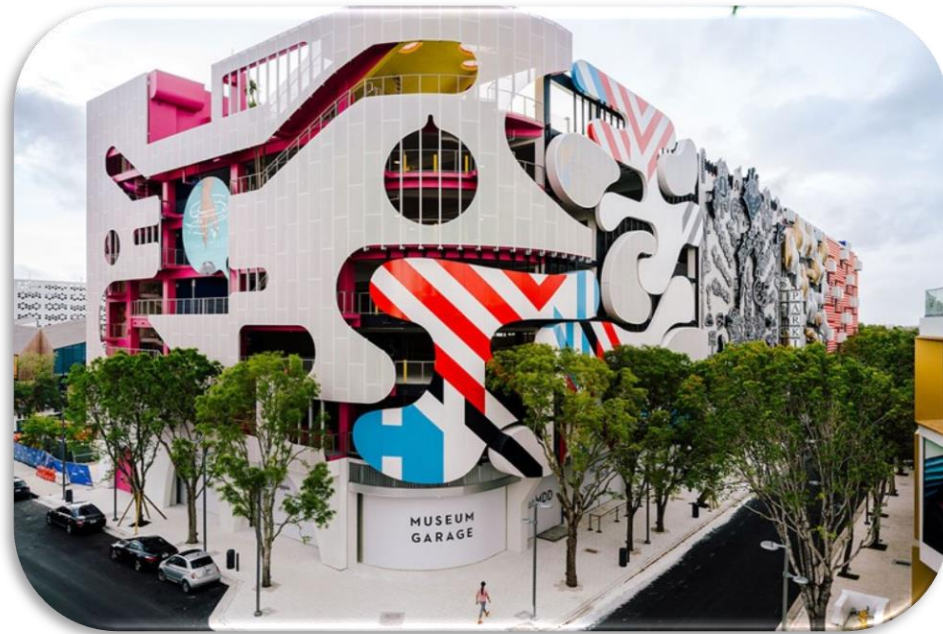# Miami-Dade County Parking Cost Study

Completed by the SFRPC for the Miami-Dade TPO

CONTRACT NO.: GOD37

June 2020

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1. Executive Summary

This parking cost analysis, referred herein as 'the study', determined the average price of parking at publicly accessible paid parking facilities (PAPPF) in Miami- Dade County. This task was accomplished by using the Micro Analysis Zones (MAZ) in Miami-Dade County. Micro-Analysis Zones are geographic sub-divisions of the county used by the Miami-Dade Transportation Planning Organization (TPO) for transportation planning and analysis. With this information not being readily available, the South Florida Regional Planning Council (SFRPC), through its on-going regional partnership with the Miami-Dade TPO and contractual arrangement as part of the regional efforts under the TPO's adopted Unified Planning Work Program (UPWP), undertook the responsibility of collecting, verifying, and delivering this information. The goal of this effort was to devise an average parking cost per MAZ for public-accessed parking to help support pricing data needed to inform the TPO's travel demand modeling efforts.

This study identified 18,990 publicly accessible paid on-street parking spaces in South Miami, Coral Gables, Miami Beach, Surfside, and Sunny Isles Beach, and 104,022 publicly accessible paid off-street parking spaces in 363 lots and garages throughout the county. The study identified 606 total MAZs with publicly accessible paid parking facilities, and the **average daily equivalent cost of these facilities ranges from $1.59 (daily equivalent)** in Edgewater (MAZ 1964) **to $56.00 per day** in Downtown Miami (MAZ 2040). Broadly, this study finds that PAPPFs are clustered near major attractions and densely developed areas, with areas of typically higher demand correlating to higher average costs to park. **Map 16** demonstrates the average cost of public parking in Miami-Dade MAZs and the corresponding GIS database were delivered to the TPO as a GIS shapefile for their use in transit demand modeling.

Given the multiple sources of data required to be assembled for a large area, this study operated within significant constraints of what data has been made publicly available. Given these constraints, the SFRPC does not claim that the acquired inventory is exhaustive, although the SFRPC has made every effort to ensure complete representation of currently available paid public parking facilities.

2. Introduction

As part of its ongoing transportation modeling efforts, the Miami Dade Transportation Planning Organization (TPO) uses various primary and secondary source data to help predict and project transportation scenarios that aid future transportation planning and investment efforts. However, modeling of these scenarios often requires use of data that may or may not be readily available or in the form needed. For data not readily available, it often becomes necessary for the TPO to conduct analysis of various variables in order to generate needed data for its modeling. In its desire to acquire average parking price data in areas of the County, the South Florida Regional Planning Council (SFRPC) assisted the TPO in this effort. In so doing, the SFRPC conducted research and undertook the process of quantifying the availability of paid public-accessed parking in specific Micro Analysis Zones (MAZ) in Miami-Dade County; quantified the price charged for parking (cost of parking) in each MAZ, and quantified the average cost for parking in each MAZ.

 With the generalized rationale that higher parking cost in a specific MAZ will have a direct effect on how many persons make trips to that MAZ, the overarching goal of this parking cost analysis, herein referred to as the 'parking study', was to assist the TPO with identifying Miami Dade County Micro Analysis Zones (MAZ) where there is paid public-accessed parking, and the average cost for parking per MAZ. This information will be used as (parking cost) data to inform the TPO's travel demand modeling efforts, which analyses the County's transportation network using Micro Analysis Zones (MAZ). Therefore, the purpose of this study was to help the TPO determine the average parking cost in each MAZ, which affects the attractiveness of given locations in its activity-based transportation modeling.

This study first outlines the process used to research the available data and details the information that was collected, whether used or not. Since this data was not readily available in a single, unified data set, it must be combined together using information that was publicly available. This multi-sourced data set was examined ("cleaned") using GIS tools and publicly available information to ensure that it represents the desired parking facilities (a complete explanation of parking facilities identified in this study can be found in the ***Nuances in the Data*** section). Since multiple data sets were combined to provide a complete inventory of parking facilities in the County, overlapping or duplicate facilities had to be accounted for and managed. Other similar instances of 'data cleaning' were required. Information available online, such as maps or lists from various sources, was also researched to confirm and supplement the acquired GIS data sets.

Given the multiple sources of data required to be assembled for a large area, this study operated within significant constraints of what data was made publicly available. Given these constraints, the SFRPC does not claim that the acquired inventory is exhaustive, although the SFRPC has made every effort to ensure complete representation of currently available paid public parking facilities. Additionally, though prior parking studies conducted in Miami Dade provided meaningful information to current parking data, none of these quite provided the specific average

cost data information that the TPO desires for its specific transportation modeling effort. Two of these prior parking studies are described below.

2.1. Overview of Previous Parking Studies

2.1.1. Walker Parking Consultants

In 2015, Walker Parking Consultants produced a parking inventory analysis for the City of Miami Beach. This study partitioned the Middle Beach and South Beach areas into 63 separate blocks. Within these blocks, the report counted the number of parking spaces on-street, in public city garages, in public city lots, off-street private parking, and in total. This information was useful to ensure that these facilities were still in operation and in the data set. This information was limited, however, because it did not delineate whether on-street parking spaces are residential-only or publicly accessible. The parking demand analysis conducted by Walker Parking Consultants was used to identify on-street parking facilities in the Middle Beach neighborhood of the City of Miami Beach that need to be created.

2.1.2. Parsons

The Miami-Dade TPO provided to the SFRPC an excerpt from the Miami Beach Design Traffic/Travel Memorandum which contained a parking inventory report done by Parsons Consulting in 2019 for the Miami-Dade County Beach Corridor Rapid Transit Project. The except from this report outlined the results of a parking inventory study and can be found in **Figures 1 and 2** below in **Tables 8-1 and 8**-2. **Table 8-1** presents the number of on-street parking spaces along North Miami Avenue, Alton Road, and Washington Avenue. This table also delineates the cross-street range, as well as the number of spaces on the east or west side of the road. **Table 8-2** in the Parsons report outlines off-street parking facilities (lots and garages) on the mainland and in Miami Beach. The table provides the facility name, address, type of parking, and number of spaces. This information was useful to ensure that those facilities were still in operation and in the data set. This information was limited because it did not contain all lots and garages on the mainland or Miami Beach; however, it does contain some locations that were not in the data set previously.

The parking inventory data compiled by Parsons as part of the Miami-Dade County Beach Corridor Rapid Transit Project was used to confirm their existence in the data set as well as to confirm the number of spaces per facility. This process confirmed that the Miami Parking Authority (MPA) data discussed in the **GIS Data Acquired and Used** section contained all of the on and off-street parking facilities in the North Miami Avenue corridor on the mainland (as outlined in **Table 8-2**). However, the on-street parking found on Alton Road and Washington Ave was not identified in any data set. Considering there is significant on-street parking in Miami Beach, this information must be manufactured and added to the data set. As for off-street parking in Miami Beach, all parking facilities identified in the Parsons report were included in the Miami Beach GIS data set discussed in the GIS Data Acquired and Used section.

Figure 1: Parsons Parking Inventory Data - Table 8-1

8 PARKING INVENTORY DATA

On-street parking inventory data was obtained by reviewing aerial imagery and then performing field verification. This data will be used to assist in determining the relative impacts of the proposed alternatives to on-street parking availability. The data collection effort covered the main corridors within the study area as follows:

- North Miami Avenue from North 41st St to North 10th Street
- Alton Road from Chase Avenue to 5th Street
- Washington Avenue from Dade Boulevard to 5th Street

Table 8-1 summarizes the number of on-street parking spaces. Table 8-2 provides a summary for off-street parking. The detailed results of the inventory, including graphical layouts can be found in Appendix G.

Table 8-1	On-Street Parking Summary	
North Miami Avenue		
Street	**East Spaces**	**West Spaces**
41st - 36th St	0	0
36th - 29th St	48	0
29th - 20th St	38	56
20th - 9th St	57	83
Total	143	139
	282	
Alton Road		
Street	**East Spaces**	**West Spaces**
5th - 11th St	27	42
11th - 15th St	20	39
15th St - Dade Blvd	61	46
Dade Blvd - Chase Ave	14	76
Total	122	203
	325	
Washington Avenue		
Street	**East Spaces**	**West Spaces**
5th - 11th St	67	74
11th - 15th St	74	54
15th St - Dade Blvd	71	55
Total	212	183
	395	

8

Figure 2: Parsons Parking Inventory Data - Table 8-2

Table 8-2	Off-Street Parking Summary		
Mainland			
Facility Name	**Address**	**Type**	**Spaces**
Lot 52	Under I-95, NE 1 Ct. bet. NE 36-37th St.	Lot	69
Lot 53	Under I-95, NE 1 Ct. bet NE 36-37th St.	Lot	33
Lot 54	Under I-95, NE 2nd Ave. bet. 37-38th St.	Lot	33
Lot 55	Under I-95, NE 1 & 2 Av. Bet. NE 36-37 St., Miami, Fl 33137	Lot	10
Lot 78 (Leased)	Not Given	Lot	91
Lot 77 (Leased)	Not Given	Lot	133
Lot 76 (Leased)	Not Given	Lot	85
Lot 51	NE 1-2 Ave. bet. NE 11-12 St., Miami, Fl 33132	Lot	28
Lot C	1201-1215 NE 2nd Avenue Miami FL 33132	Lot	208
Lot 49 (Leased)	Biscayne Blvd. & NE 2nd Ave. bet. NE 11-12 Street	Lot	89
Lot Q (Leased)	Not Given	Lot	Not Given
Miami Beach			
Facility Name	**Address**	**Type**	**Spaces**
P5	401 Alton Road	Lot	25
G8	550 Lenox Avenue	Garage	1070
P11	833 6th Street	Lot	113
G1	200 7th Street	Garage	659
P12	900 Washington Avenue	Lot	22
P13	1000 Washington Avenue	Lot	37
P9	943 11th Street	Lot	117
G2 (Police Parking Only)	1130 Washington Avenue	Garage	140
P16	1262 Collins Avenue	Lot	50
G3	1301 Collins Avenue	Garage	293
G4	1550 Collins Avenue	Garage	823
P18	1620 Euclid Avenue	Lot	38
P19	1621 Jefferson Avenue	Lot	20
P20	1620 Jefferson Avenue	Lot	65
P21	1620 Michigan Avenue	Lot	22
P22	1100 Lincoln Road	Lot	20
P23	1619 West Avenue	Lot	32
G9	1661 Pennsylvania Avenue	Garage	562
G5	640 17th Street	Garage	1490
P27	1662 Meridian Avenue	Lot	151
P26	1665 Lenox Avenue	Lot	106
P25	1684 Lenox Avenue	Lot	86
P24	1663 West Avenue	Lot	68
P29	581 17th Street	Lot	160
G7	1735 Meridian Avenue	Garage	714
P33	1909 Meridian Avenue	Lot	31

9

3. Research of Available GIS Data

The first step toward determining the average cost of parking in each MAZ in Miami-Dade County was to research the available sources of data. Prior to this study, a readily and publicly available unified data set demonstrating the average cost of publicly accessible parking in each Miami-Dade County MAZ did not exist. The purpose of this project was to discover and compile this data to use as an input for the mode choice component of the SERPM transit demand model.

In addition to downloadable GIS data, publications that are not in data form, such as agency webpages, aerial photographs, and other resources can also indicate locations of parking and were used to supplement and verify the collected data set.

Data was acquired by downloading it through publicly accessible channels or by requesting the data from representatives of municipalities, parking entities, or private companies. This process also led to being informed if an entity did not store such data, or that there are no PAPPFs within their jurisdiction.

Obtaining data from multiple sources meant that the data had to be examined to ensure each data set contained the proper PAPPFs without overlaps. This section outlines this process for each data source. For example, some of the data sets were not useful because they contained facilities that were not publicly accessible, such as a parking lot for a private shopping center or private-access parking garage. Another reason includes the fact that they contained duplicate facilities. The process of examining these data sets, called "data cleaning," handles many nuances and intricacies to assemble the proper data set, which are described in the Technical Methodologies section.

As the goal of the study was to determine average parking cost in each MAZ, once the adequate inventory of PAPPF locations was collected, the number of parking spaces in each facility as well as the price to park was collected and verified. Some of the data sets used to identify the location of parking facilities also included the price of parking or number of spaces available. Data for the remaining parking facilities was procured by the SFRPC by asking agency staff members familiar with parking facilities, by using information from online parking locators, or other information online.

3.1. GIS Data Acquired and Used

Parking facility data in GIS form was the most useful because it requires the least transformation to conduct the analysis of this study. Parking GIS data that has been used identifies the location of PAPPFs in Miami-Dade County. It was downloaded from entity websites, online databases, or sent by a representative of an appropriate entity.

This section outlines the contents of the researched available GIS data that was used in this study. This section lists the sources of data used and lists what information was used to identify the location, number of spaces, and cost of publicly accessible paid parking facilities. It will also note the number of data points from each source of data that were used to determine the average cost of parking in Miami-Dade County MAZs. A table of the Total Downloaded GIS Data that was

Acquired and Used can be found in **Table 1:** Total Downloaded GIS Data that was Acquired and Used below, and the location of this data is presented in **Map 1**: Location of Parking Facilities in All Downloaded GIS Layers. A complete table of field names and explanations of the field contents for each GIS data set source used can be found in **Appendix E** in **Table 1**: Fields of GIS Data Downloaded and Used in the Study. Each data point in the table below can also be considered a "unit" of data. A "unit" is a piece of GIS data that represents an individual parking facility, whether a parking lot, parking garage, group of adjacent on-street parking spaces, or individual on-street parking space.

Table 1: Total Downloaded GIS Data that was Acquired and Used

Data Point	Number of Data Points
On-street parking zones (polygons)	503 (MPA)
On-street parking zones (polygons) with identified price	503 (MPA)
Individual on-street parking spaces (points)	468 (South Miami)
Individual on-street parking spaces with identified price	468 (South Miami)
Off-street parking facilities	270 (Coral Gables, Miami Beach, Commercial Property, FDOT, Land Use, Park and Ride, County-Owned Property, Miami Parking Authority, Sunny Isles Beach)
Off-street parking spaces	143 (54 MPA, 19 Park and Ride, 70 Miami Beach)
Off-street parking spaces identified	30,756 (MPA, Park and Ride, Miami Beach)
Off-street parking facilities with identified hourly price	55 (19 Park and Ride, 36 MPA)
Off-street parking facilities with identified monthly price	19 Park and Ride
Off-street parking facilities with identified daily maximum rate	41 MPA
Off-street parking spaces with identified price	7465
Geographic Extent	South Miami, Coral Gables, Hialeah, City of Miami, Unincorporated area included in between the previously mentioned three municipalities, Dodge Island, Miami Beach, Sunny Isles Beach

Location of Identified Parking Facilities in All Downloaded GIS Layers

Map 1

TPO — Miami-Dade Transportation Planning Organization

SFRPC — South Florida Regional Planning Council

Miles

0   0.75   1.5   3

N

• Downloaded GIS Data

GIS Data Sources:
SFRPC, Miami-Dade TPO,
Miami Parking Authority, The City of Sunny Isles Beach, Arc Online, The City of Coral Gables, Florida Department of Transportation
Date: 6/30/2020

12
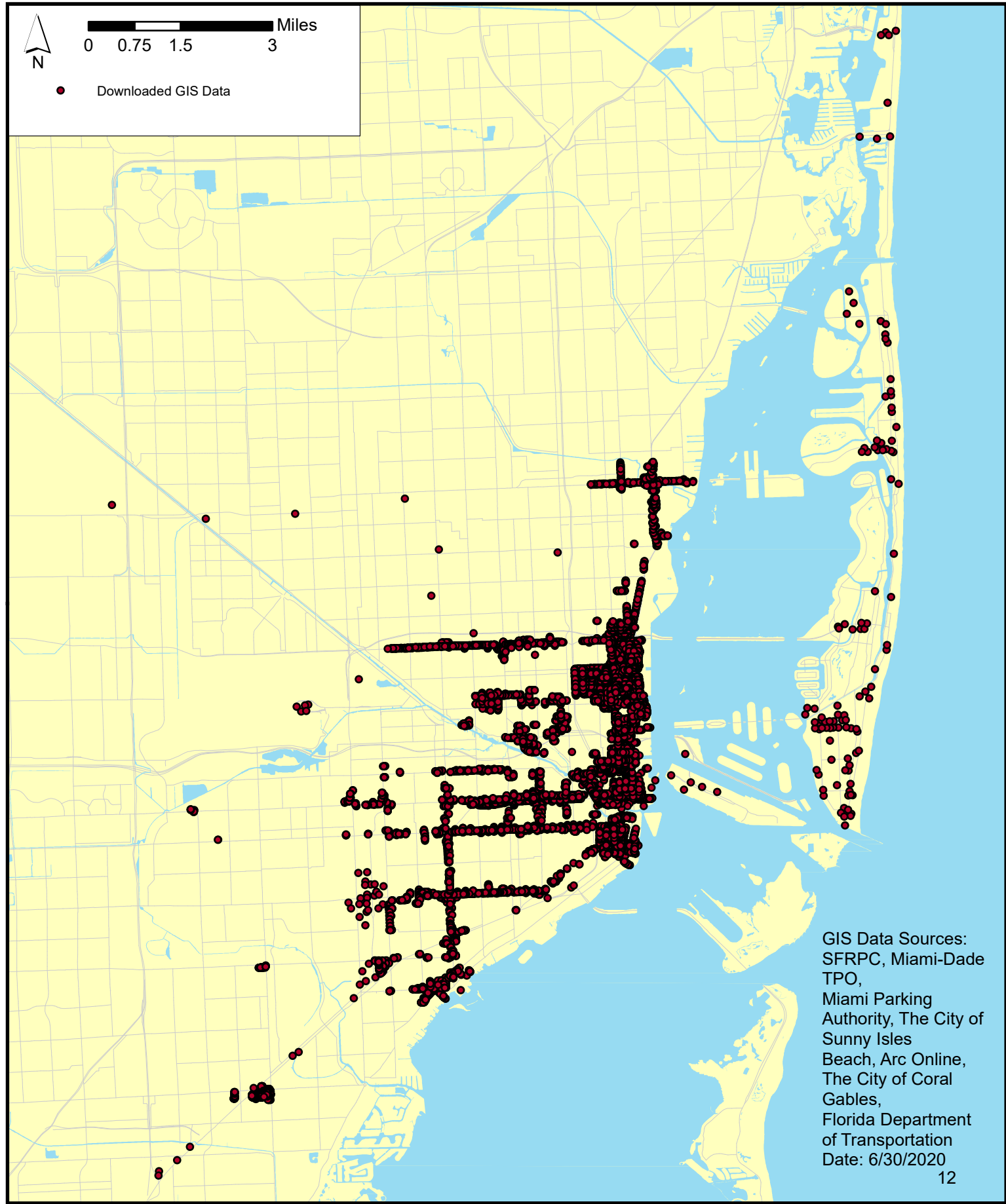
3.1.1. Agency Data

3.1.1.1. Miami Parking Authority

The Miami Parking Authority (MPA) manages on-street and off-street parking assets in the City of Miami. It shares responsibility with the City of Miami Police Department and Miami-Dade County for enforcement of parking regulations. Payment management is operated by a third-party private company, PayByPhone. The SFRPC was able to obtain MPA's parking facilities data via a GIS shapefile. The shapefile contained a polygon feature class of parking facilities operated by the MPA. The polygons represent both on-street parking, which are in the shape of the roads they are located on, as well as lots and garages in their respective shapes. The original data set also contained six garages, 67 parking lots, and 504 on-street zones in the form of individual polygons. Overall, it represented the most robust data set researched for this study, and contained a number of details for each facility, including: the number of spaces in the facility; the name of facility; the price charged per hour; the daily maximum price; the PayByPhone zone number; the street address; whether on-street, garage, or lot; if there is a payment kiosk available; or if a residential permit required.

