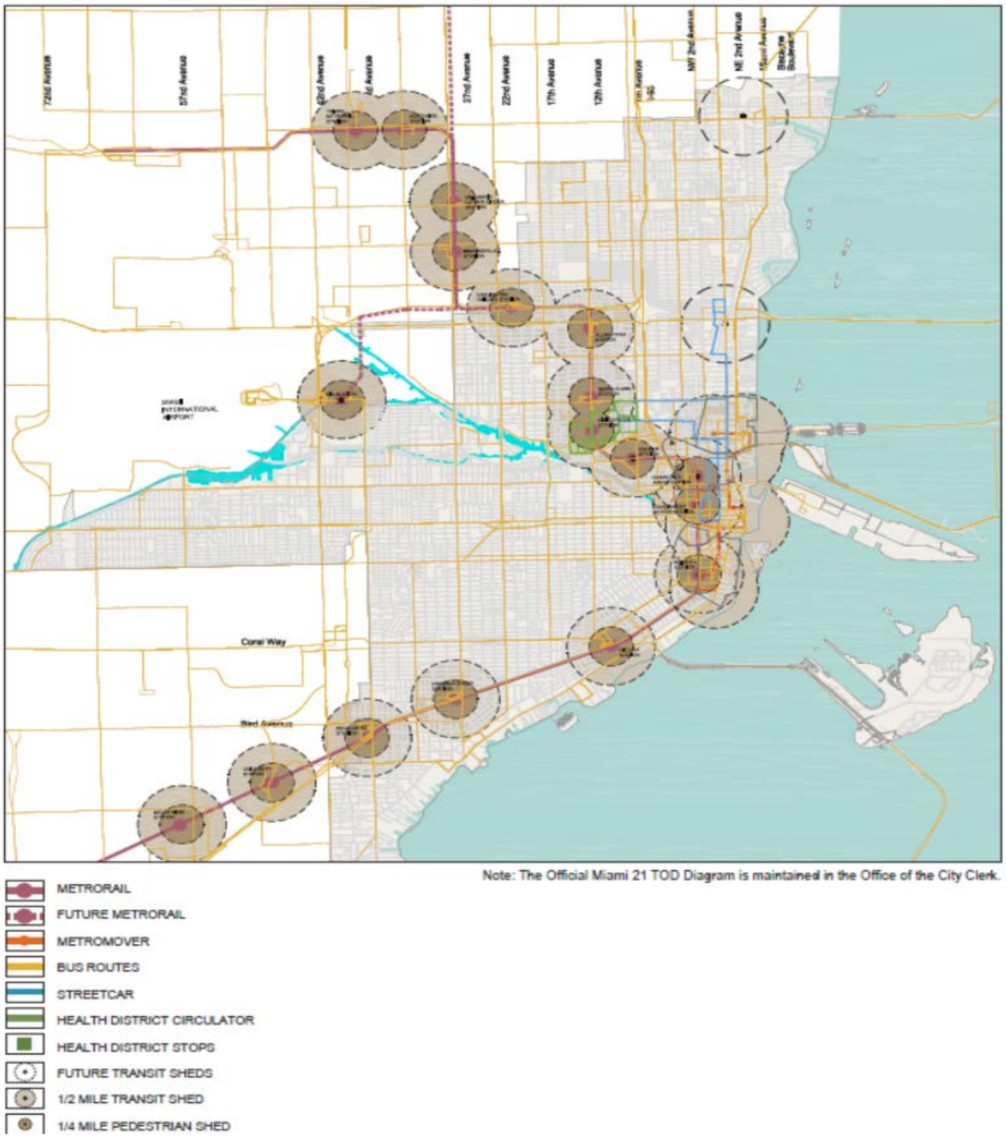

Figure 47 - Miami 21 Code – Transit Oriented Development Diagram

Transit Corridor: A designation established by the City involving an area not exceeding a one-quarter (1/4) mile radius from a non-limited access thoroughfare that included designated transit stop locations and is served by one or more mass transit route(s) with designated transit vehicle(s) operating at an average of ten (10) minute or less headway Monday thru Friday between the hours of 7am thru 7pm. Multiple transit routes or types of transit vehicles may be added cumulatively under this definition for the purpose of parking reductions.

City of Miami Beach

In the Miami Beach area of the study area there is 140 acres designated as multi-family low intensity (RM-1), this represents 13 percent of the total area and they are predominately found west of Washington Avenue. There are 57 acres or 5.5 percent of land dedicated to high intensity multi- family (RM-3), and they are predominately found at two locations: West of West Avenue between 6th Street and 11th Street; East of Collins avenue between 16th Street and 29th Street. Medium intensity commercial (CD-2) uses can be found along Alton and Washington Avenue. Mixed use entertainment (MXE) which includes hotel areas represents 4.5 percent of the land in the study region of Miami Beach, and it can be found east of Washington Avenue between 5th Street and 17th Street.