The spatial extent of this data set ranges from the southwestern point in Coconut Grove, to Watson Island in the east, and the City of Miami in its entirety with a northern boundary of NE 85th Street. As of May 2020, the initial research period of this study, the dataset identified 11,020 spaces in 54 off-street PAPPFs and 503 on-street zones that remained in the data set (one of the on-street zones has been redeveloped and is no longer a parking facility). The polygon features of the original data set have been converted into a point feature class containing 11,848 total points. A map depicting the location of on-street and off-street paid public parking facilities in the MPA data set can be found in **Map 2**: Location of Identified Parking Facilities in Miami Parking Authority GIS Layer on the following page.

Location of Identified Parking Facilities in Miami Parking Authority GIS Layer

Map 2

TPO Miami-Dade Transportation Planning Organization

SFRPC South Florida Regional Planning Council

Miles
0   0.5   1   2

N

● Miami Parking Authority

14
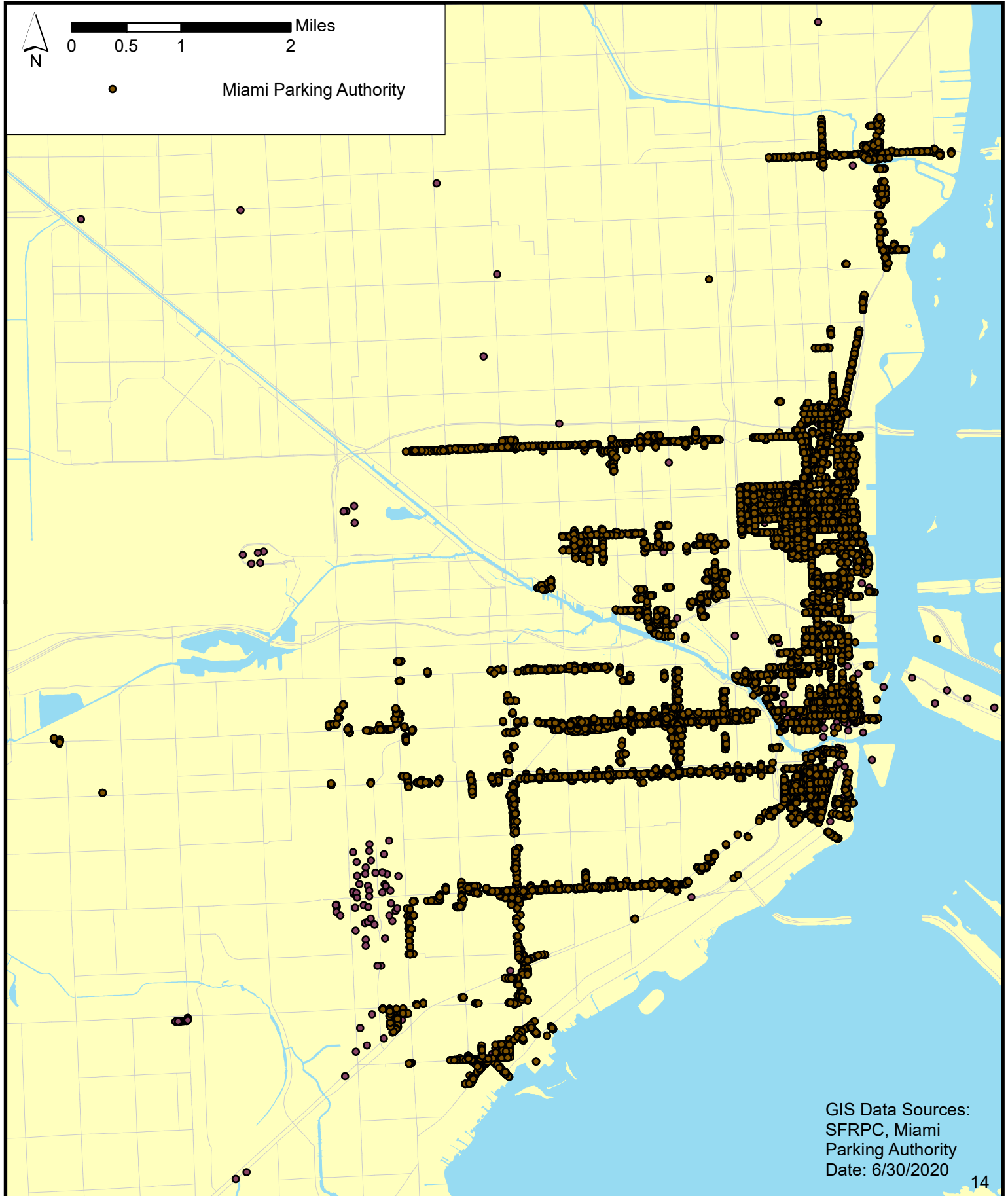
3.1.2. Municipal Data

3.1.2.1. City of Sunny Isles Beach

The SFRPC obtained from the City of Sunny Isles Beach parking facilities located within the City via a shapefile. The shapefile contained a polygon feature class layer named "City Parking Areas" containing 22 units. The polygons represent both on-street parking, which are in the shape of the roads they are located on, as well as parking lots their respective shapes. This feature class identifies the facility address, whether the parking facility has a payment meter, or if the facility only allows parking for residents, park patrons, or handicapped. As of May 2020, eight facilities from the "City Parking Areas" feature class are PAPPFs and remained in the data set. A map depicting the location of on-street and off-street paid public parking facilities in the City of Sunny Isles data set can be found in **Map 3**: Location of Identified Parking Facilities in City of Sunny Isles GIS Layer on the following page.

Location of Identified Parking Facilities in Sunny Isles Beach GIS Layer

Map 3

Miami-Dade Transportation Planning Organization

SFRPC — South Florida Regional Planning Council

Miles
0   0.075 0.15   0.3

N

● Sunny Isles Beach

3.1.2.2. City of Miami Beach

The City of Miami Beach has made the location of their parking lots and garages available through a downloadable GIS shapefile via ArcOnline. The data set is a polygon feature class with 72 polygons from South Beach to North Beach. The data set indicates the name of garage or lot, the hourly rate, the total available spaces, and the maximum time allowed. This data set does not contain on-street parking facilities. The hourly rate is presented as either a fixed price per hour or variable rate depending on the length of time. As of May 2020, 71 of the City of Miami Beach's Garage and Lot facilities remained in the data set. A map depicting the location of on-street and off-street paid public parking facilities in the City of Miami Beach data set can be found in **Map 4**: Location of Identified Parking Facilities in City of Miami Beach GIS Layer on the following page.

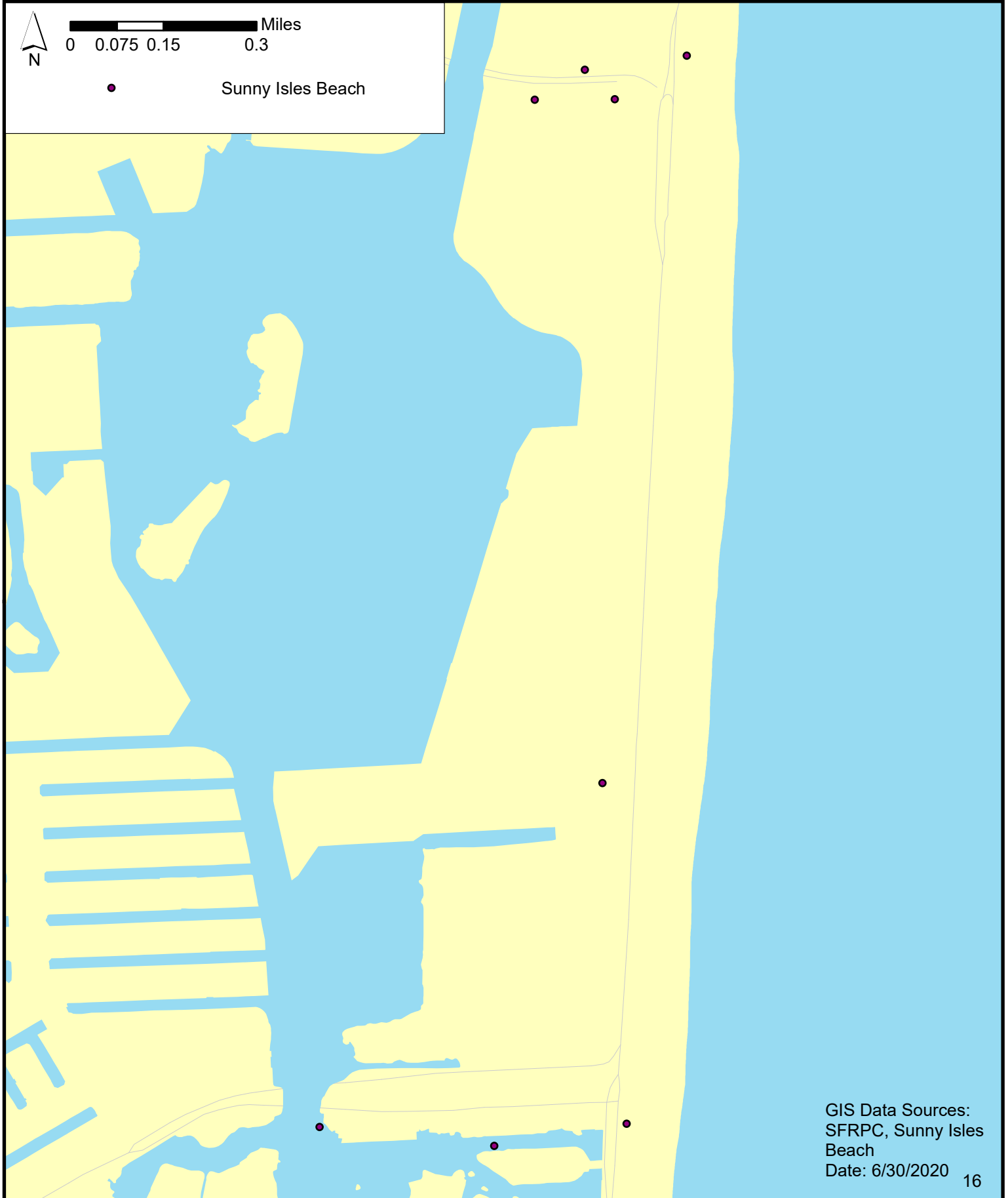**Miami-Dade Transportation Planning Organization**

TPO

SFRPC
South Florida Regional Planning Council

Miles
0   0.375   0.75   1.5

N

● Miami Beach

GIS Data Sources:
SFRPC, ArcOnline
Date: 6/30/2020

18

3.1.2.3. City of Coral Gables

The SFRPC obtained the City of Coral Gables' parking facilities from the City via shapefile. The data set is in the form of a polygon feature class containing 36 units, including six parking garages and 30 metered lots in their respective shapes. The data set contained the facility address and facility type (parking garage or lot). The facilities are located within the City of Coral Gables, primarily concentrated around the Central Business District (CBD). The remaining facilities are located south of Bird Road and north of Dixie Highway in southern Coral Gables. Of the 36 units in this data set, 17 were facilities contained in another data set (either Florida Department of Transportation, County-Owned Land, Land Use, or Commercial Property). Further, two permit-only lots have been redeveloped, and one garage is designated police-only. These 20 facilities were not included in the reported parking cost data set. As of May 2020, 16 of the City of Coral Gables' Garage and Lot facilities remained in the data set, with nine being monthly permit only and seven transient public-accessed parking. A map depicting the location of on-street and off-street paid public parking facilities in the City of Coral Gables data set can be found in **Map 5**: Location of Identified Parking Facilities in City of Coral Gables Layer on the following page.

Location of Identified Parking Facilities in Coral Gables GIS Layer

Map 5

Miles
0   0.175   0.35   0.7

N

• Coral Gables

GIS Data Sources:
SFRPC, City of
Coral Gables
Date: 6/30/2020
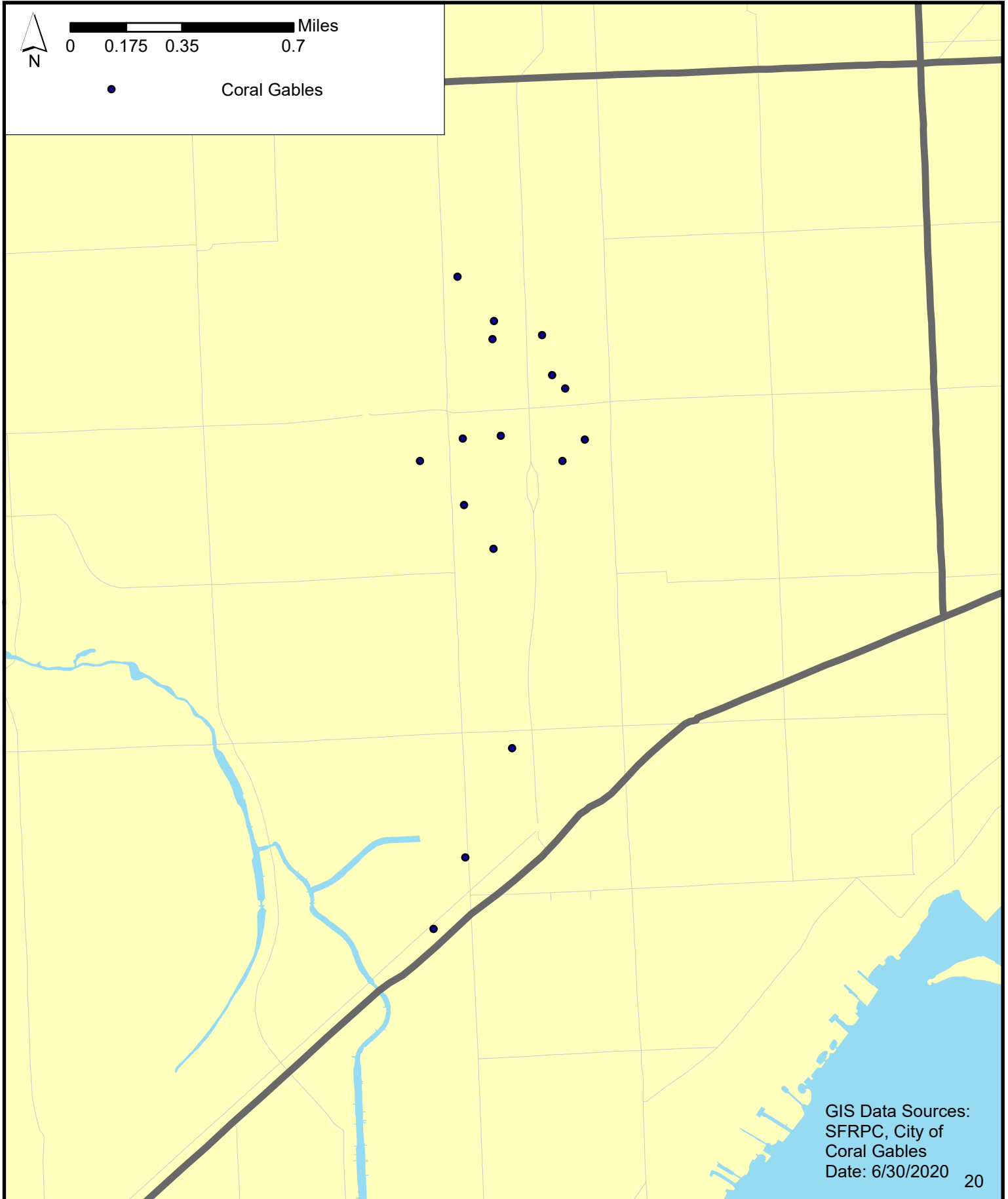
3.1.2.4. City of South Miami

The City of South Miami has published the location of their on-street parking spaces through a downloadable GIS shapefile on ArcOnline. The data set contains a point feature class of individual on-street parking spaces in the City of South Miami. This data set has 468 points, with each point representing one parking space each. The location of each parking space is the only data in this feature class. Publicly accessible paid on-street parking is located primarily in the Central Business District between SW 57th Avenue and SW 62nd Avenue to the east and west, respectively, and SW 74th Terrace and SW 71st Street to the north and south, respectively. There are also 40 parking spaces in the vicinity of SW 40th Street and Red Road. As of May 2020, 468 of the South Miami parking points remained in the data set. A map depicting the location of on-street and off-street paid public parking facilities in the City of South Miami data set can be found in **Map 6**: Location of Identified Parking Facilities in City of South Miami GIS Layer on the following page.
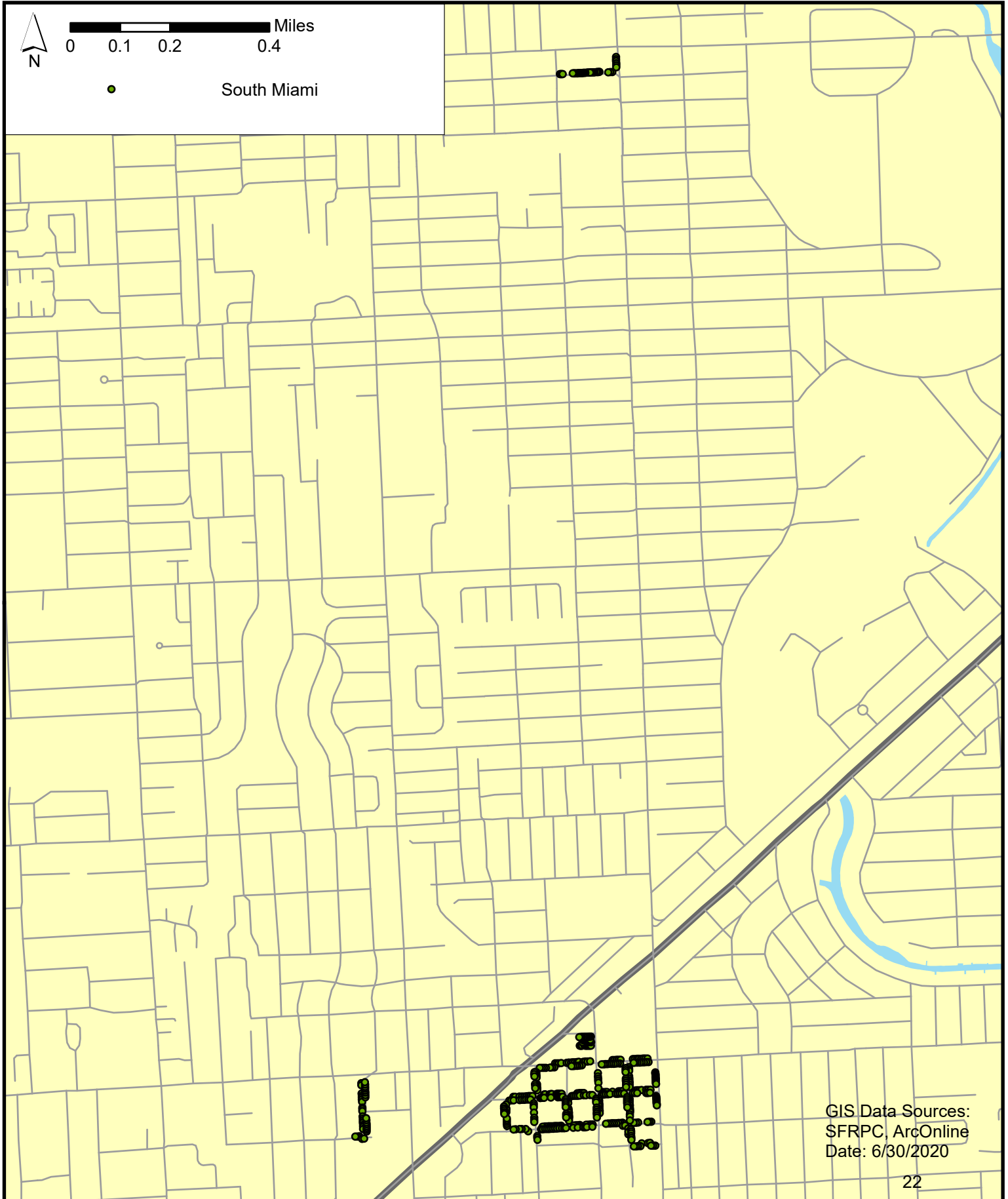
Location of Identified Parking Facilities in South Miami GIS Layer

Map 6

3.2.3. Miami-Dade County Data Hosted on ArcOnline

On recommendation from Miami-Dade County representatives, the SFRPC procured the following four county-level parking data sets from the online data portal ArcOnline.

3.2.3.1. Commercial Property

This data set is a point feature class containing 88,885 parcels and the location's corresponding business name, address, number of parking spaces, and business description. There are 72 parcels in this point feature class data set with business descriptions of "Parking Lots and Garages." These parking facilities are managed by private companies but are publicly accessible. These facilities are located in Dadeland, Coconut Grove, Coral Gables, Brickell, Downtown, Wynwood, and Miami Beach. As of May 2020, 18 facilities identified by the Commercial Property data set remained in the data set. A map depicting the location of on-street and off-street paid public parking facilities in the Commercial Property data set can be found in **Map 7**: Location of Identified Parking Facilities in Commercial Property GIS Layer on the following page.

Location of Identified Parking Facilities in Commercial Property GIS Layer

Map 7
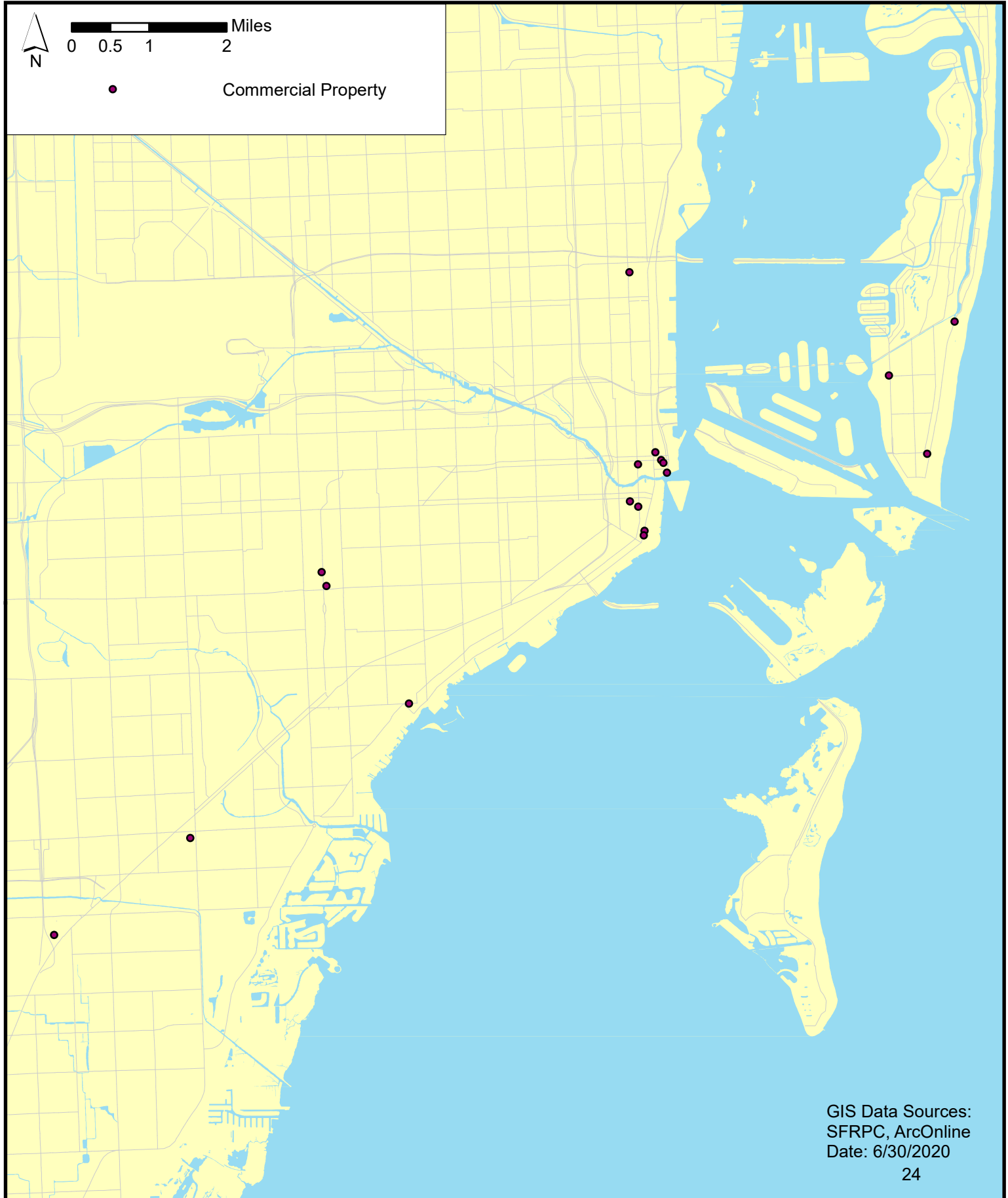
3.1.3.2. County-Owned Property

This point feature class has 4,777 data points, each representing a parcel of land owned by Miami-Dade County, and for each identifies the corresponding address, county managing department, and property type. There are 30 points in the data set with "Property Type" of "Parking Garage" or "Parking Lot." As of May 2020, two of the County-Owned Property points remained in the data set. These remaining points are located in the City of Miami, bounded by the Miami River to the south, NW 27th Ave to the west, NW 62nd street to the north, and Biscayne Bay to the west; and one in Miami Beach. A map depicting the location of paid public parking facilities in the County-Owned Property data set can be found in **Map 8**: Location of Identified Parking Facilities in County-Owned Property GIS Layer on the following page.

TPO
Miami-Dade Transportation
Planning Organization

SFRPC
South Florida Regional Planning Council

Miles
0   0.2   0.4   0.8

● County Owned Land

N

GIS Data Sources:
SFRPC, ArcOnline
Date: 6/30/2020

26
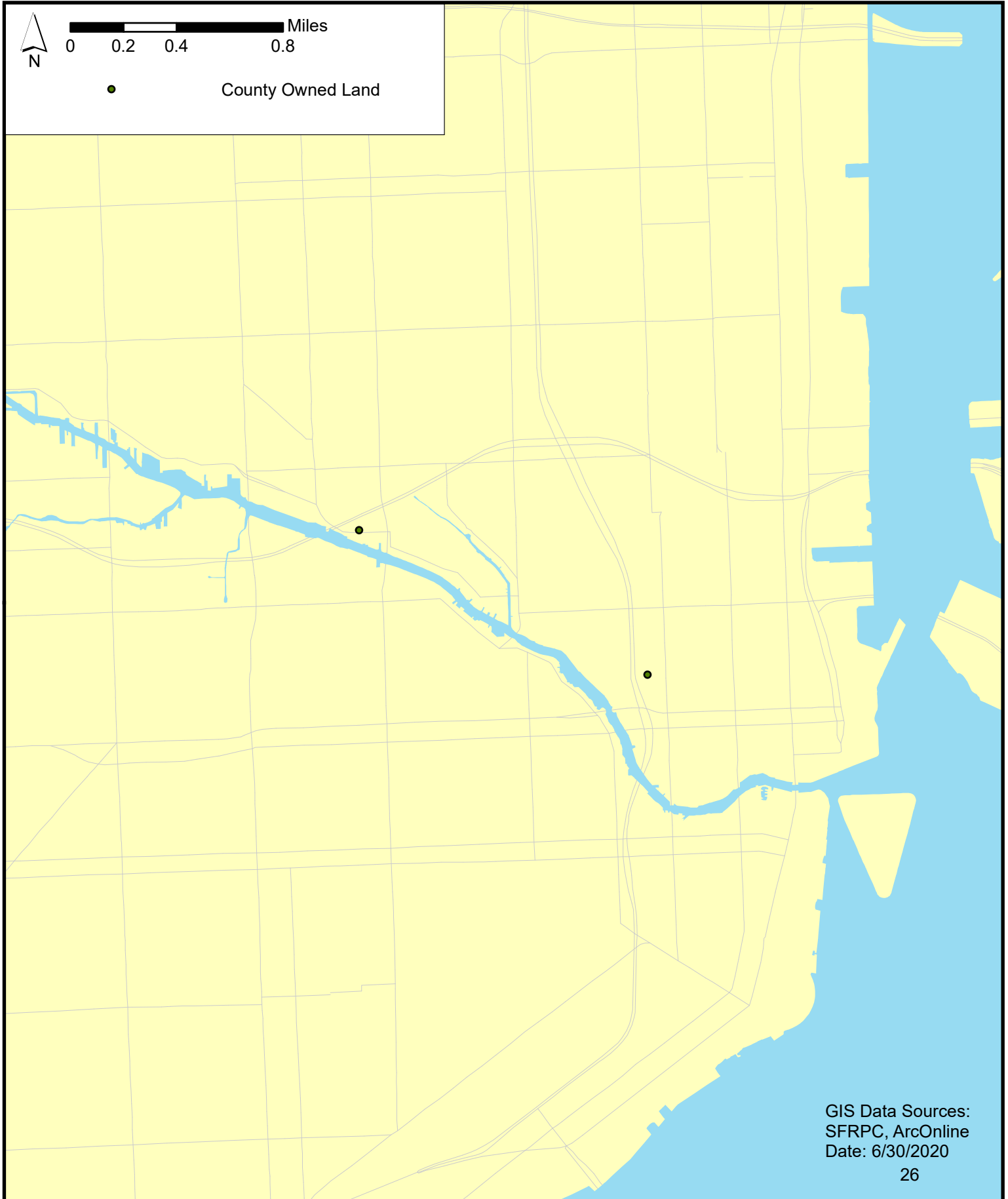
3.1.3.3. Land Use

This polygon feature class contains 128,089 individual parcels and identifies each corresponding land use. There are 706 parcels in the data set with description of "Parking – public and private garages and lots." As of May 2020, 57 of the facilities identified in the Land Use feature class remains in the reported data set and are located in South Miami, Coral Gables, Brickell, Downtown Miami, Wynwood, Miami Beach, Surfside, and Bay Harbor Islands. A map depicting the location of paid public parking facilities in the Land Use data set can be found in **Map 9**: Location of Identified Parking Facilities in Land Use GIS Layer on the following page.

Location of Identified Parking Facilities in Land Use 2018 GIS Layer

Map 9

TPO
Miami-Dade Transportation
Planning Organization

SFRPC
South Florida Regional Planning Council

Miles

0   0.5   1   2

N

• Land Use 2018
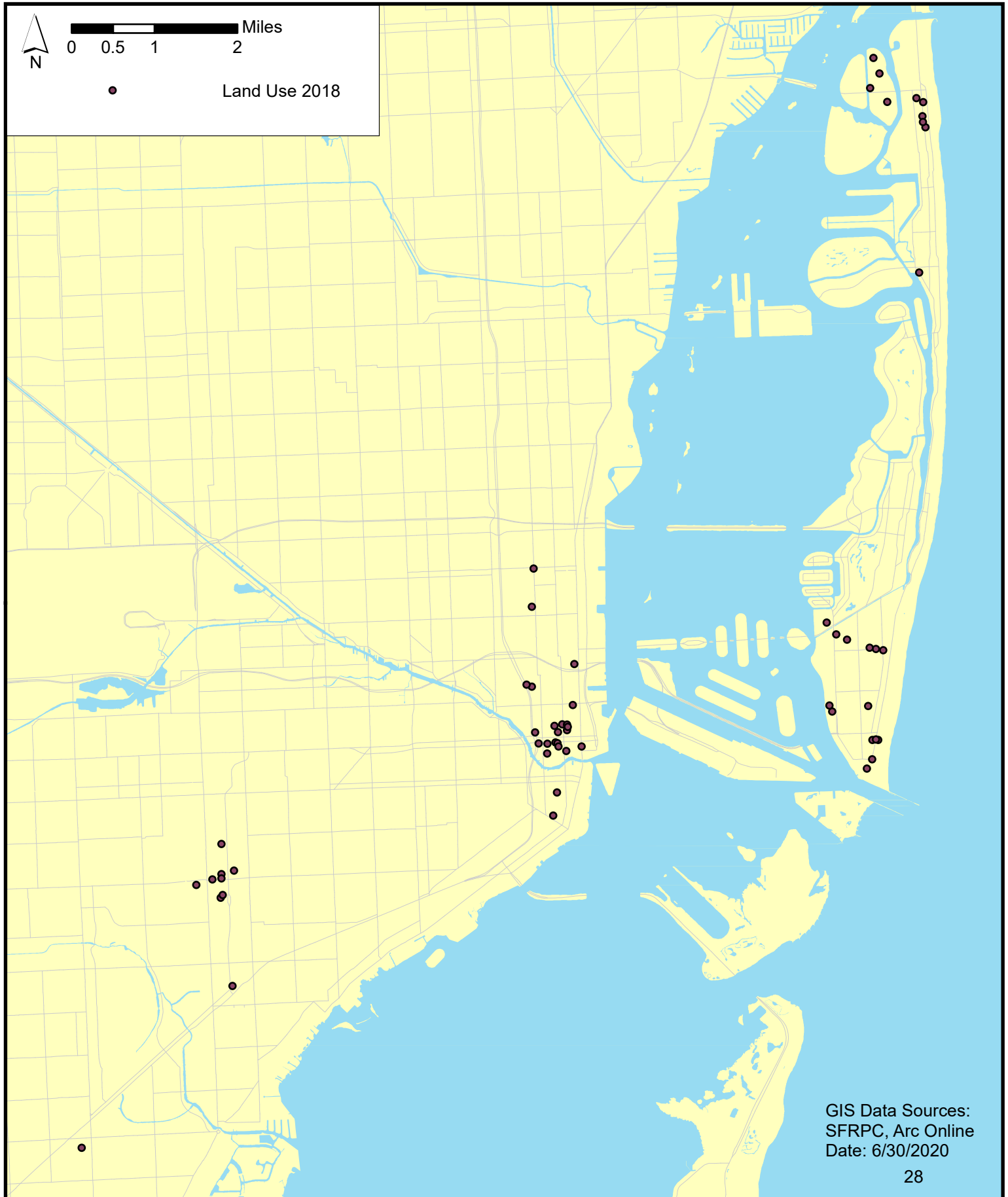
3.1.3.4. Metrorail Park and Rides

Hosted on ArcOnline, this GIS file contains three point-feature classes containing the locations of five parking facilities operated by Tri-Rail, 20 parking facilities operated by Metrorail, and 16 Miami-Dade County Park and Rides throughout the county. Each of these contains the facility's complete address, number of parking spaces, daily parking cost, and monthly parking cost. As of May 2020, 19 Metrorail Park and Ride facilities remained in the reported data set. A map depicting the location of paid public parking facilities in the Metrorail Park and Rides data set can be found in the **Map 10**: Location of Identified Parking Facilities in Metrorail Park and Rides GIS Layer on the following page.

Miami-Dade Transportation Planning Organization

SFRPC
South Florida Regional Planning Council

Miles
0   0.5   1   2

N

● Metrorail Park and Rides

GIS Data Sources:
SFRPC, Arc Online
Date: 6/30/2020

30
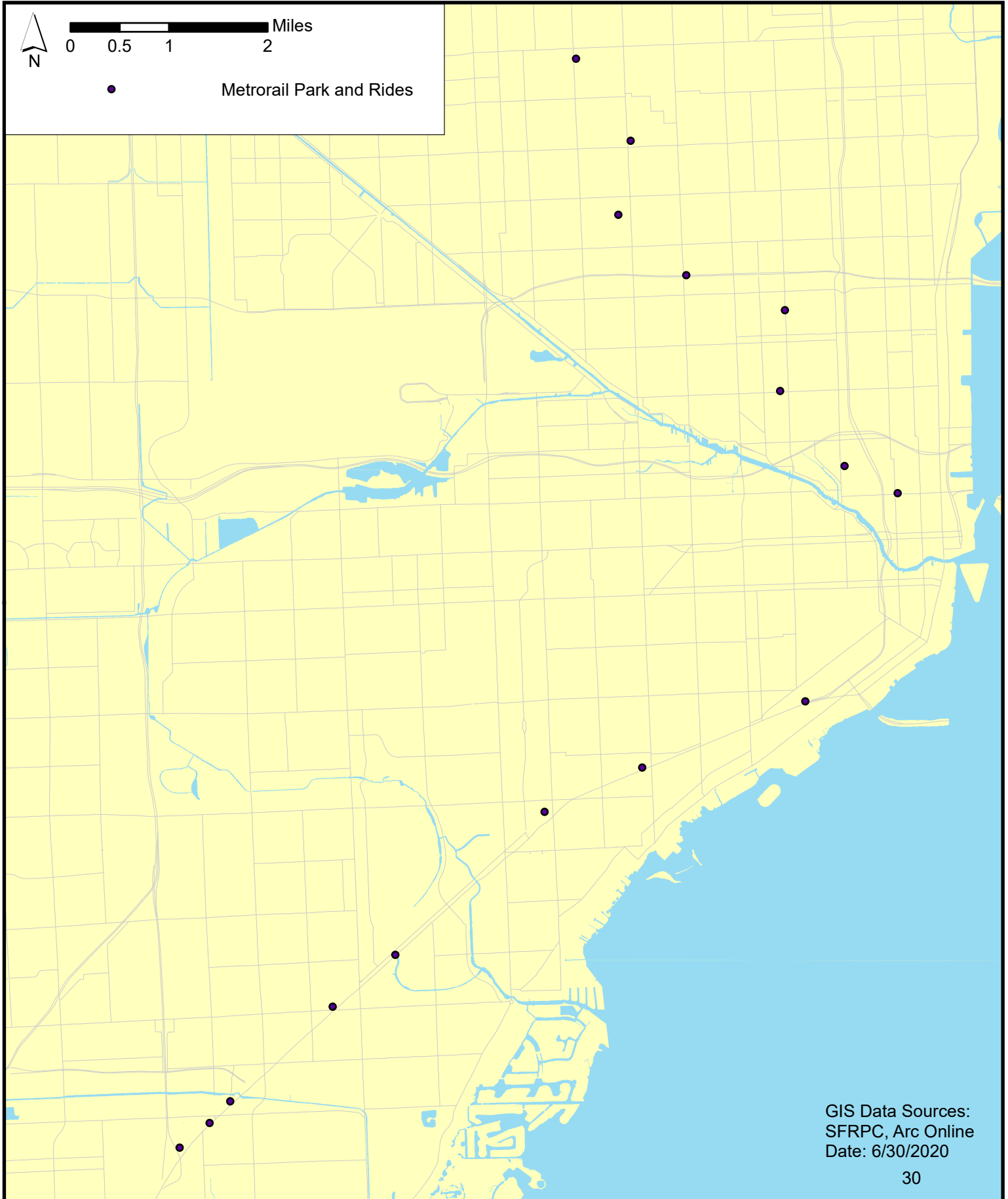
3.1.4. State Data

3.1.4.1. Florida Department of Transportation Unified Basemap Repository

The SFRPC procured parking GIS data from the FDOT Unified Basemap Repository. The GIS data is in the form of a shapefile with 775 individual parking facilities statewide, including 170 in Miami-Dade County. The data contains the facility operator's business name, address, and side of road (left or right). As of May 2020, 25 of the FDOT points remained in the reported data set located throughout the County. A map depicting the location of paid public parking facilities in the Florida Department of Transportation data set can be found in the **Map 11:** Location of Identified Parking Facilities in Florida Department of Transportation GIS Layer on the following page.

TPO
Miami-Dade Transportation
Planning Organization

SFRPC
South Florida Regional Planning Council

N

Miles
0   0.5   1   2

● FDOT - UBR - NAV Streets - Cultural
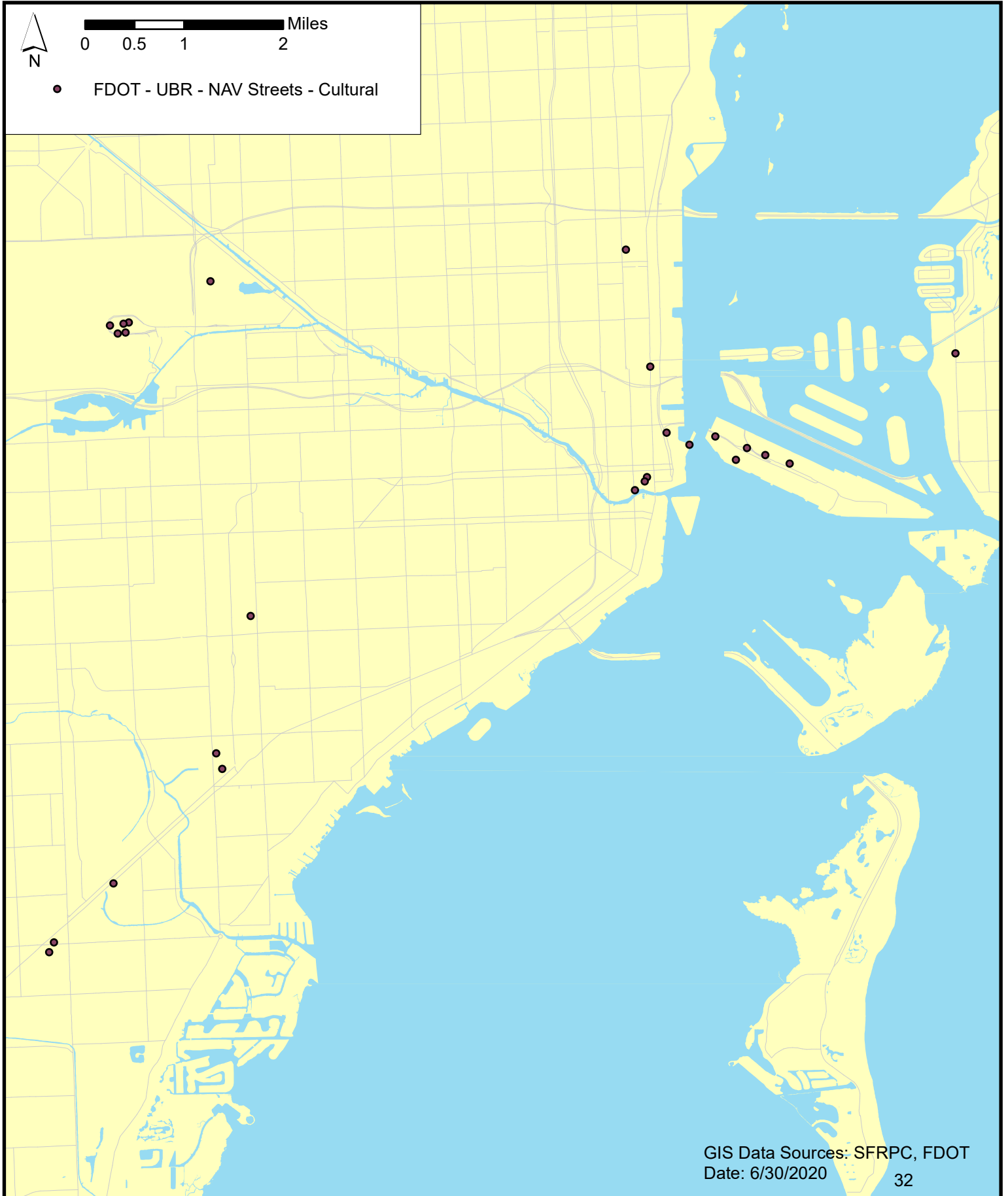
3.1.5. Geographic Data

3.1.5.1. SMART Rapid Transit Plan Corridor Feature Layer

In 2016, the TPO Governing Board unanimously approved a policy to set as "highest priority" the advancement of rapid transit corridors and transit supportive projects for the county, and as such adopted the Strategic Miami Area Rapid Transit (SMART) Plan. The SMART plan intends to advance six 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. Considering the high priority of advancing rapid transit corridors in this area, and that the cost of parking is a factor in the demand for transit, special attention was taken to identify parking facilities within walking distance of the SMART plan corridors. The location of the SMART Plan corridors was collected from Miami-Dade County's OpenData hub on ArcOnline. This data set has six polygons representing the six corridors: Beach, East/West, Kendall, Northeast, and South Dade Transitway.