Special attention was given to land uses adjacent to the proposed rapid transit system (5th Avenue and Washington Avenue) which are mainly designated as commercial medium intensity (CD-2). Permitted uses within the CD-2 zoning district was obtained from the Miami Beach Zoning Code and the results are presented below.

Commercial Medium Intensity (CD-2)

- Permitted Uses: apartments; apartment/hotels; hotels; religious institutions with an occupancy of 199 persons or less and alcoholic beverages establishments pursuant to the regulations set forth in chapter 6.[16]
- Conditional Uses: Adult congregate living facilities; Funeral home; Nursing homes; Religious institutions; Pawnshops; Video game arcades; Public and private institutions; Schools; Any use selling gasoline; New construction of structures 50,000 square feet and over; Outdoor entertainment establishment; Neighborhood impact establishment; Open air entertainment establishment; and Storage and/or parking of commercial vehicles on a site other than the site at which the associated commerce, trade or business is located.[2]

Sec. 142-309. - Washington Avenue development regulations and area requirements.[17]

- The following regulations shall apply to properties that front Washington Avenue between 6th Street and 16th Street; where there is conflict within this division, the criteria below shall apply:

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16 https://library.municode.com/fl/miami_beach/codes/code_of_ordinances?nodeId=SPBLADERE_CH142ZODIRE_ARTIIDIRE_DIV5COMEINDI

17 https://library.municode.com/fl/miami_beach/codes/code_of_ordinances?nodeId=SPBLADERE_CH142ZODIRE_ARTIIDIRE_DIV5COMEINDI

- The maximum building height shall be 55 feet, except for lots that have a frontage equal to or greater than 200 feet, in which case the maximum building height shall be 75 feet; however, main use parking garages shall not exceed 55 feet, regardless of the amount of lot frontage. Notwithstanding the foregoing, the maximum building height shall be 75 feet for lots that have a platted frontage equal to or greater than 100 feet located on the east side of Washington Avenue and located on or within 250 feet of a cultural institution as defined under Section 138-139 of these land development regulations provided such cultural institution existed as of the effective date of this Ordinance [No. 2015-3974] and contains a minimum of 25,000 square feet of building area. For lots that have a platted frontage equal to or greater than 100, feet but less than 200 feet, and are eligible for a 75-foot height limit, the sum of the side yards for floors with residential or hotel units shall be no less than 40 percent of the lot width.
- The maximum number of stories shall be five stories, except for lots that have a frontage equal to or greater than 200 feet, in which case the maximum number of stories shall not exceed seven stories. Notwithstanding the foregoing, the maximum number of stories shall not exceed seven stories for lots that have a platted frontage equal to or greater than 100 feet, located on the east side of Washington Avenue and located on or within 250 feet of a cultural institution. as defined under section 138-139 of these land development regulations provided such cultural institution existed as of the effective date of this Ordinance [October 24, 2015] and contains a minimum of 25,000 square feet of building area.

It should be noted that general TOD guidelines discourage or prohibit the use of warehouses and gas stations throughout a TOD district, which is currently a conditionally permitted use under the commercial medium intensity (CD-2) land use designation observed along Washington Avenue.[18]

3.5. Summary

As stated in the introduction, the main objective of this report is the collection of available demographic and socioeconomic data to prepare a preliminary inventory of the current land use along the Beach SMART corridor.

The information gathered in this report provides a basis for the continued study of the Beach Corridor in an effort to keep the momentum going and provide greater insight into the next steps involved in transforming the Beach Corridor into a major transit corridor.

[18] https://www.itsmarta.com/uploadedFiles/More/Transit_Oriented_Development/TOD%20Guidelines%202010-11.pdf

Based on the information summarized in the report, the Beach Corridor has great potential due to its already relatively dense residential land use, relative clear work origins and destinations along the corridor, existing transit ridership, presence of sidewalks, and the necessary zoning tools through the creation of the Urban Centers.

Due to the high demand of parking, this commodity can be used to incentivize transit use. Parking policies could be made highly effective in the landlocked area of the City of Miami Beach as well as the densely developed downtown Miami. Increasing the cost of using the automobile will make the transit choice more competitive with the private automobile.

In an effort to make the Urban Centers successful, new developments should be directed toward these centers. The access to the centers from the residential and commercial areas should be improved through easy access to these centers, and the transit service on the main facilities, through improved sidewalks, bicycle lanes, and shuttle service.

If a mixed vibrant community is the desired outcome of the Urban Centers, it is important to analyze the different tools available to address the increase in real estate values. The type of housing associated with the Urban Centers will need to include relatively affordable housing for the Center to function as a true neighborhood. The City of Miami has addressed affordable housing in Miami 21. However, the implementation of affordable housing is typically complex. As the real estate value increases in the land locked area of the City of Miami Beach and the densely and highly desirable areas of downtown Miami, workers in the tourist industry and households in the middle income group will no longer be able to live in these areas making a well-functioning transit system even more essential for the economic health of the corridor.