3.1.5.2. Micro-Analysis Zone boundaries

Micro-Analysis Zone (MAZ) boundaries were provided to the SFRPC by the Miami-Dade TPO via a shapefile containing 12,022 MAZ spanning the area bounded by Palm Beach County in the north and the developed area of Miami-Dade County, with the Southernmost MAZ bordering SW 392nd Street in the south. As of May 2020, there were 606 MAZs identified with publicly accessible parking.

4. Information Used to Supplement and Verify the Collected GIS Data

This study required information from multiple data sets that, for the purpose of this study, were not comprehensive. Because multiple data sets were required to be assembled, the data collected must be verified and supplemented using any information possible. The GIS data that was publicly available and collected by the SFRPC significantly underrepresents the actual availability of publicly available paid parking facilities. For example, there was no representation of Miami Beach and Coral Gables on-street parking. Omitting these areas would lead to significant gaps in the parking inventory.

Aside from downloadable data, information regarding the location, available parking spaces, and price of PAPPFs can be found online. Although the information cannot be downloaded, it was useful as a guide to cross-check the GIS data collected and to supplement the collected data by creating GIS data to represent the information found online. A table of all the GIS Data created by the SFRPC can be found in **Table 2**: Total Contents of SFRPC-Created GIS Data Using Information Available Online, and a map of this GIS data can be found in **Map** 12: Location of Identified Parking Facilities in SFRPC-created Data. There are various sources of this type of information, including municipalities, other government agencies, documents from private consultants, private parking facility management companies, and private companies that offer parking locator services online or through mobile applications. The sources for these online publications can be found in Appendix E in **Table 5**: Sources of Information Available Online. The following section outlines the contents of these sources and the process of using each source to supplement the data set. The technical process for manufacturing GIS data not included in the downloaded GIS data sets is outlined in Appendix D - GIS Information Created by the SFRPC.

Table 2: Total Contents of SFRPC-Created GIS Data Using Information Available Online

Data Point	Number of Data Points
Points created by SFRPC representing on-street parking locations	256
Total on-street parking spaces represented by SFPRC created points	6,728
Individual on-street parking spaces with SFPRC created price	7,196
Off-street parking facilities location identified by SFRPC	93
Total number of off-street parking spaces location created by SFRPC	31,206
Off-street parking facilities price created by SFRPC	139
Off-street parking spaces with SFRPC created price	7,465
Geographic extent	South Miami, Coral Gables, Hialeah, City of Miami, Unincorporated area included in between the previously mentioned three municipalities, Dodge Island, Miami Beach, Sunny Isles Beach

Location of Identified Parking Facilities in SFRPC-created GIS Data

Map 12

Miles
0   1.25   2.5   5

N

● SFRPC Created

GIS Data Sources: SFRPC
Date: 6/30/2020
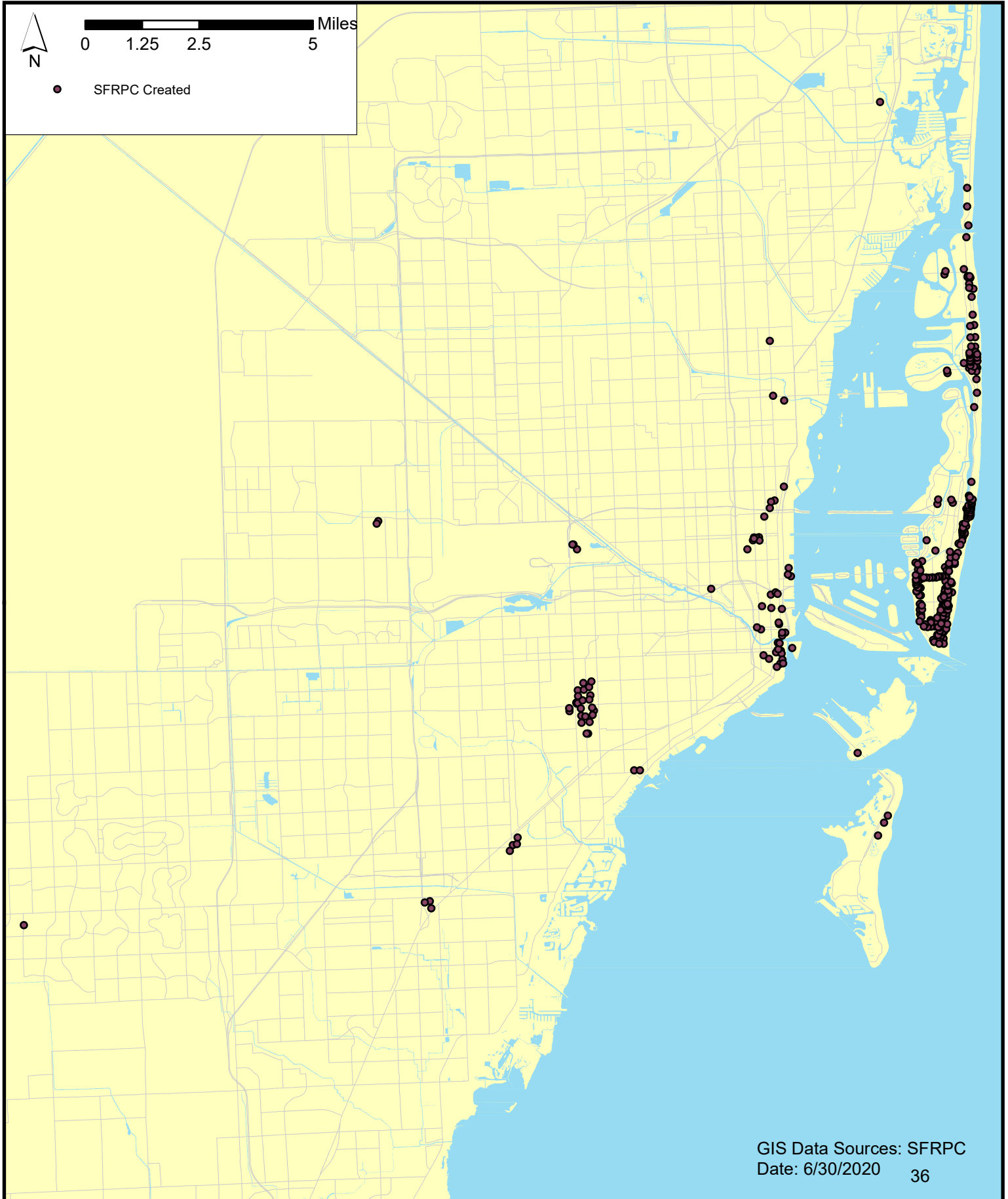
4.1. Municipalities

4.1.1. City of Sunny Isles Beach

The City of Sunny Isles Beach hosts an image of a GIS-created map of parking areas within the City. The map displays the location of these facilities and outlines the name, address, and number of parking spaces in each. This map can be found in **Figure 3:** City of Sunny Isles Beach Parking Map. A separate document courtesy of the city code compliance website is a list of eight public parking facilities with their corresponding location number, price, facility name, and address. The information presented in these two documents is the same information presented in the GIS file provided by City.

Figure 3: City of Sunny Isles Beach Parking Map
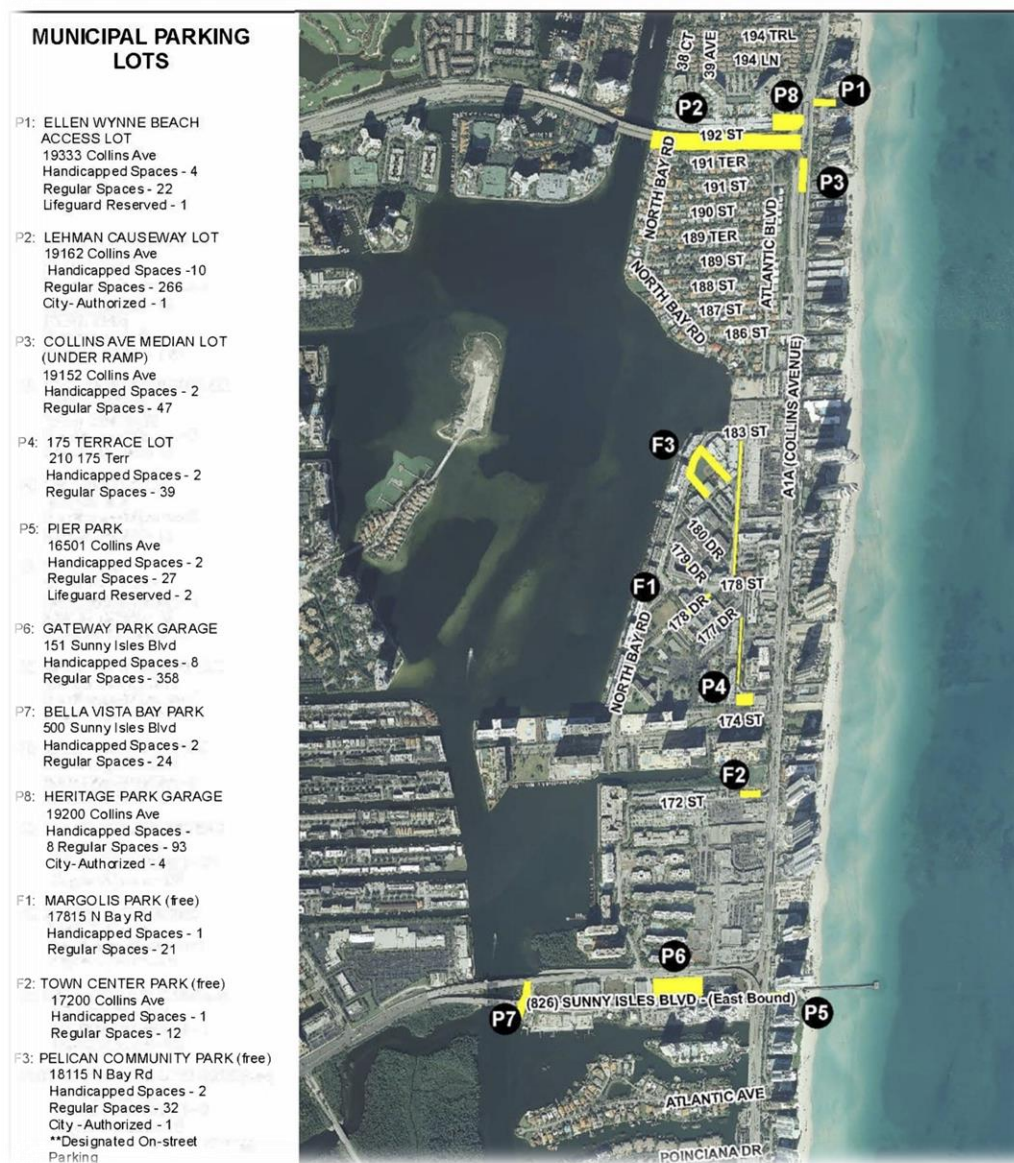
4.1.2. City of Coral Gables

The City of Coral Gables Parking Department publishes a list of municipal parking garages and lots on the City's website. It cites four garages and 28 lots. It lists the facility hours of operation, facility name and address. It also outlines the price for parking in each facility, including structured and non-structured parking. This includes mention of the number of hours that are offered free before the price is incurred. In addition, it specifies which garages and lots are permit-only. Of the 32 facilities contained in this data set, 11 facilities are permit only. Further, seven facilities were contained in the Coral Gables GIS layer, one in Commercial Property, and six in the Land Use layer. The remaining seven were created by the SFRPC according to the process described in the Study Methodology Section. The webpage also documents the price of on-street parking but makes no mention of its location. Google Aerial and Streetview imagery was utilized to identify the location of on-street parking facility locations. This technique revealed that parking facilities in Coral Gables also use PayByPhone to process payments. The corresponding PayByPhone number, if available, was noted and used to identify the price of parking at that PAPPF.

4.1.3. City of Miami Beach

The City of Miami Beach has published multiple resources regarding parking information. One form of information is a breakdown of parking lot and garage locations according to location. This document delineates Miami Beach neighborhoods by South Beach, Middle Beach, and North Beach. The publication describes the street boundaries of each location as well as the following information regarding each parking facility: facility name, address, and number of spaces. All of the published parking facilities are included in the City of Miami Beach (71 facilities) or Land Use (24 facilities) GIS data sets. This webpage was also used to verify the number of available parking spaces in each facility, which was a data field in the downloaded Miami Beach GIS layer. Comparing the parking space counts between the publication and data set for each facility reveals that more than half of the facilities space counts are exact matches, while most of the remainder are close, but not exact matches to the GIS downloaded data. There is one outlier — Parking Lot P11, which the online publication states contains 29 spaces while the data set states 119 spaces. A third source was used to cross-check, ParkMe, and it indicates 27 parking spaces. While none of these are exact matches, it is understood that this facility has closer to 29 spaces than 119. If this outlier is ignored, there is very little variation between the published parking space counts and what is contained in the data set so the data set can be considered reliable. For that reason, as of May 2020, the data in the City of Miami data set is retained, aside from the Parking Lot P11 outlier, which was changed to 29 spaces.

As for Miami Beach on-street parking, another document hosted online by Miami Beach details the associated pricing protocol. This document demonstrates the pricing protocol according to location, which in this document is delineated by the geographies of Entertainment District, South Beach, West Middle Beach, and North Beach. Another webpage on the City of Miami Beach

parking website contains 19 maps around the Miami Beach area. These maps cartographically demonstrate the location (street name and side of road) of on-street parking that is available publicly, exclusively residential, or both. The maps detail any applicable time restrictions and the price of a residential parking permit for each applicable area. The City of Miami Beach's residential maps were used to identify the areas of the City of Miami Beach that allow public on-street parking, which is explicitly outlined in the map. The locations identified were verified using the most up-to-date Google Streetview and Aerial images available. This allowed the SFRPC to determine what ParkMobile zone each area was identified by. The maps also show parking lots or garages that accept residential permits and their respective hours of operation; however, this information was not used in the study.

4.1.4. Town of Surfside

The Town of Surfside Parking Department published a list of municipal parking lots on the Town website. It cites six lots as well as their address and hourly max, and maximum price. One facility listed on this site was captured in the Land Use layer, one captured in the Commercial Property layer, and the remaining four were created by the SFRPC.

4.1.5. Town of Bay Harbor Islands

The Town of Bay Harbor Islands publishes a list of eight municipal parking lots, garages, and metered parking locations. The list contains the facility name, address, monthly permit cost, and the hourly rate to park. The Town also hosts a map of these locations, which can be found in the below in **Figure 4:** Town of Bay Harbor Islands Map of Municipal Parking Lots. Two of these facilities were in in the Land Use 2018 GIS layer and one has since been converted to a park patrons or monthly decal holders only. Thus, five of these locations were created by the SFRPC (represented by 4 points), while one was removed from the data set.

Figure 4: Town of Bay Harbor Islands Map of Municipal Parking Lots

4.1.6. City of South Miami

The GIS data for the City of South Miami's parking facilities did not contain information such as price or PayByPhone zone numbers. The SFRPC contacted the City of South Miami Parking Department and was informed the hourly price of on-street parking is $1.50 for all spaces in the municipality.

4.2. Agencies

4.2.1. Miami Parking Authority

The Miami Parking Authority (MPA) has published a map of the parking facilities managed by the entity, demonstrating the locations of its 504 on-street zones (with one identified to be since-redeveloped), 67 parking lots, six garages, and five locations with an unidentified facility type (578 in total). The map can be found in **Figure 5**: Miami Parking Authority Parking Locations Map. The data from this map is not downloadable or exportable. The spatial extent is the city of Miami, and contains the same data as sent from MPA. However, the data set sent by the MPA contained 582 parking facilities. A potential explanation for this is that the data set has been updated internally but what is published may not be currently up-to-date. This information does not have enough detail to be useful to identify PAPPFs.

Figure 5: Miami Parking Authority Parking Locations Map

The MPA also publishes a Comprehensive Annual Financial Report. The report details the number of off-street facilities managed by the MPA as well as the total number of on-street spaces that the MPA manages. The public-accessed garages listed are already in the data set sent to the SFRPC by MPA. The total number of on-street parking spaces managed by the MPA was useful to estimate the number of spaces in each of the 503 on-street parking segments in the MPA layer, as each individual on-street parking segment does not identify the number of available spaces in the segment. The SFRPC identified within the downloaded GIS data one on-street parking segment that has since been removed as part of-streetscape repurposing.

Lastly, the MPA also published the addresses of five valet parking locations in Coconut Grove which are not included in the final data set.

4.2.2. Miami Downtown Development Authority

The Miami Downtown Development Authority (DDA) has published two maps that depict the location of parking facilities. One map displays parking locations in the DDA's jurisdiction, and another in the Miami Central Business District (CBD). The DDA Vicinity map contains 237 parking locations within the DDA's area, which is the general vicinity of Downtown Miami and East Brickell. The data has the following relevant fields: Name, Address, and Property Type. Within Property Type are: "Valet", "Garage/Valet", "Surface Lot", "Public Garage", and "Garage". Of these 237, 10 are public garages, 50 are valets, 30 are garages/valets, 44 garage, and 103 are surface lot. Publicly accessible garages were as identified having "Garage" and "Public Garage" designations, however not all facilities labeled "Garage" are publicly accessible. The discrepancies in the data labeling conventions make the data not sortable. Because the data cannot be sorted, each facility, except for valet, was individually verified by the SFRPC to be a PAPPF using the posted address and using parking locators, Google Aerial and Streetview imagery, and online publications by private companies. The Central Business District Parking Map shows the location of parking facilities bounded by the geography of Bayfront Park to the east, SE 3rd Street to the south, NW 3rd Street to the north, and SW 2nd Avenue to the west, an area which is covered by the previous map but zoomed in for ease of reading. This source contained 17 PAPPFs not captured in other data sets, which were added to the data set.

Because of the previously discussed discrepancies in this publication, the information in this publication were manually checked by individual address using ParkMe (a private parking locator discussed further in the Private Resources section). Of the total 237 listed facilities, 84 are PAPPFs. Of these, 16 are not included in the data and were added according to the process described in the Technical Methodology section. Using historical Google Streetview imagery, it was determined that this source was published no more recently than May 2014 and has not been updated since. This is demonstrated by multiple instances of parking lots reported in this publication that have since been redeveloped. The long timeframe since an update also leads to suspicion that additional parking facilities may currently exist that are not on this list; however, this was the best publicly available data.

4.2.3. Facilities and Fueling

The Miami-Dade County Internal Services Department (ISD) Parking Operations provides County employees, local residents, and visitors with comprehensive parking management services; managing over 5,000 parking spaces at approximately 12 parking locations throughout the areas of Downtown Miami and the Civic Center. The ISD Facilities and Fueling Department publishes a list of these facilities that contains the facility name, the address it is located, the hours of operations, the type of facility, and the number of parking spaces available and the price. The published list includes two facilities that are contained in Florida Department of Transportation layer, two facilities that are in County-Owned Property, and three facilities have been added to

the data set. The remaining five listed facilities are not PAPPFs. The department also hosts a map displaying these locations which can be found in **Figure 6**: Miami-Dade County Department of Facilities and Fueling Parking Facilities Map.

Figure 6: Miami-Dade County Department of Facilities and Fueling Parking Facilities Map
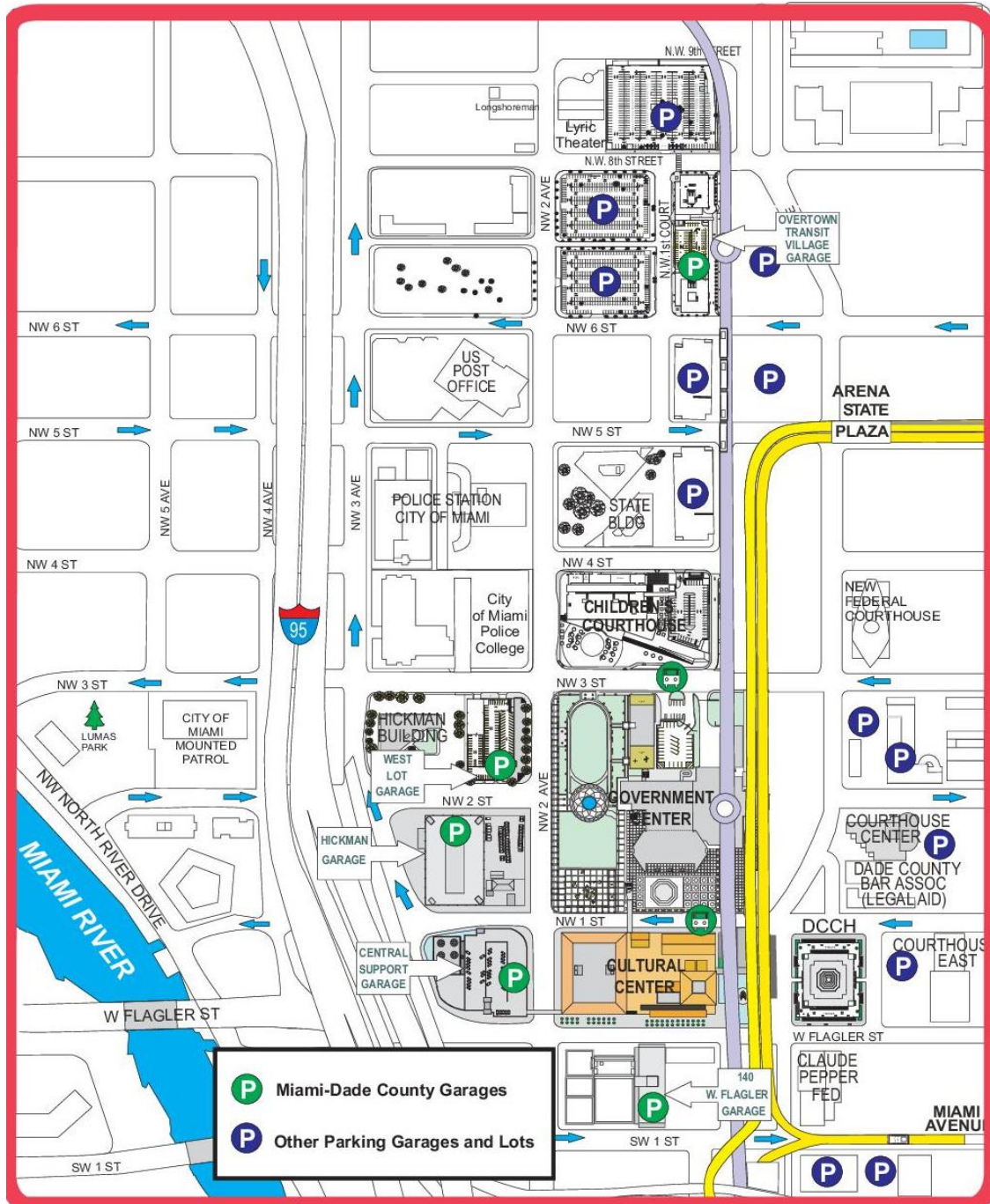
4.2.4. Port Miami

Miami-Dade County's Port Miami website provides information regarding its publicly accessible parking lots and garages. The publication outlines the price to park in each facility as well. The website includes another page which houses a map of the parking locations and contains a list of the corresponding addresses. The map can be found in **Figure 7**: Port Miami Map of Facilities Including Parking. This list contains 11 parking facilities, of which five were previously unidentified PAPPFs and have been added to the data set.

Figure 7: Port Miami Map of Facilities Including Parking
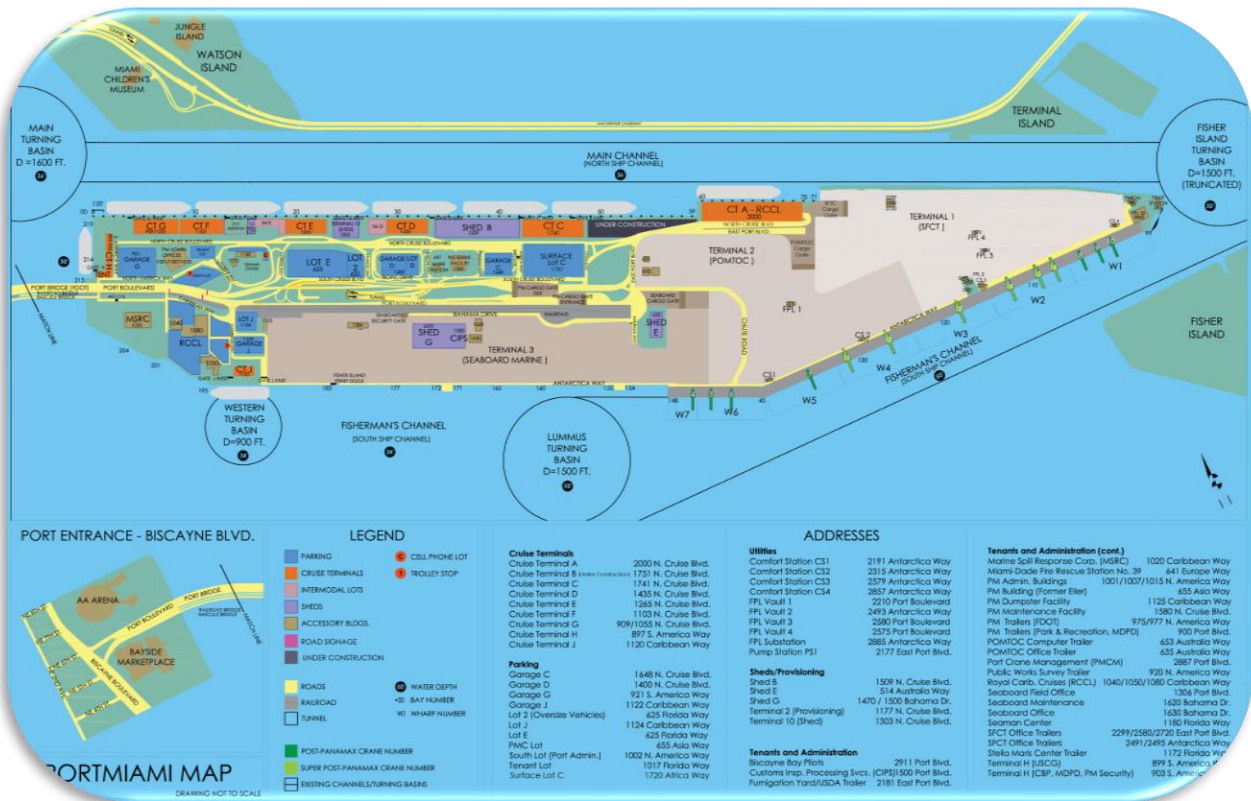
4.2.5. Miami International Airport

The Miami International Airport website publishes the location of publicly accessible parking garages as well as valet locations, the corresponding price to park at each, and a map. The map can be found in **Figure 8**: Miami International Airport Parking Facilities of the Appendix. The list of parking facilities details the five terminal parking areas, which are distributed between the two named garages. All five of these facilities are included in the FDOT data set.

Figure 8: Miami International Airport Parking Facilities

4.2.6. Miami-Dade County Parks

The Miami-Dade County Department of Parks, Recreation, and Open Spaces website publishes the location of public parks as well as the information pertinent to each facility, including the price to park if there is a charge. Of these public parks, seven charge for parking and are added to the data set.

4.3. Private Resources

4.3.1. Payment Processing Apps and Parking Locators

There are multiple private companies whose business is to connect parking customers of parking with the facilities they are looking for. The companies most often have an online presence or mobile application and allow users to search for parking locations using a map, zone number, or by using the customers' mobile location. These companies connect with the management company of the parking facility to arrange mobile payment processing. All of the parking locators are third party companies that attempt to display all publicly available parking facilities, no matter the company that manages them. They also usually provide the price to park and an option to reserve and pay online. Each company provides various additional information about the parking facility, such as the total number of available spaces. There are additional attributes of parking facilities that parking locators provide, for example to indicate if a facility is not publicly accessible. A few examples of parking facility attributes that make it not publicly accessible include valet, visitors, residents, or customers only, event-only, or prior reservation required. These distinctions are discussed further in the "Nuances in the data" section.

4.3.1.1. PayByPhone

PayByPhone is a private company that manages a mobile application for processing parking payments without the need for a kiosk or attendant. PayByPhone publishes a list containing the municipalities that use PayByPhone for management of their public parking payment. This list includes Coral Gables, Fort Lauderdale, Lauderdale-by-the-Sea, and City of South Miami. PayByPhone also manages payments for parking in the City of Miami and the Town of Surfside, but these locations are not included in the published list. PayByPhone also publishes a map of select parking locations throughout Miami-Dade County; however, according to other sources of data examined in this study, this map is not exhaustive. This map displays the following parking locations: one in Coconut Grove, two in Coral Gables, multiple in Wynwood, one in South Miami, and multiple surrounding Marlins Park, Normandy Isles, and Sunny Isles Beach. The map can be found in **Figure 9:** PayByPhone Miami-Dade County Parking Locations Map. Further demonstration of the lack of completeness of this map is that the map displays one garage downtown and two in Brickell, which is far less than what actually exists. Further, this data set cannot be exported in any way. The data used to make this map is not downloadable, and therefore can only be used to cross check the downloaded GIS layers. The data set contains all parking facilities posted in this map.

Figure 9: PayByPhone Miami-Dade County Parking Locations Map
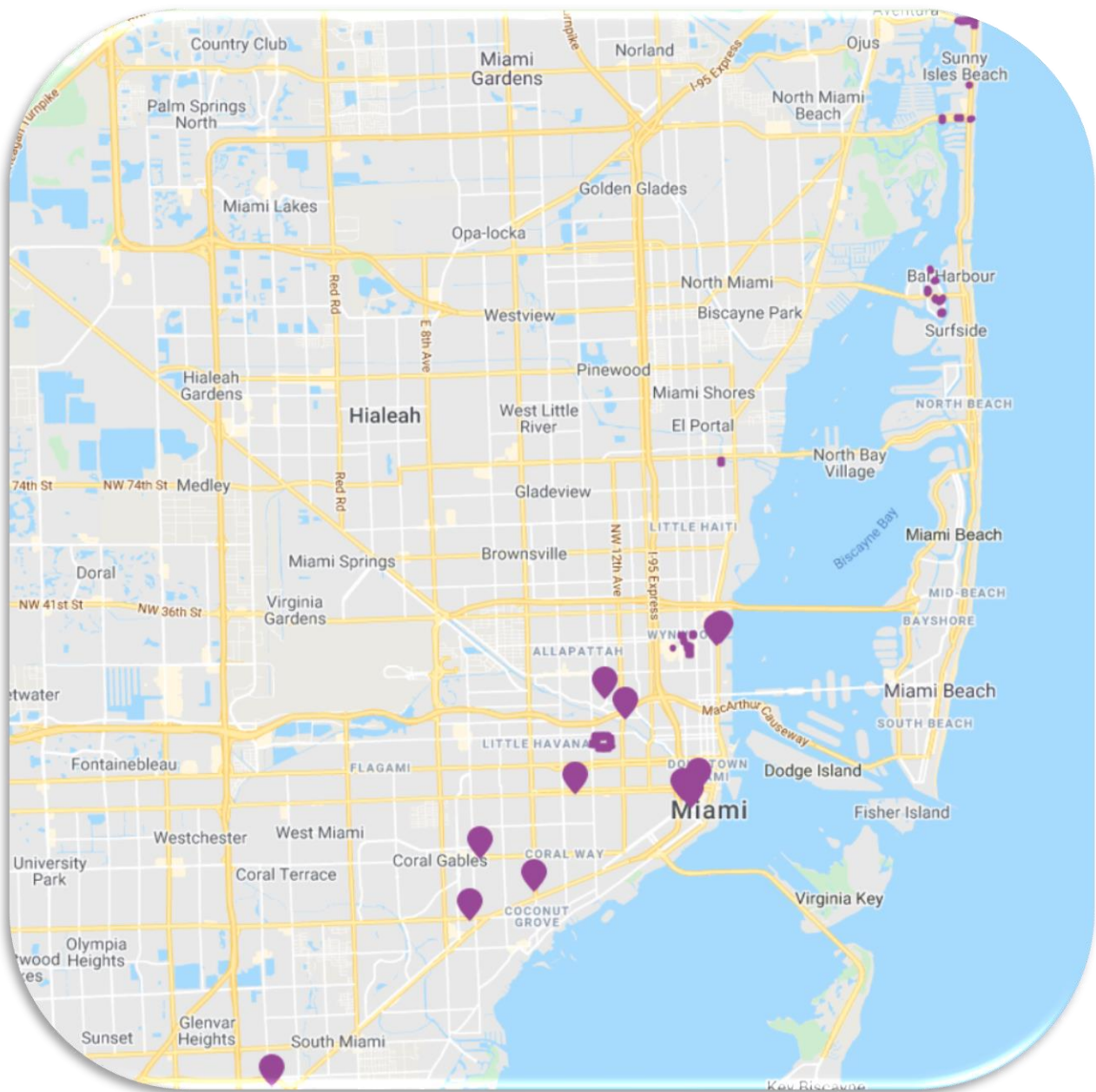
The most useful publicly accessible tool released by PayByPhone is their mobile application. This is what parking users utilize to process their parking payment. Searching the PayByPhone zone number in the mobile application reveals the price to park for variable time periods. The PayByPhone zone number was ascertained either as part of an incoming GIS data set, information published by the parking facility operator, through information available through online parking locators, or through Google Streetview imagery.

4.3.1.2. ParkMobile

Similar to PayByPhone, ParkMobile operates a mobile application for processing payments for public parking. Within Miami-Dade County, ParkMobile works exclusively with the City of Miami Beach. A similar methodology using the ParkMobile application was used to identify the price of parking according to the zone number. In cases in which the price of on-street parking is not available through other sources, the price of parking was obtained through the ParkMobile app.

ParkMobile also publishes a list of the location of parking facilities that they manage in Miami Beach. The list contains 84 on-street parking zones with the corresponding old zone number, new zone number, and cross-street location. This information is limited because it does not delineate whether on-street parking spaces are residential-only or publicly accessible. ParkMobile also publishes a list of 10 Garages with Zone Number, Garage Name, and Address. This information is useful to ensure that these facilities are still in operation and included in the data set.

ParkMobile publishes a third source of parking location information in Miami-Dade County on its "US & CAN locations" webpage. The list includes what the website calls "articles," details such as the toll-free number for that region, who to call if you get a ticket, etc. These webpages contain boilerplate information such as transaction fees, customer service phone numbers, and how to submit claims. There is no information regarding location, availability, or price in the articles. The information in this publication is not useful and only presented here as a comprehensive presentation of researched available data.

The documents published by ParkMobile with on-street parking locations is used as a supplement to locate on-street parking facilities in the South and North Beach neighborhoods of Miami Beach, as well as to identify their ParkMobile ID numbers. All of the facilities identified in the Garage and Lot document are located in the respective downloaded GIS data set.

4.3.1.3. ParkByApp

ParkByApp is another mobile application used to process payment for public parking facilities. Unlike other parking locators, ParkByApp does not offer a mapping or location search service through their website. The mobile application uses personal location data to populate the application with facilities that are available nearby. Thus, information about a parking facility can only be accessed if the app user is physically near an available parking facility. This makes obtaining information regarding facilities using this payment processor only possible through other channels such as ParkMe. This parking payment processor is only used by Asta parking.

4.3.1.4. ParkMe

While much of the information that parking locators present is the same, one distinction between the parking locators is that ParkMe is an official partner of the City of Miami Beach and ParkMobile. The City's website encourages visitors to utilize this parking locator for within Miami Beach. Despite this partnership, ParkMe offers parking information for the entire County. For this reason and the fact that it tends to provide the most comprehensive and up-to-date information, ParkMe was primary online source used to verify or identify parking information such as the

number of parking spaces available or price to park. In instances which ParkMe did not offer a necessary piece of information, Parkopedia was used. Despite most companies offering similar information, no companies provide as robust information as ParkMe and Parkopedia. Therefore, only ParkMe and Parkopedia data was used for the purpose of this study.

Another distinction of ParkMe is that it contains the location of on-street parking and the corresponding chance of finding and available space. The areas covered by this data are Brickell, Downtown Miami, Edgewater, Wynwood, Miami Beach, Surfside, and Bay Harbor Islands. However, SFRPC research identified locations in Surfside and Bay Harbor Islands that are identified in this data set as available on-street parking, but that turned out to be inaccurate. ParkMe did not identify any on-street parking not previously identified by the SFRPC and the data downloaded for the purpose of this study.

A number of data sets incorporated in this study also include parking that is not publicly accessible. The facilities in these data sets were examined using ParkMe to identify if parking is publicly accessible. ParkMe indicates whether a facility is restricted, semi-restricted, or non-restricted. Only non-restricted parking facilities are publicly accessible and therefore included in the data set. Parking locators also indicate information such as parking space counts and price.

4.3.1.5. Parkopedia

Parkopedia offers similar information to ParkMe with relatively similar consistency of complete information provided. However, SFRPC research has identified that some facilities are not covered by ParkMe but are by Parkopedia, and vice versa. In instances where a facility was not identified using ParkMe, Parkopedia was used secondarily.

4.3.1.6. Other Parking Locators

In addition to using ParkMe and Parkopedia to locate PAPPFs, ParkJockey and SpotHero are unique in in that they advertise public parking facilities that only offer monthly parking. Four PAPPFs were identified using ParkJockey (two in Downtown Miami and two in Miami Beach) and four PAPPFs were identified using SpotHero (Coral Gables, Northern Miami, and two in Miami Beach).

Parking.com, ParkWhiz, ParkingPanda, and Best Parking are other examples of private parking locator companies that provide similar services and information. These websites generally provide less information than their counterparts and were therefore not used as a primary source of information. This means that vendors such as ParkMe and Parkopedia were used first, as these vendors consistently provided the necessary information. Other vendors such as Parking.com, ParkWhiz, ParkingPanda, and Best Parking were not used.

In addition to cross-checking if downloaded layers contain non-PAPPFs, parking locators are used to determine if there are unidentified PAPPFs in the areas .25 miles away from the six SMART corridors. Considering that this study exists to inform the SMART Plan, special attention must be taken to ensure accurate representation of areas within walking distance of SMART corridors (.25-mile radius).

4.3.2. Private Parking Facility Management Companies

Private parking management companies operate a significant portion of parking facilities in Miami-Dade County. These companies have various levels of online presence from out-of-date websites with broken contact information to accurate map-based services similar to what parking locators offer. The privately-operated parking facilities included in the data set were identified by searching parking locators in SMART corridor locations and through information available online.

4.3.2.1. SP Plus Corporation

SP Plus Corporation is the largest private parking facility operator in the Miami area. When searching their website for parking locations, the user is forwarded to parking.com and presented a map of SP Plus locations. The map shows dozens of locations that are scattered throughout the County, including but not limited to Miami International Airport, Coral Gables, multiple hospitals, Dadeland, Edgewater, Downtown, Brickell, Miami Beach, and Bal Harbour. Among the many locations, there are privately accessed facilities including hotels and hospitals, which are not PAPPFs. The website also displays the price to park, facility number, hours of operation, and the location to enter the facility from.

4.3.2.2. LAZ Parking

Another private parking facility manager is LAZ Parking. LAZ Parking displays their parking facilities using a map. Each location contains information regarding the address and the price. The map identifies 29 locations; one in Homestead, five in South Miami, three in Coconut Grove, 11 in Coral Gables, one in Wynwood, and 14 in Miami beach. Of these locations, one in Wynwood and four in Miami Beach were added to the data set. The remaining facilities are either privately accessed or were already in either the Land Use, FDOT, or Commercial Property feature classes.

4.3.2.3. M & M Management

Private parking operator M&M Management publishes a list of its facility locations. It divides its location lists by neighborhood, one each for Downtown Miami, Brickell, and Miami Beach. The Brickell web link is broken and inaccessible. The Downtown Miami list contains 16 facility location addresses, with four new parking facilities added to the data set and 12 facilities no longer in service or no longer publicly accessible. The Miami Beach list contains 12 facility addresses with two facilities that have been added to the data set, nine hotel parking facilities, and one facility contained in the Commercial Property data set.

4.3.2.4. ASTA Parking

Asta Parking is another private parking facility operator in Miami-Dade County. They do not publish the locations that they manage online. The SFRPC contacted a representative from ASTA parking, who sent the SFRPC a list of addresses of the facilities in Miami-Dade County that they currently operate. This list includes three facilities and all three were added to the data set.

4.3.2.5. Legacy Parking Company

Another private parking facility management company is Legacy Parking Company. Their website publishes a list of nine parking facilities, two of which are contained in the Commercial property data set and the remainder have been added to the data set. Each facility has a corresponding address identified by the website. Legacy Parking Company connects customers to third-party companies for monthly parking but does not advertise the price.

4.3.2.6. Denison Parking

Denison Parking hosts an online map containing the location of their parking facilities. Each facility has the number of available spaces as well as the price. There are two parking facilities in this map within Miami-Dade County. One facility in Coconut Grove is valet-only and one in Coral Gables is contained in the Commercial Property feature class, and therefore none of the facilities were added to the data set.

4.3.2.7. ABM Industries

ABM Industries (ABM) is a national facility management company which manages parking facilities in the Miami area. ABM's website hosts a parking locator with a map of the facilities the company manages in the Miami area. Clicking facilities on this map forwards the user to the corresponding facility's ParkMe profile. ABM manages three parking facilities in the Miami area. One facility is contained within the Land Use feature class, one facility is within the FDOT feature class, and one facility in Coral Gables was added to the data set.

4.3.2.8. Lanier Parking Solutions

Another parking facility manager, Lanier Parking Solutions, maintains a website with a link to their parking locator. The link displays a map of parking facilities managed by Lanier parking, America Park, Reef Parking, Pk1, and Impark (collectively represented by Citizens Parking). Of these companies, only Lanier manages facilities in the Miami area. This map displays eight parking facilities in Coral Gables, one in Coconut Grove, five in Brickell, six in Downtown Miami, four in the Wynwood/Edgewater area, two in Miami Beach, one in North Miami, and two in Aventura, and one in Doral. However, most of the parking facilities these companies manage are residential towers. As a result, this source was used to identify one PAPPF in Brickell and two PAPPFs in Doral.

4.4. Google Aerial Imagery and Streetview

Google Aerial imagery was used to identify surface parking lots, garages, and on-street parking facilities in areas that the data did not cover. As an illustrative example, SFRPC staff would identify a potential PAPPF using Google Aerial imagery and then zoom in on the facility using Streetview. This visually puts the user at the street level on the day the Streetview photograph was taken. From this vantage point, SFRPC determined whether a parking facility is publicly accessible or not. Facilities are often labeled as private or publicly accessible with on-site signage. PAPPFs can also be identified by pay kiosks or payment processor signage. Additionally,

aerial images permitted the SFRPC to manually count the number of parking spaces in identified PAPPFs that do not have such data available elsewhere.

Google's Streetview data in the Miami area tends to be more recent than the sources of downloaded GIS data. Therefore, Streetview images were used as a supplement to confirm the status of a parking facility (whether it was still a parking facility or since redeveloped). Streetview imagery can also reveal the parking zone code, price of parking (from an on-site sign), or number of available spaces.

Use of this information allows a much more expedited way to identify and create accurate data than would be otherwise possible. For GIS data created by the SFRPC, this information has been confirmed with field survey.

4.5. Notes Regarding Research of Available Data

It must be noted that the location, prices, and number of publicly available parking spaces are subject to what is available at the time of research. Properties that were temporarily closed or under construction were included in the data set. Further, prices for parking are dynamic in nature. For example, parking prices may differ between days or based on current demand. This study also relies on the quality of data available which includes it being current and up to date. For example, the price of parking may have increased or decreased since the publication of this report. Therefore, the parking data set collected is considered to be a sample of publicly accessible paid parking facilities.

In addition to verifying the data using Google and online parking locators, the SFRPC made every effort to contact both public and private parking facility operators to confirm the information collected from online.

5. Study Methodology

In order to determine the average cost of publicly accessible parking in Miami-Dade County, a comprehensive data set of parking facilities, their price, their availability, and the location of MAZs was necessary. Prior to this study, a comprehensive, single data set that provided all of these data points did not exist. Once all available data was researched, collected and verified, it had to be analyzed for congruency. There were many pieces of data that had to be brought together for this analysis. As a result, the data had to be cleaned to be useable. The technical GIS processes used to unify the data set is outlined in the Appendix C - GIS Data Management This section will discuss how the study handled nuances in the data and explains the technical GIS methodology used to calculate the weighted average cost of publicly accessible paid parking facilities.

5.1. Nuances in the Data

This study aimed to identify parking facilities that are paid and publicly accessible, however there are a number of intricate details regarding how parking facilities are managed that are relevant to this study. Therefore, it was important to define what facilities are considered by this study to be publicly accessible. For example, there are a number of event-only parking facilities, such as those near large sporting and entertainment venues. These facilities are publicly accessible however only during events. This study aimed to identify the regular weekday price, which cannot be determined for large event-only venues because their availability is not only sporadic, but often only available on weekends or at night. Further, demand for each event triggers various prices as well as supply of available spaces. The SFRPC discussed with TPO the protocol for handling these nuances, and an explanation of how the SFRPC managed the remaining nuances in the data follows here.

Valet-only parking was considered by this study to be not publicly accessible and therefore not included in the data set. The logic behind not including these facilities is that by nature of being valet-only, the facility is not publicly accessible. Furthermore, there is an additional cost associated with valet service that would skew the price for these services higher than standard parking. Finally, a valet service tends to be reserved for the customers of a single business or select few businesses, not the general public.

The data collected by this study is to be used as an input to the Southeast Regional Planning Model (SERPM). The SERPM contains separate variables or metrics for parking facilities based on whether it offers an hourly, daily, flat, monthly rate of parking. The model also specifies the length of free parking offered before a charge incurs if applicable. As such, parking price data for each of the five metrics was gathered, if available. The price that a customer would be charged for staying in the facility for nine hours, including the grace period is the price captured in the overall average daily cost metric. There are 16 PAPPFs identified with this condition and the range of time offered for free is 15 minutes to two hours.

To compile all parking facilities to a congruent unit of analysis, the Southeast Regional Planning Model 7.0 User Guide uses a daily 9-hour cost of parking metric. For the purpose of this study,

daily rates are treated similarly to flat rates. Further, all parking facilities that are priced hourly and without a daily maximum are converted to a 9-hour daily cost by multiplying the hourly cost by 9. Similarly, if a parking facility costs $5.00 for two hours, then the hourly cost is $2.50, and the 9-hour daily cost is attributed to $22.50 (unless a daily max is implemented). Some parking facilities charge by the hour but with a daily maximum; this daily maximum is used for the 9-hour price. Another standard of the SERPM is amortize the cost of monthly parking permits to a 22-weekday daily equivalent. For example, a facility with a monthly cost of $110.00 will be divided by 22 for a daily cost of $5.00. If a facility offers a monthly cost in addition to hourly, flat or daily max rate, the attributed cost is what a customer would be charged for using the facility for nine hours.

Some parking facilities offer a different price on the weekend compared to weekdays. The SERPM models transit demand on the weekdays, thus the price of parking for the purpose of this study is the weekday price.

Marinas are not considered publicly accessible for the purpose of this study. While some marinas charge for parking, and they are technically publicly accessible, they are not considered PAPPFs for the purpose of this study because parking facilities for marinas will be used by patrons to store their vehicles which towed their watercraft. It is not reasonable to assume that a person will use transit to get to a marina for this reason and so these facilities were not included in the data set.

However, park facilities that charge for parking on-site are included as PAPPFs because parking at these amenities is not inherently a required part of the activity — there is no need for the parking facility if accessible through public transportation.

Hospital parking facilities were not considered PAPPFs because SFRPC research determined that parking facility patrons need a hospital visitor validation token to leave the facility, thus the parking facilities are intended for hospital use only.

Parking facilities at the Miami International Airport and Port Miami were considered PAPPFs if they are publicly accessible and not staff-only parking. Users of these transportation hubs are not inherently precluded from using transit in the way that a marina user is, so the price of parking at these facilities is part of the economic calculus of a user determining mode of travel.

Free parking facilities were not included in the data set because data regarding free publicly accessible parking is not readily available. Furthermore, some MAZs only contain public parking that is free. This results in an MAZ with an average cost of parking of zero, which would eliminate this MAZ from the study area. This convention is followed in the instance of transit park and ride facilities. Paid park and ride facilities for Miami Metro Rail locations remain in the data set, while free parking at Tri-Rail facilities have been removed.

Miami Beach residents have access to purchase permits to park in areas designated resident-only parking. These facilities are not considered PAPPFs for the purpose of this study.

5.2. Calculation of Weighted Average Cost of Public Parking in MAZs

Once a completely cleaned data set was been compiled and deemed to accurately represent the availability and price of parking, GIS transformations to answer the needs of the study (average price of parking in each MAZ in Miami-Dade County) were undertaken. These transformations use the collected data to determine the Study Area, which is defined as the area represented by MAZs in Miami-Dade County with PAPPFs. Furthermore, GIS tools are used to determine the number of on-street and off-street parking facilities in each MAZ in Miami-Dade County, as well as the average price of parking in each MAZ.

5.3. Define Study Area

The study area was created by joining all of the GIS data acquired and created that represents identified PAPPFs into one layer. The resulting layer represents the extent of MAZs with PAPPFs. A map of the study area of this study can be found in **Map 13**: Location of MAZs with Identified Paid Public Parking Facilities. The study area represents the extent of publicly accessible paid parking facilities in Miami-Dade County and was used to focus the analysis on finding the price and number of parking spaces only for publicly accessible and paid parking facilities.
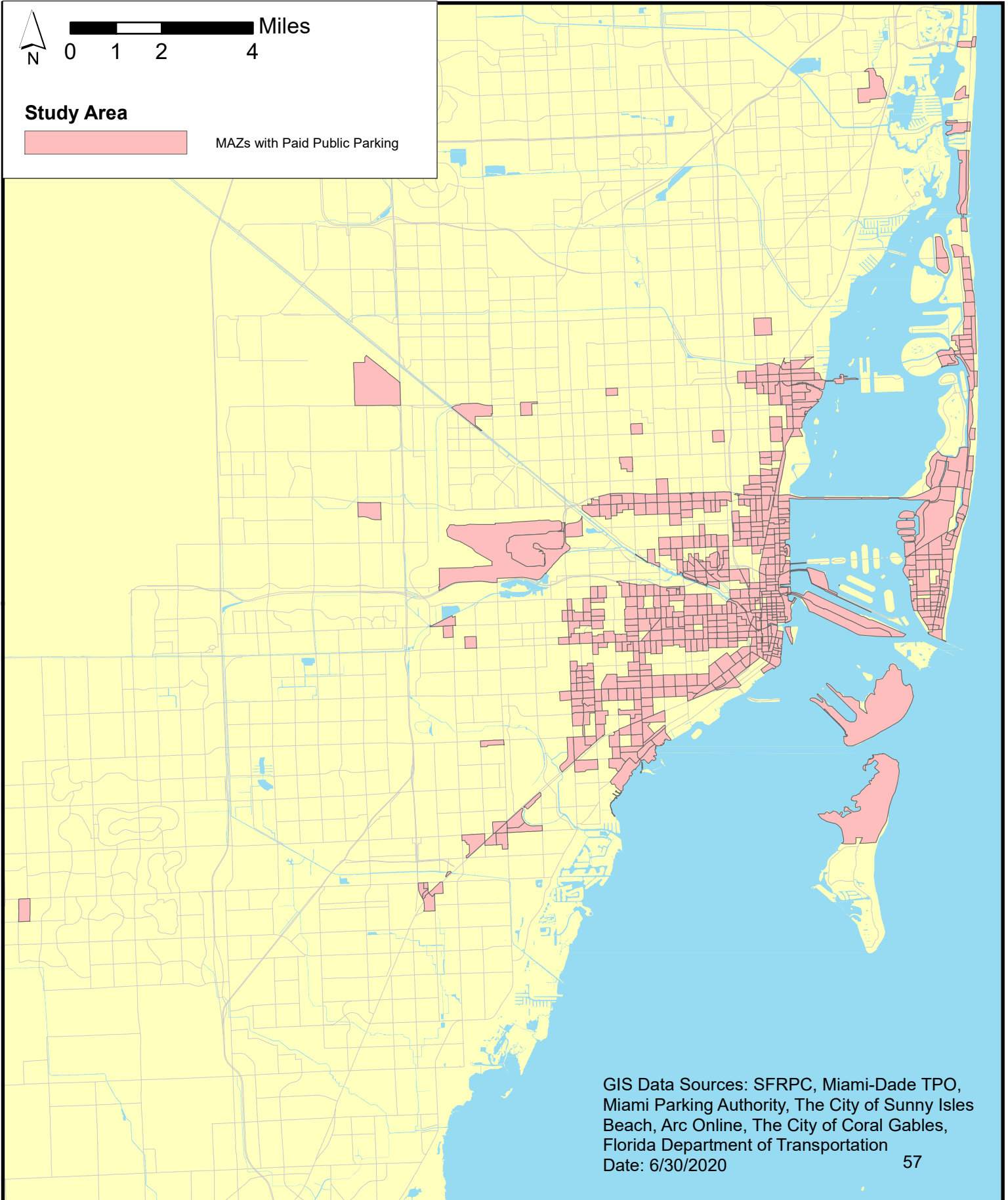
Location of MAZs with Identified Paid Public Parking Facilities

Map 13

Miles
0   1   2   4
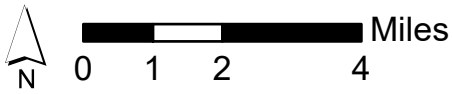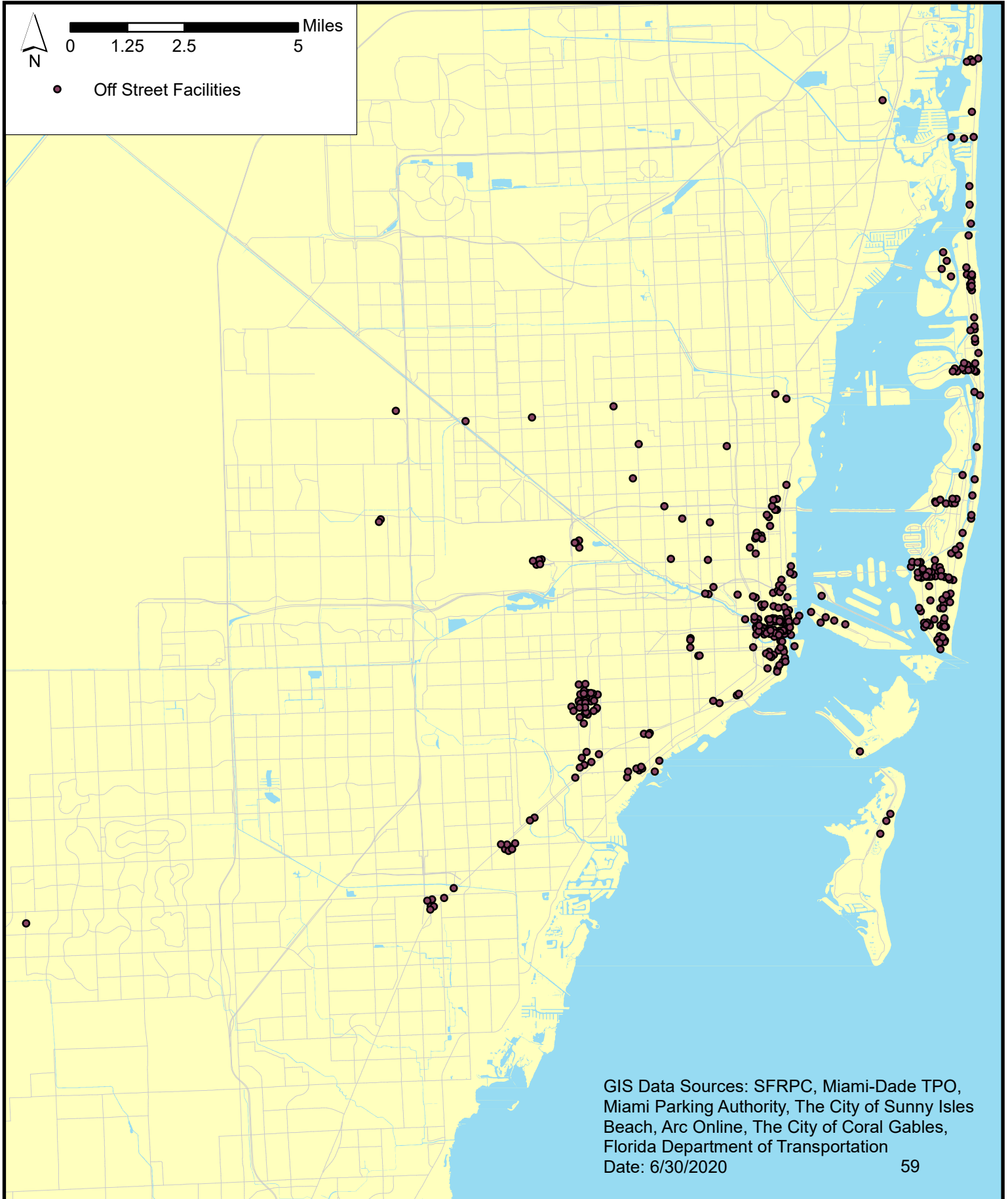
Study Area

MAZs with Paid Public Parking

GIS Data Sources: SFRPC, Miami-Dade TPO, Miami Parking Authority, The City of Sunny Isles Beach, Arc Online, The City of Coral Gables, Florida Department of Transportation
Date: 6/30/2020

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5.4. On/Off-Street Parking Inventory in each MAZ

To find the number of on-street and off-street parking facilities in each MAZ, Use the *Select by Attributes* tools in GIS to select only the on-street parking facilities. Export only the on-street facilities to a new layer. Conduct another *spatial join,* this time with the MAZs as the join feature class and the on-street layer as the target features. Check "Sum" of on-street spaces as the merge rule for the spatial join. Do the same for off-street parking facilities. A map of the off-street and on-street parking facilities identified in this study can be found in **Map 14**: Location of Identified Off-street Parking Facilities in Miami-Dade and **Map 15**: Location of Identified On-street Parking Facilities in Miami-Dade.
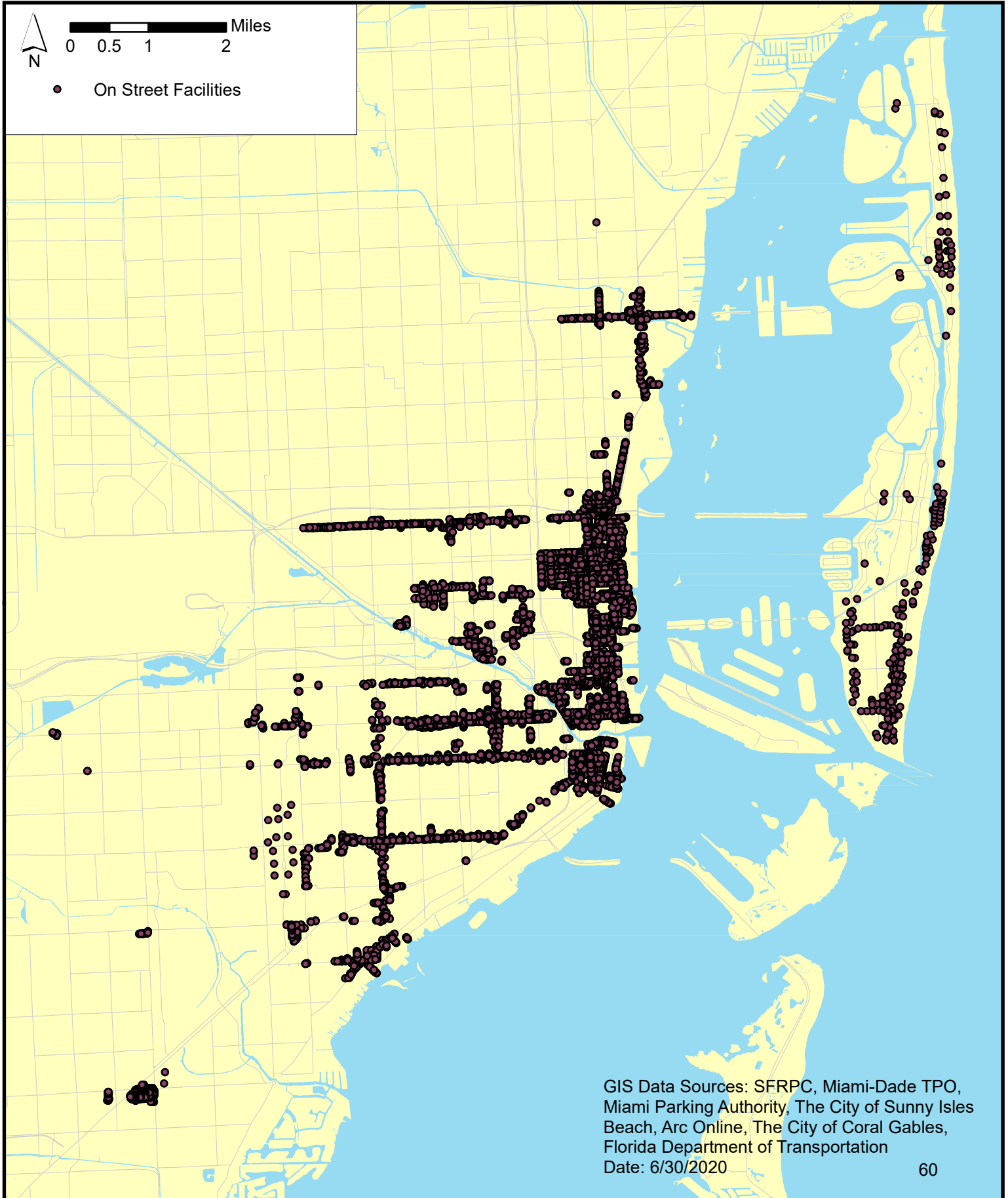
Location of Identified Off-Street Parking Facilities

Map 14

TPO
Miami-Dade Transportation Planning Organization

SFRPC
South Florida Regional Planning Council

Miles
0   1.25   2.5   5

N

● Off Street Facilities

GIS Data Sources: SFRPC, Miami-Dade TPO, Miami Parking Authority, The City of Sunny Isles Beach, Arc Online, The City of Coral Gables, Florida Department of Transportation
Date: 6/30/2020

Miami-Dade Transportation Planning Organization

SFRPC
South Florida Regional Planning Council

Miles
0   0.5   1   2

N

● On Street Facilities

GIS Data Sources: SFRPC, Miami-Dade TPO, Miami Parking Authority, The City of Sunny Isles Beach, Arc Online, The City of Coral Gables, Florida Department of Transportation
Date: 6/30/2020

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5.5. Total Weighted-Average Cost of Parking within MAZs

Use the *spatial join* tool with MAZs as the target layer and the PAPPFs layer as the join features. Within the fields box, use the merge rule "SUM" for each of the spaces X price fields (each of hourly, max, flat, monthly, and daily eq, as well as the spaces field. Then, create another field and input the field calculation for each price field:

$$\frac{\Sigma \text{ (spaces*cost)}}{\Sigma \text{ Spaces}}$$

This results in the weighted average cost of parking according to each pricing convention, including the final overall daily equivalent.

Next, *spatial join* the MAZ Master layer as target features to each parking point layer as join features. The resulting output is a polygon feature class containing polygons shaped as the corresponding MAZ for every point from the join feature layer. For example, if there are two parking facilities within an MAZ, the output feature class will have two identically shaped polygon features shaped as the corresponding MAZ (perfectly overlaid), with the corresponding parking facility (price, on/off-street, etc.) data for each feature. Each point feature has a field identifying the corresponding MAZ number the facility is located within. This step results in a polygon layer containing MAZs with parking and their corresponding relevant data, with 0 for MAZs with none.

Lastly, create a new field for each pricing convention (hours free, hourly price, flat rate, daily max, monthly, and daily equivalent) to represent the weighted average cost of parking in each MAZ. Use a *field calculation:*

$$\frac{\Sigma \text{ (spaces*price)}}{\Sigma \text{ Spaces}}$$

The resulting field is the final average cost of parking according to the pricing convention for the entire MAZ, weighted by the price of parking and the number of spaces in each MAZ. The overall daily equivalent price used to create **Map 16**: Average Daily Cost Equivalent Cost of Paid Public Parking in Miami-Dade MAZs.

Average Daily Equivalent Cost of Paid Parking in Miami-Dade MAZs

Map 16
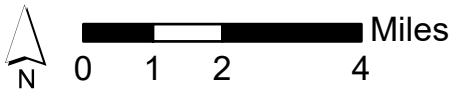
Average Daily Cost
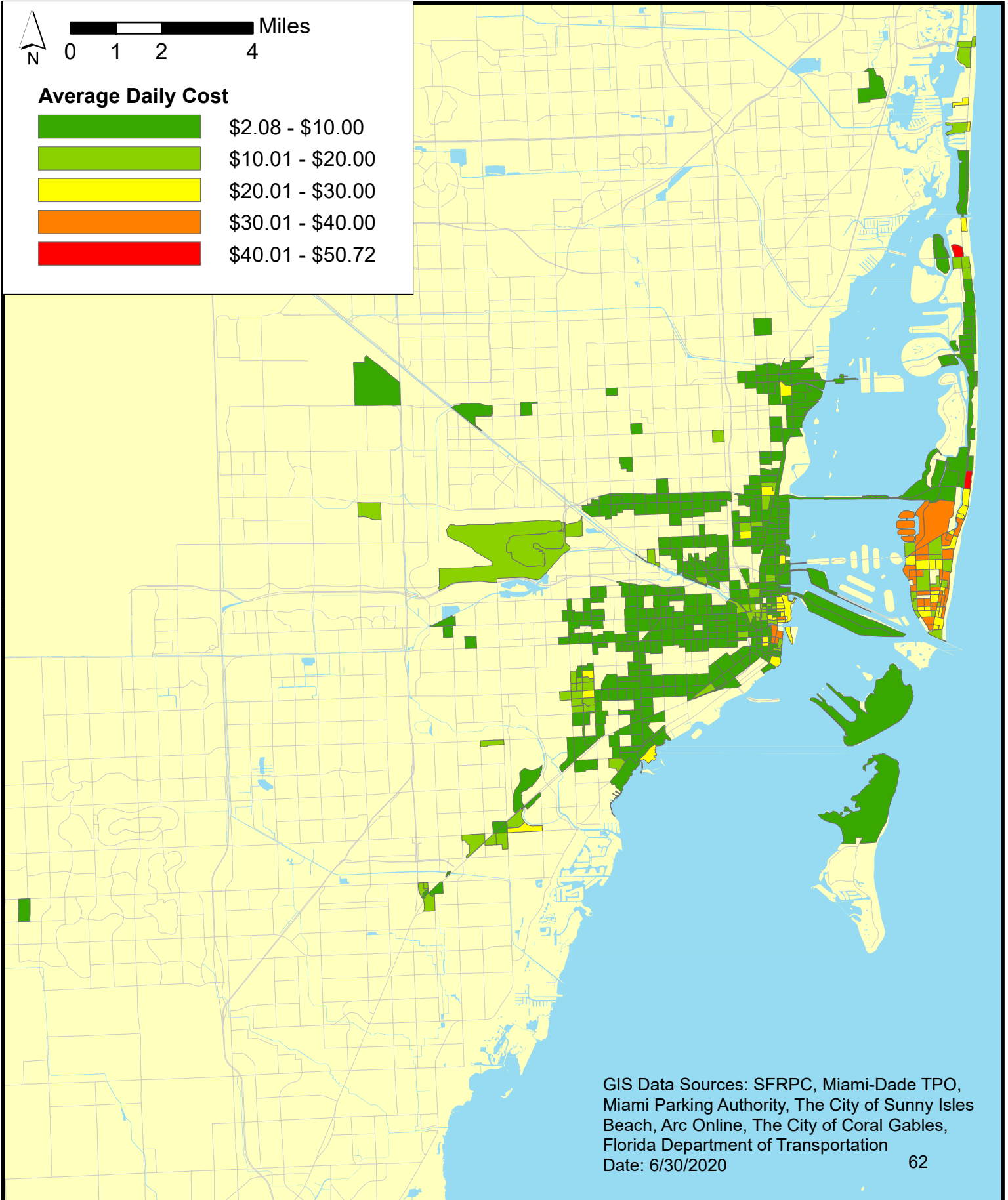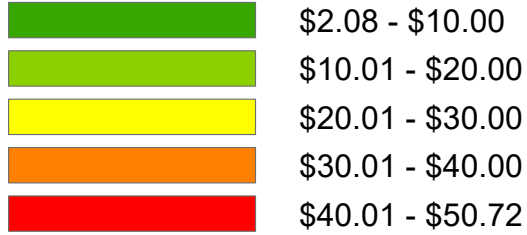
- $2.08 - $10.00
- $10.01 - $20.00
- $20.01 - $30.00
- $30.01 - $40.00
- $40.01 - $50.72

GIS Data Sources: SFRPC, Miami-Dade TPO, Miami Parking Authority, The City of Sunny Isles Beach, Arc Online, The City of Coral Gables, Florida Department of Transportation
Date: 6/30/2020

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6. Findings

The study identifies 606 MAZs with publicly accessible paid parking facilities (PAPPFs) in Miami-Dade County, with 104,022 off-street and 18,990 on-street paid parking spaces in total. The parking price at each of these parking facilities was broken down according to if it offered a grace period, hourly price, flat rate, daily maximum, or monthly rate. These pricing protocols were managed according to the nuances in the data section in this study and normalized to an average daily equivalent cost by MAZ. The converted daily equivalent average cost of parking ranges **from $1.59** in MAZ Edgewater (1964) **to $56.00** in MAZ Downtown Miami (2040). This data is found in the "AvC_DayEq" field in **Table 10**: Definitions of Fields Within GIS Data set – Average Cost of Parking Within MAZs.

This information along with the individual parking facility data will be stored in a geodatabase to be used in Miami-Dade TPO's transit demand modeling efforts through SERPM. These location of MAZs with paid public parking, the location of identified on-street parking, the location of identified off-street parking, and the average cost of paid public parking in MAZs are demonstrated in **Map 14**: Location of Identified Off-street Parking Facilities in Miami-Dade, Map 15: Location of Identified On-street Parking Facilities in Miami-Dade, and Map 16: Average Daily Equivalent Average Cost of Public Parking in Miami-Dade.

Because this study involved the collection of many data sets that contain different, inconsistent, or outdated data, there is an understanding that the data utilized was a sample of what is actually available. Every effort to identify each PAPPF was taken, however the availability of publicly accessible paid parking is constantly changing, especially in a county with such development density and intensity as Miami-Dade, making the results of this study a snapshot in time. Despite these limitations, however, the study utilized the best publicly available information to identify the necessary components for the analysis of the study. The results provided the average parking cost per specific MAZs for public-accessed parking facilities in Miami Dade County. This information can be used as parking cost data to inform the TPO's travel demand modeling efforts, which analyses the County's transportation network using Micro Analysis Zones (MAZ).

7. Recommendations

As evidenced by the data analyzed in this study, it is clear that the significant development density and intensity of the Miami area can result in pricing information on parking data becoming outdated quickly. The SFRPC recommends that the data collected as part of this study be undertaken to coincide with each update of the regions travel demand model (SERPM), which informs the regions respective Long-Range Transportation Plans (LRTP). This facilitates recent up to date parking cost data, since slight changes, including closure of a single facility, could significantly impact the average cost of parking in a corresponding MAZ. Additionally, from a regional transportation planning perspective, the SFRPC recommends extending this data collection effort to Broward and Palm Beach Counties, whose jurisdictions are represented in the SERPM model. Increasing the coverage of assessing average parking cost data in these counties would improve the accuracy of the modelling efforts for those counties, and also for Miami-Dade metropolitan statistical areas (MSA) and ultimately the broader region as a whole.

8. Appendix A – GIS Data Researched but Not Used

The following are data sets that were acquired, and after cleaning and analyzing the data, it was determined that the data contained within these feature classes is also in another data set, contained only privately accessible facilities, contained only free facilities, or is otherwise unusable for the purpose of this study. This section outlines the sources of GIS data sets not used and what information was used to determine that each data set was not necessary. A table of GIS data sources not used in the analysis can be found in **Table 4**: Source of GIS Data Acquired but Not Used. A table of relevant field name and explanations of the field contents for each GIS data set not used can be found in the Appendix in **Table 8:** Downloaded GIS Fields Not Used in this Study.

8.1. Municipalities

8.1.1. The City of Sunny Isles Beach

A representative from The City of Sunny Isles Beach provided the SFRPC a GIS shapefile named "Central Island Parking." The Central Island Parking data set is a 48-unit polyline feature class representing on-street parking and contains the number of spaces and whether the parking facility is publicly accessible. There is no publicly accessible paid parking in this feature class and therefore none of the 48 units in this feature class are used.

8.1.2. City of Doral

There are two data files in ArcOnline that contain parking data for the City of Doral. One file contains points which represent individual public on-street parking spaces. This data set contains 646 points distributed primarily between the corridors of NW 82nd Street, NW 66th Street, NW 53rd Street, and NW 30th Terrace (the data does not contain additional variables such as price, however upon Google Aerial imagery and Streetview examination it was determined that all on-street parking in Doral is free). Another data set contains polygons of parking lots and garages in Doral. This data set contains 154 polygons with data fields Size, Shape Area, and Shape Length. All parking facilities identified in these two data sets are free and for visitors only, thus not PAPPFs. As of May 2020, none of the features in these two layers remained in the data set.

8.2. Miami-Dade County

8.2.1. Certificates of Use

Miami-Dade County OpenData hub connects to ArcOnline, which includes a data set with Certificates of Use (also called a C.U. or zoning permit) issued by Miami-Dade County from January 2003 to present. The C.U. assures that the business is allowed in the zoning district where it is located. It also verifies that the structure was built for the proposed type of business. Prior to opening any business in unincorporated Miami-Dade County, a C.U. must be obtained. A C.U. is required when an industrial or commercial building is erected, altered or enlarged, or an existing building goes through a change of occupant, name or type of business. This data set has 107,282 units and identifies each unit's corporate name, address, and the type of business in use as

defined by the Florida Department of Revenue. There are 15 units in the data set with a business use of "Parking". As of March 2020, none of the Certificates of Use points remained in the data set because each of the facilities in this data set was either a duplicates of a previously downloaded data set or they were privately accessible facilities only.

8.2.2. County-Leased Property

Miami-Dade County OpenData hub connects to ArcOnline, which houses a point feature class of property leased by Miami-Dade County. This data set has 285 units with the following relevant variables: folio, address, department leasing the property, lease start, and lease expiration date. The data set contains seven units with "Lessor" of "City of Miami - Dept. Off-Street Parking." As of March 2020, none of the Commercial Property points remained in the data set because each of the facilities in this data set are duplicates of another data set.

8.2.3. Florida Department of Revenue

Miami-Dade County OpenData hub connects to ArcOnline, which houses a polygon feature class of property as classified by the Department of Revenue (DOR). This data set has 2,020 records which are classified by one of seven DOR descriptions related to parking. A description of the DOR descriptions and data contents (and relevant descriptions) are explained in detail in the Appendix in Table 8: Downloaded GIS Fields Not Used in this Study.

Despite multiple categories related to parking (including "municipal: parking lot"), none of the DOR codes reliably identify PAPPFs. With more than 2,000 parcels identified with parking, it is not feasible to check each individually. The SFRPC sampled 20 data points using Google Streetview imagery and found a mix of industrial buildings, vacant land, and land with pre-development advertisement signs on it, and no PAPPFs. As of May 2020, none of the DOR data points remained in the data set because the facilities in this data set were not identified to be PAPPFs.

9. Appendix B – Other Potential GIS Data Sources Researched but No Data was Acquired

The SFRPC contacted other agencies and municipalities with jurisdiction in Miami-Dade County in attempt to collect parking GIS Data. In doing this, the SFRPC determines that the GIS data presented in this study is the extent of publicly available GIS data that contains PAPPFs. For example, SFRPC communicated with the planning staffs of multiple municipalities in Miami-Dade County and learned that certain municipalities do not have PAPPFs. Other communication with regional professionals led to recommendation to use data sets already identified and analyzed by SFRPC.

Private companies were also contacted through multiple channels and efforts in attempt to acquire data. There were multiple impediments to the SFRPC being able to acquire useful data from private companies; often there was no response at all, other times representatives did not know how to handle the request or if the company provided such data. After multiple attempts, SFRPC was informed that these private companies either would not release such data, or only made data available for purchase.

10. Appendix C - GIS Data Management

10.1. Duplicates

Because multiple data sets were used from different sources that capture different types of information, some data sets contained duplicate parking facilities. These duplicates were identified and removed using the following process. First, import the new feature class into ArcMap. Using the intersect tool, select both the Master Layer and New Layer as input features. Then, use "select by location" to select features from the Master as the target layer and the output from the intersect tool as the source layer. The result is a feature class that contains the duplicate data points. In the attribute table, switch the selection to non-intersected, which leaves only non-duplicates selected. Export this selected data as a new layer. Use the Merge tool to add the non-duplicates to the Master Layer. Then, using the editor toolbar, add the appropriate source of the New Layer in the "Source" field. Repeat this process for each new feature class. This process must be done for points and polygons separately.

Another GIS tool, *Near,* was applied to calculate the distance to the nearest parking facility. This allowed the SFRPC to sort through the data and determine if a parking facility has been duplicated. The previous methodology of identifying duplicate facilities is useful but only to the extent of exact overlap. Because there are multiple data sources, it is not reliable that the same location identified by different data set will have identical geolocations within the GIS. This technique allows the SFRPC to use judgement in determining appropriate distances to between facilities to examine. No duplicate facilities were found using this method.

Finally, utilize the *Identical* tool to identify one final time to see if any of the data overlaps. The *Identical* tool output is a list of points that have the same geolocation. Select the duplicated points, flip the selection to select all points but the duplicates, and export as a new layer.

10.2. Spliced Facilities

Some facilities in the County-Owned Property Layer are represented with multiple polygons for the same data point. For example, an instance of two parking lots on opposite sides of a street may be represented with a single data point (polygon shape) but spatially represented by two separate polygons. Some of these split polygons straddle the border of an MAZ, and therefore must be split into two data points to accurately depict the location of parking spaces and allocate them to the proper MAZ. This was done by converting from one data point to two, with each polygon in its respective MAZ. This was accomplished by using the Split Feature tool to edit the vertices of the polygon to a single facility, and then creating a new data point for the remaining facility.

10.3. Split parking facility polygons that overlap MAZ boundaries

Nearly opposite to the previously described situation, some individual parking facilities cross MAZ borders. A common example of this situation is an on-street parking zone polygon in the

MPA feature class which crosses multiple MAZs because the border of the MAZs are roads. The spaces in these facilities need to be attributed to the appropriate MAZ on a pro-rata basis. For example, if an on-street parking zone straddles the border of two MAZs and the on-street parking is available on both sides of the road in equal amounts, then the number of parking spaces attributed to that facility should be divided equally between the two MAZs the on-street zone straddles. Google Aerial and Streetview imagery must be used to identify the number of parking spaces to attribute to each split polygon.

It is necessary to do this before converting into points because the P*olygon to Point Conversion* tool will place the point in the geographic center of the polygon. Having a split polygon interferes with the accuracy of the tool.

10.4. Convert Polygons to Points

To unify the parking layers and ease the GIS calculations leading to the average cost of parking in each MAZ, polygon feature classes were transformed into points using the F*eature to Point* tool. This results in an output layer of points located in the center of the original polygon, which guarantees proper representation of the respective MAZ and allows for easier GIS calculation.

10.5. Transform Miami Parking Authority On-Street Parking Polygons into Points

Turning polygons into points accomplishes two needs. One is that the polygon lines overlap MAZ boundaries. Another is that the on-street parking features do not have a number of available spaces.

The on-street parking GIS data that represents the facilities managed by the MPA does not contain the number of spaces available in each segment. Further, MPA's representation of on-street parking locations with street-shaped polygons presents a problem because the polygons overlap multiple MAZs. Keeping these polygons in this form will result in GIS calculations double-counting these facilities, attributing the same number of available stalls to the multiple MAZs that it crosses.

To convert the polygon feature class to a point feature class, export a new layer containing only the MPA on-street parking polygons. Use GIS tool *Add geometry attributes* to calculate the perimeter of the polygons (length is not a geoprocessing option for polygons, only polylines). The sum of the perimeters is the total perimeter of road that contains MPA on-street parking. Then, create a new field in the data, using *field calculation* to divide the perimeter of the individual polygons with the total perimeter to create a pro-rata share for each on-street parking segment. Then, create another field using the field calculation to multiply the pro-rata share of perimeter by the total number of on-street parking spaces managed by MPA (MPA publishes the total on-street parking facilities that MPA manages in its Comprehensive Annual Financial Report). This results in the estimated number of available parking spaces in each on-street segment.

Next use the GIS tool *Create Random Points* using this feature class as the "constraining feature class" with the "number of points" using the FIELD with the estimated number of points. Using "minimum distance allowed" creates an error because it is a 2-dimensional measure and only works with polylines, not polygons. This is the rationale for using the random point generator, as the fixed-point generator does not work for this polygon feature class. The extent of the individual on-street zones is small and assigning random points within these small geographies does not produce point outputs that misattribute the number of spaces to each MAZ. This GIS process attributes the generated points to a single MAZ meaning that if a point straddles an MAZ border, whichever MAZ it is mostly contained within is the MAZ the GIS assigns to the feature.

While polygons appear to intersect with MAZ borders, converting them to points eliminates this issue. Point data is precise enough to select one MAZ or another based on which it is closest to.

10.6. Manage Mismatched Geographic Projection Coordinate System

Because the data used in this study comes in many forms from many sources, it was found that the geographic projection coordinate systems were not all identical. This creates an issue in visual mapping but also data analysis using location. As such, all of the data must be re-projected to the native projected coordinate system, "NAD_1983_State Plane_Florida_East_FIPS_0901 Feet" using the *project* ArcGIS tool. While this process worked on most of the feature classes, the feature class containing the MPA on-street parking spaces required an additional step to properly coalesce the data projected coordinate systems. While the previously described process successfully projected the necessary coordinate system to the feature class, it resulted in drawing errors that were resolved through the following process. First, open a new blank map, open the layer properties dialog box, and select the coordinate system to the native North America Datum 1983. Then add your problem data to this map. Then, change the coordinate system to "NAD_1983_State Plane_Florida_East_FIPS_0901 Feet" using the project tool. Next, export your problem data from the map, but be sure to choose to "export using the same coordinate system as the data frame." Finally, add this feature class to the original map. This is process represents a workaround for a documented software bug within ArcGIS.

10.7. Unify collected data set

Once all the available GIS data is collected and trusted to accurately represent PAPPFs in Miami-Dade County, the layers are combined to create a unified layer of PAPPFs. This is accomplished by using the GIS *Merge* tool. Each layer of parking is inputted as an input feature class. The resulting output is a single layer that has every identified parking facility. As each source has different naming conventions, but some fields convey the same information. Therefore, all similar data must be consolidated into a single field. This process is outlined under "Total weighted average cost within MAZs" in the Analysis section.

11. Appendix D - GIS Information Created by the SFRPC

Some parking facilities could not be identified in any of the downloaded GIS data sets but were identified in the "Information Available Online" section of this study. As a result, this data was entered into GIS using the process described below. As of May 2020, GIS location data representing 29,213 off-street PAPPF spaces and 6,728 on-street PAPPF spaces have been created. A table that lists the quantity and locations of this data can be found in Appendix E – Table 6: GIS Data Created by the SFRPC.

11.1. Parking Lots and Garages Feature Classes

Parking lots and garages that were added to the data set manually are represented with a point in the center of the location of the parking facility and includes the number of available parking spaces in the facility, cost to park as well as the address if available. This was done in Coral Gables, Miami, Miami Beach, and in SMART corridor areas.

11.2. On-street Parking Feature Classes

Using the editor toolbar's *Create Feature* tool, create data by placing a point for each MAZ with the number of counted spaces inputted as number of parking spaces. In the attribute table, add the vendor ID number if available, number of spaces available, and the source as "Miami Beach Parking Map and Google Streetview and Aerials". Data for price is obtained either through Information Available Online or entering the corresponding vendor ID into either the PayByPhone or ParkMobile phone application and added to the GIS data set in the corresponding price column. The price used in the data set is included when pricing for an hour is available, that value is used. In parking zones without hour-long availabilities, the price for 15 minutes is used and multiplied by four.

The number of spaces available was determined by using Google Aerial and Streetview imagery. The SFRPC manually counted the number of spaces, which are usually demarcated with painted lines. When this was not available, the number of cars and spaces was counted to provide the parking space availability. This was done in Coral Gables, Miami, Miami Beach, and the Ironside District.

11.3. Label Structured and non-structured (on/off-street) parking facilities

Each parking facility identified in this study must be identified as on-street or off-street. Some data sets contain a field indicating whether the facility is structured or not. Other data sets contain exclusively on-street parking (Doral and South Miami), or off-street parking (FDOT and Commercial Property) but do not have a field to demonstrate so in the attribute table. There are various descriptions for parking facilities in each data set, so each must be examined individually. For data that does not have such information coded into it, this must be done manually. A field must be created, and the appropriate facility type coded into the data using the GIS Editor tool.

11.4. Label Parking Price

Parking price is included in the downloaded GIS data sets representing the Park and Ride locations and Miami Parking Authority facilities. The specifics whether hourly, monthly, or daily maximum are kept in separate fields. Parking price not downloaded through GIS data sets was identified and entered into the data set by the SFRPC using the sources described in the "Payment Processing Apps and Parking Locators" section. Information such as the number of free hours offered before a charge incurred is entered into a separate field when identified. If available, the monthly price was converted to a daily equivalent by dividing the monthly price by 22 workdays, as described in the SERPM model documentation. Further, a daily equivalent parking price was converted using a 9-hour parking daily equivalent.

11.5. Source

A field "GIS Source" was created to identify the source of the respective GIS data. All facilities from the same source have identical source names entered into the data. Data created by the SFRPC is labeled "SFRPC" and was compiled from the various means described in this report.

A new field for each parking pricing convention (hourly, daily max, flat rate, monthly, and hours free) was created to identify the source of each data point added to each parking facility. When GIS data was imported, the name was added to the Source field using the Editor toolbar.

For example, the GIS data acquired from the City of Coral Gables did not have the price of parking. In this case and similar, the "Source" and "Source_Location" fields are to be marked with "The City of Coral Gables" and each of the appropriate source fields for the corresponding price conventions are filled in with the source of the respective information (in this case, City of Coral Gables website or ParkMe). Another example is in a point which the SFRPC research identified the location of a PAPPF using ParkMe. This facility is to be marked within the GIS Source field "SFRPC" because the SFRPC created the GIS point, and labeled with "ParkMe" within "Source_Location" and the respective price fields.

11.6. Number of Parking Spaces in Each Facility

The number of parking spaces in each facility was identified using the information from the "Information Used to Supplement the Data set" section and inputted into a "Spaces" field.

11.7 Parking Zone Number

This field identifies the appropriate ParkMe or ParkMobile number. Miami Parking Authority GIS data contained this information, but no other GIS sources did. The information was identified using methods described in "Information Used to Supplement and Verify the Collected Data" section. This data field is incomplete for areas other than MPA because the availability of this information is limited.

12. Appendix E – Additional Tables

Table 3: Sources of GIS Data Acquired and Used

GIS Data Type	Source
Miami Parking Authority	Miami Parking Authority Department of Information Technology
Sunny Isles Beach – City Parking Areas	City of Sunny Isles Beach Planning and Zoning Department
City of Miami Beach Garage and Lot locations	https://www.arcgis.com/home/item.html?id=6002d71cb3f3 4417a0b2a53fa71411c9
South Miami On-street	https://www.arcgis.com/home/item.html?id=2370a2d18ce8 4f3b90551a9c6b321957
Commercial Property	https://www.arcgis.com/home/item.html?id=fb8303c577c2 4ea386a91be7329842be
County-Owned Property	https://gis-mdc.opendata.arcgis.com/data sets/county-owned-property
Land Use	https://gis-mdc.opendata.arcgis.com/data sets/land-use
Park and Rides	https://www.arcgis.com/home/item.html?id=37de0f11aa094 a8ea16f41150994d929
FDOT NAV Streets Cultural	https://ubr.fdot.gov
SMART Plan Corridor Feature Layer	https://www.arcgis.com/home/item.html?id=ac18e7b864fd4 627999452f662c95ef1
MAZ boundaries	Miami-Dade TPO

Table 4: Source of GIS Data Acquired but Not Used

GIS Data Type	Source
Sunny Isles Beach-Central island Parking	City of Sunny Isles Beach Planning and Zoning Department
Certificates of Use	https://gis-mdc.opendata.arcgis.com/data sets/certificates-of-use-issued-by-miami-dade-county-jan-2003-to-present
County-Leased Property	https://gis-mdc.opendata.arcgis.com/data sets/county-leased-property
Department of Revenue	https://gis-mdc.opendata.arcgis.com/data sets/0e8ef07df21349da97b9c87fe5fbad3f_0
Doral On-street Doral Public Lots and Garages	https://cityofdoral.maps.arcgis.com/home/item.html?id=2cd749414cc34d80b3e642759ac26e6e https://cityofdoral.maps.arcgis.com/home/item.html?id=6164fdae00084a898f5e6b423ae6e7ec

Table 5: Sources of Information Available Online

Source/ Agency	Contents	Source
Sunny Isles Beach	List of Municipal Lots, Garages, and On-street parking with price with corresponding map.	https://www.sibfl.net/code-compliance/parking/
Coral Gables	City Parking Department published a list of municipal lots and garages and their prices	https://www.coralgables.com/departments/Parking/municipal-parking-garages-and-lots
Miami Beach	Residential Parking Zone Maps	https://www.miamibeachfl.gov/wp-content/uploads/2017/08/Zone-4-Map.pdf https://www.miamibeachfl.gov/wp-content/uploads/2017/08/Zone-2-Map.pdf https://www.miamibeachfl.gov/wp-content/uploads/2017/08/Zone-3-Map.pdf https://www.miamibeachfl.gov/city-hall/parking/residents-only/
Town of Surfside	Municipal Lots and Garages; Parking Rates	https://www.townofsurfsidefl.gov/departments-services/parking/parking-lot-locations https://www.townofsurfsidefl.gov/departments-services/parking/parking-rates
Town of Bay Harbor Islands	Municipal Lots – List Municipal Lots – Map	https://www.bayharborislands-fl.gov/177/Municipal-Lots---Parking https://www.bayharborislands-fl.gov/DocumentCenter/View/127/Map-of-Municipal-Parking-Lots-PDF
City of South Miami	Price of On-street parking	City of South Miami Planning and Zoning Department
Miami Parking Authority	Non/structured parking facilities – Carto Map	https://miamiparkingauthority.carto.com/u/miamiparking/builder/61ad39dd-f1b9-41f7-9b59-97390f81d65f/embed?state=%7B%22ma

	Modified Centralized Valet Parking in Coconut grove	p%22%3A%7B%22ne%22%3A%5B25.714548846687215%2C-80.31435012817384%5D%2C%22sw%22%3A%5B25.853198967855047%2C-80.15642166137697%5D%2C%22center%22%3A%5B25.78389416728751%2C-80.23538589477539%5D%2C%22zoom%22%3A13%7D%2C%22widgets%22%3A%7B%225595b241-fbf8-4e29-bf8a-20268edcdd7d%22%3A%7B%22autoStyle%22%3Atrue%7D%2C%22c960f4bd-39cb-49c1-bb22-e000ec240be0%22%3A%7B%22autoStyle%22%3Atrue%7D%7D%7D https://www.miamiparking.com/2018/05/ Alternative source https://coconutgrovegrapevine.blogspot.com/2018/01/new-centralized-valet-service-begins.html
Miami DDA	Map of parking facilities, (public, private, and valet) in Downtown Miami.	https://www.miamidda.com/wp-content/uploads/2014_DDA_Parking.pdf Alternative Source http://ontheworldmap.com/usa/city/miami/miami-downtown-parking-map.jpg
Miami-Dade County Facilities and Fueling	Public Parking List Public Parking Map	https://www.miamidade.gov/facilities/public-parking.asp https://www.miamidade.gov/facilities/library/downtown-isd-parking-garages.pdf
Port Miami	Parking & Transportation	https://www.miamidade.gov/portmiami/parking-information.asp
Miami-Dade County Parks	Park and Marina Directory	https://www.miamidade.gov/global/recreation/park-directory.page
Walker Parking Consultants	2015 Parking demand Analysis. By-block counts of	https://www.miamibeachfl.gov/wp-content/uploads/2017/08/Walker-Parking-Study-Middle-Beach.pdf

	on-street, public city lot, and garages	
Parsons	Beach Corridor Parking Inventory	Miami-Dade TPO
PayByPhone	Miami-Dade County Locations map	https://www.PayByPhone.com/maps
ParkMobile	Miami Beach On-street parking Miami Beach Garages and Lots	https://support.parkmobile.io/hc/en-us/articles/203301700-Miami-Beach-FL-Zone-Numbers-Range-From-88414-88906 https://support.parkmobile.io/hc/en-us/articles/219526288-Miami-Beach-FL-Gated-Garage-Parking-Parkmobile-Info https://parkmobile.io/
ParkByApp	Mobile Application	https://www.parkbyapp.com/
ParkMe	Online parking locator	https://www.ParkMe.com/miami-parking
ParkMobile	Online parking locator	https://www.parkopedia.com/
Parkopedia	Online parking locator	https://en.parkopedia.com/parking/miami/
SpotHero	Online parking locator	https://spothero.com/miami-parking
ParkJockey	Online parking locator	https://www.parkjockey.com/en-us/miami/monthly
ParkWhiz	Online parking locator	https://www.parkwhiz.com/p/
Parking Panda	Online parking locator	https://www.parkingpanda.com/Search/?location=miami
Best Parking	Online parking locator	https://www.bestparking.com/miami-fl-parking-10/
SP Plus	Company Facility Locations (But not only SP+ facilities)	Parking.com
LAZ Parking	Company Facility Locations	Lazparking.com/local/venues/Miami-usa

M & M Parking	Company Facility Locations	Mandmparking.com/downtown_miami.html
Asta Parking	Select Company Facility Locations nationwide	http://www.astaparking.com/self-parking
Legacy Paring	Company Facility Locations	Legacyparking.com/find-parking/
Denison	Company Facility Locations	https://denisonparking.com/locations/
ABM	Parking and Transportation	https://www.abm.com/services/parking-transportation/
Lanier	Link forward- Citizens Parking Locator	https://www.lanierparking.com/ https://manageparking.citizensparking.com/(X(1)S(5kudgx1qgtpejtkytbxtio4k))/FindParking/MainFindParking?AspxAutoDetectCookieSupport=1
Impark	Lot Search	https://lots.impark.com/imp/en?latlng=25.76168,-80.19179&q=Miami%20FL%20United%20States
Google	Aerial and Streetview – sample link	https://www.Google.com/maps/place/Miami+Beach,+FL/@25.7761339,-80.1389241,2101m/data=!3m1!1e3!4m5!3m4!1s0x88d9a6172bfeddb9:0x37be1741259463eb!8m2!3d25.790654!4d-80.1300455
FDOT	Southeast Regional Planning Model Parking Model Input Variables	https://www.fsutmsonline.net/images/uploads/md_lctr_2006/SERPM_ABM_UserGuide_V4_03192014.pdf
Miami Shores	Miami Herald Article mentioning price of on-street parking	https://www.miamiherald.com/news/local/community/miami-dade/miami-shores/article11102321.html

Table 6: GIS Data Created by the SFRPC

Data Created	Number of Points	Locations	Source of Information
Off-Street locations	11	Coral Gables	ParkMe, Parkopedia, Coral Gables Website
	57	Miami	ParkMe, Parkopedia, DDA, Facilities, etc
	18	Miami Beach	ParkMe, Parkopedia
	3	Town of Surfside	ParkMe, Parkopedia, Town Website
	2	Town of Bay Harbor Islands	ParkMe, Parkopedia, Town Website
	2	Town of Bal Harbour	ParkMe, Parkopedia, Town Website
On-street locations	234	Miami Beach	Walker, Parsons, Google Aerial and Streetview,
	1	Miami Shores	Google Aerial and Streetview
	21	Coral Gables	Google Aerial and Streetview, City of Coral Gables website
Off-street number of available spaces	104	Miami Beach	ParkMe, Parkopedia, Google Aerial Imagery
	9	Town of Surfside	ParkMe, Parkopedia, Google Aerial Imagery
	2	Town of Bal Harbour	ParkMe, Parkopedia, SFRPC field research
	2	Bay Harbor Islands	ParkMe, Parkopedia, Town Website

	8	City of Sunny Isles Beach	ParkMe
	37	City of Coral Gables	ParkMe
On-street number of available spaces	225	Miami Beach	Walker, Parsons, Google Aerial and Streetview,
	21	Coral Gables	Google Aerial and Streetview
	11,767	Miami	Miami Parking Authority Comprehensive Annual Financial Report
	1	Miami Shores	Google Aerial and Streetview
	2	Bay Harbor Islands	Google Aerial and Streetview
	6	Town of Surfside	Google Aerial and Streetview
On-street parking cost	234	Miami Beach	ParkMobile App, Google Aerial Imagery
	452	South Miami	City of South Miami planning staff
	21	Coral Gables	Coral Gables Website
	1	Miami Shores	Miami Herald article
Off-street parking cost	33	Miami Beach	ParkMe, Parkopedia
	229	Miami	ParkMe, Parkopedia
	8	Sunny Isles	ParkMe

	22	Coral Gables	Coral Gables Website
	6	South Miami	ParkMe
	9	Surfside	ParkMe, Google Aerial Streetview Imagery
	2	Bay Harbor Islands	ParkMe, Google Aerial Streetview Imagery
	2	Bal Harbour	ParkMe, Google Aerial Streetview Imagery, SFRPC field research

Table 7: Fields of GIS Data Downloaded and Used in the Study

Source is the source of data. If the data was acquired from ArcGIS online or datahub, the source describes the jurisdiction of the corresponding data set.

Data fields are displayed here according to the name that they had when downloaded.

Contents/definition explain in plain English what data exists for each data field.

Source	Data Field	Contents/Definition
Miami Parking Authority	spaces_tot	Total number of parking spaces in the facility
	descriptio	Common name of facility or the on-street zone number
	hourly_rat	Price charged per hour
	max_rate	The maximum rate to be charged for parking. This could be a flat rate (if hourly cost = $0) or the limit to be paid if the hourly cost exceeds the max rate
	PayByPhone	The PayByPhone zone number
	location	Street Address
	facility_t	"facility type." Onstreet, garage, or lot
	permit_typ	None, Keypad (parking payment kiosk), EPermit (Digital residential permit), Decal (residential- still open to public)
City of Sunny Isles Beach	Location	Address of facility
	Meter	whether the parking facility has a payment meter,
	Res_Decal	or if the facility only allows parking for residents, park patrons, or handicapped.
	Comments	Metered public parking resident decal only; free parking for park patrons
City of Miami Beach	the name of garage or lot	the name of garage or lot
	The hourly rate	The hourly rate
	the total available spaces, hourly rate	the total available spaces, hourly rate,.
	and the maximum time allowed	and the maximum time allowed

City of Coral Gables	Address	Address
	Facility Type	Facility Type
City of South Miami	Address	Street Address Range of Parking Location
Commercial Property	Busname1	Name of Business that owns the property
	Address	Address of Property
	Numofunit	Number of units built, for example a duplex = 2
	Busdesc	Type of commercial business using property
County-Owned Property	Address	Address of Property
	dept_name	Department that manages the property that is owned
	property_type	Parking related categorizations are Parking Lot, Park and Ride, and Parking Garage
Land Use	DESCR	Description of the land use of the particular parcel. Within this classification is the distinction, "Parking – public and private garages and lots."
Miami-Dade County Park and Rides	facility full address	Address of Parking Facility
	number of parking spaces	Number of spaces available at parking facility
	daily parking cost	Daily cost to park at parking facility
	monthly parking cost	Cost of monthly parking permit
FDOT	POI_NAME	operator business name
	POI_ST_NUM	street number
	ST_NAME	street name
	POI_ST_SD	side of road – left or right
	PH_NUMBER	contact phone number

Table 8: Downloaded GIS Fields Not Used in this Study

Source	DOR Description	Contents/Definition/Example Parking Facility
Sunny Isles	Category	the designations "City parks parking only," "No Parking," "Handicapped," "3 HR/Residential," and "Residential."
Sunny Isles	Number of Spaces	Number of Spaces
Sunny Isles	Residential	Residential
Cert of Use	Certificate of Occupancy Number	Certificate of Occupancy Number
Cert of Use	Certificate Issue Date	Certificate Issue Date
Cert of Use	Folio	Property Appraiser Folio
Cert of Use	Corporate Name	Corporate Name
Cert of Use	Address	Address of parcel
Cert of Use	Business Use Code	SIC Industry Code
Cert of Use	Business Use Comment	SIC Industry Description
Cert of Use	Next Renew Date	Next Renew Date
DOR	(Vacant land - commercial: parking lot)	Office
DOR	(Parking lot/mobile home park: mobile home)	Mobile Homes
DOR	Parking lot/mobile home park: commercial - total value	Parking for Retail Customers
DOR	Parking lot/mobile home park: parking lot	N/A (Not in Miami-Dade County)
DOR	Vacant land - institutional: parking lot	Miami-Dade College
DOR	Vacant governmental: parking lot	City utility parking
DOR	Municipal: parking lot	Fire Department
City of Doral	N/A	No attribute data, only point location

Table 9: Definitions of Fields Within GIS Data set – Publicly Accessible Paid Parking Facilities

Field Name	Contents
GIS_Source	The source of the GIS feature data
Facil_Name	The common name of the parking facility
Address	The address of the parking facility
S_Location	The source of the location of the parking facility
BusinesNam	Company Operating Facility
Comments	Details about the space including an expansion of the pricing protocol
Zone	The PayByPhone or ParkMobile zone identification number
S_Zone	The source of the PayByPhone or ParkMobile zone identification number
Pay_App	The company used to pay for parking (PayByPhone, ParkMobile, ParkByApp)
Spaces	The number of publicly accessible, paid parking stalls available
S_Num_Spac	The source of the number of publicly accessible, paid parking stalls available
On_Off_Str	On_Off_Str
NumHrsFree	The number of hours offered for free before a charge for parking is incurred
S_Hours_Fr	The source of the number of hours offered for free before a charge for parking is incurred
Monthly_Pr	The price for a monthly parking permit at the respective location
S_Monthly	The source of the price for a monthly parking permit at the respective location
Hourly_Rat	The hourly rate for publicly accessible parking at the respective location
S_Hourly	The source of the hourly rate for publicly accessible parking at the respective location
Daily_Max	The maximum daily rate for publicly accessible parking at the respective location
S_Day_Max	The source of the maximum daily rate for publicly accessible parking at the respective location
Flat_Rate	The flat rate charged for publicly accessible parking at the respective location
S_Flat_Rat	The source of the flat rate charged for publicly accessible parking at the respective location

DayEq_Hour	The daily equivalent rate (from an hourly basis) of parking at the respective location. Calculated by multiplying the hourly price of parking by 9
DayEqMax	The daily equivalent maximum rate of parking at the respective location. Equivalent to the Daily_Max.
DayEq_Flat	The daily equivalent flat rate of parking at the respective location. Equivalent to the Flat_Rate.
DayEq_Mont	The daily equivalent rate (from a monthly basis) of parking at the respective location. Calculated by dividing the monthly price of parking by 22
DayEq	The daily equivalent rate of publicly accessible paid parking. Calculated by prioritizing daily maximum and flat rates, then hourly rates, then monthly.
SpcXDayHr	The number of spaces in each facility multiplied by the Daily Equivalent Hourly Price ("Spaces" * "DayEq_Hour")
SpcXDMax	The number of spaces in each facility multiplied by the Daily Equivalent Daily Max Price ("Spaces" * "DayEqMax")
SpcXDayFla	The number of spaces in each facility multiplied by the Daily Equivalent Flat Rate Price ("Spaces" * "DayEqFlat")
SpcXDayMon	The number of spaces in each facility multiplied by the Daily Equivalent Monthly Price ("Spaces" * "DayEq_mont")
SpcXDayEq	The number of spaces in each facility multiplied by the Daily Equivalent Price ("Spaces" * "DayEq")

Table 10: Definitions of Fields Within GIS Data set – Average Cost of Parking Within MAZs

Field Name	Contents
Join_Count	Total number of GIS units within each MAZ
TARGET_FID	MAZ number
Spaces	Sum of Spaces within the MAZ
SpcXDayHr	Sum of Spaces multiplied by the Daily Equivalent Hourly Basis within the MAZ
SpcXDMax	Sum of Spaces multiplied by the Daily Equivalent Daily Maximum Basis within the MAZ
SpcXDayFla	Sum of Spaces multiplied by the Daily Equivalent Flat Rate Basis within the MAZ
SpcXDayMon	Sum of Spaces multiplied by the Daily Equivalent Monthly Basis within the MAZ
SpcXDayEq	Sum of Spaces multiplied by the Daily Equivalent Rate within the MAZ
Av_Cost_Hr	Average Cost of Publicly Accessible Paid Parking Facilities (Hourly basis) "SpcXDayHr*Spaces"
Av_Cost_Ma	Average Cost of Publicly Accessible Paid Parking Facilities (Daily Maximum basis) "SpcXDMax*Spaces"
Av_Cost_Fl	Average Cost of Publicly Accessible Paid Parking Facilities (Flat rate basis) "SpcXDayFla*Spaces"
Av_Cost_Mo	Average Cost of Publicly Accessible Paid Parking Facilities (Monthly basis) "SpcXDayMon*Spaces"
AvC_DayEq	Average Cost of Publicly Accessible Paid Parking Facilities (Overall basis) "SpcXDayEq*Spaces"

Table 11: Companies and Organizations Contacted to Collect and Verify Information

Organization	Number called	Email Address Messaged	Notes if Not Confirmed
M&M Parking	3058798032	gene@mmparking.com	All emails returned to sender. Phone Numbers busy signal.
SP Plus Parking	30537251513122742000	csoto@spplus.comcescobar@spplus.com	Stated they do not share such information
Legacy Parking	7083726764	nklytta@legacyparking.com	
LAZ Parking	30591348828605227641	lmacedo@lazparking.com	
Asta Parking	95456417509542143830	kash@astaparking.comtiffany@astaparking.com	
Denison Parking	6123678081	info@denisonparking.com	No response from company
ABM - Pompano office	(866) 624-1520 sales 954-970-2555		No response from company
Lanier Parking		lalfonso@lanierparking.com	
Miami Parking Authority		hespinosa@miamiparking.com publicrecords@miamiparking.com	
Coral Gables		mhebert@coralgables.com it@coralgables.com	

City of South Miami	305-663-6343	ealvarez@southmiamifl.gov	
Town of Surfside/ CGA Solutions	954-921-7781	jmaglietta@cgasolutions.com	
Aventura		carrj@cityofaventura.com	
Sunny Isles Beach		chasbun@sibfl.net	
Miami Beach		rmadan@miamibeachfl.gov	
Hialeah	305-883-8075	buildingdepartment@hialeahfl.gov	
Miami-Dade County		GIS@miamidade.gov	
FDOT		Rebecca.Barber@dot.state.fl.us	
PayByPhone		ClientSuccess@paybyphone.com amaledy@paybyphone.com andrewm@paybyphone.com support@paybyphone.com	Company Does not have data available to share
Parkopedia		csaba@parkopedia.com brian@parkopedia.com	Data available for purchase

Table 12: Southeast Regional Planning Model 7.0 Input Files Directory - Parking

Table 1: MAZ Data File	
Column Name	Description
hstallsoth	Number of stalls allowing hourly parking for trips with destinations in other MAZs
hstallssam	Number of stalls allowing hourly parking for trips with destinations in the same MAZ
hparkcost	Average cost of parking for one hour in hourly stalls in this MAZ, dollars
numfreehrs	Number of hours of free parking allowed before parking charges begin in hourly stalls
dstallsoth	Stalls allowing daily parking for trips with destinations in other MAZs
dparkcost	Average cost of parking for one day in daily stalls, dollars
mstallsoth	Stalls allowing monthly parking for trips with destinations in other MAZs
mparkcost	Average cost of parking for one day in monthly stalls, amortized over 22 workdays, dollars

https://www.fsutmsonline.net/images/uploads/md_lctr_2006/SERPM_ABM_UserGuide_V4_03192014.pdf

Table 48: TAP Node Data	
Column Name	Description
PKSPACES	Number of Parking Spaces
PKCOSTAM	Daily nine-hour parking cost

https://www.fsutmsonline.net/images/uploads/md_lctr_2006/SERPM_ABM_UserGuide_V4_03192014.pdf