

NORTH BEACH REGIONAL PARKING ANALYSIS

CITY OF MIAMI BEACH

Miami Beach, Florida

October 7, 2019

Prepared for:
City of Miami Beach
1755 Meridian Avenue, Suite 100
Miami Beach, Florida 33139



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October 7, 2019

(Sent via Email: saulfrances@miamibeachfl.gov)

Mr. Saul Frances
City of Miami Beach Parking Director
1755 Meridian Avenue, Suite 100
Miami Beach, Florida 33139

Re: *North Beach Regional Parking Analysis*
ITQ # 07-19 PARKING-SF
Walker Project Number 15-2342.00

Dear Saul:

Walker is pleased to present this final edition of the North Beach Regional Parking Analysis performed for the City of Miami Beach. This document represents our preliminary findings and conclusions and is intended to assist in evaluating various impacts associated with multiple development projects planned for the North Beach area.

We thank you for the opportunity to be of service to the City of Miami Beach. If you have any questions regarding the work we performed, please do not hesitate to call.

Sincerely,

WALKER CONSULTANTS

A handwritten signature in blue ink, appearing to read "Jim Corbett", is positioned above the typed name.

Jim Corbett, CAPP
Director of Studies

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EXECUTIVE SUMMARY

The City of Miami Beach is actively pursuing multiple development projects in the North Beach area with a variety of land uses including civic, recreational, entertainment, and educational uses that will intensify parking demand /utilization. Within this process, the City engaged Walker Consultants to (1) perform a regional analysis of the projected parking demand for the related land uses for each project as well as within the study area; and (2) perform a parking alternatives analysis and interim parking plan during the construction phases of the projects, including overlap periods. The focus of this analysis is North Beach; subdivided into the Town Center area, generally located south of 72nd Street and the North Shore area generally located north of 72nd Street.

The following provides an executive summary of findings and recommendations. The subsequent full report provides a detailed analysis.



CURRENT CONDITIONS NORTH BEACH STUDY AREA

A total of 1,958± public parking spaces were inventoried within the study area, including designated ADA parking spaces, motorcycle and scooter parking spaces, loading zone spaces, taxi stand spaces and shared-use loading and parking spaces. Of this total, 65% of the inventory is located north of 72nd Street in the North Shore area, and the remaining 35% of the inventory is located south of 72nd Street in the Town Center area. On-street parking accounts for 63% of the overall parking supply; City owned and operated surface lots account for 32% parking inventory and the remaining 5% is public parking provided by the private sector.



NORTH SHORE AREA PARKING ADEQUACY

As a result of our peak weekend observation comparison to the efficient parking supply, we noted an overall parking surplus of 381± public parking spaces in the North Shore study area. Blocks two (2), fifteen (15) and sixteen (16) experienced the greatest amount of parking adequacy due to the low off-street utilization of City lot P106, City lot P92 and City lot P91 during our August observations. On- and off-street parking adequacy located between 73rd and 75th Streets projects as few as 35± available spaces between the collective eleven (11) core blocks in the North Shore area. To maintain future adequacy, any loss of parking inventory resulting from planned development projects in the North Shore area will require the addition and replacement of lost inventory.



TOWN CENTER PARKING ADEQUACY

When comparing peak weekend observation periods to the efficient parking supply, we noted an overall parking surplus of 143± public parking spaces in the Town Center study area. In general, seven (7) of the seventeen (17) blocks experienced minor on-street parking inadequacy issues. Nearly all of the inadequacies occurred within the heavy residential blocks located south of 71st Street and west of Collins Avenue. Significant off-street parking availability was observed in the privately owned and operated public parking lots in Block 27 as well as the City owned and operated P84 and P80 lots.

North Shore Area		Efficient Supply	Peak Observations	Surplus/(Deficit)
	On-Street	659	556	103
	Off-Street	456	178	278
Sub-Total		1,115	734	381
Town Center Area		Efficient Supply	Peak Observations	Surplus/(Deficit)
	On-Street	387	393	(6)
	Off-Street	199	50	149
Sub-Total		586	443	143
Total		1,701	1,177	524



FUTURE CONDITIONS

We have evaluated the impact on parking demand based on sales and other projections by international business and auto consultancies. We rely primarily on a McKinsey study¹, which projects that 10% of all passenger vehicles sold in 2030 will be to ride-hailing services, resulting in a potential reduction in private vehicle auto sales by 2.3 private vehicles sold per TNC vehicle sold. This would reduce overall vehicle sales by about 5 million vehicles, or about 25% of sales in 2030. However, there are 260 million cars on the road today, and millions more sold between now and 2030 that will be on the road for 10 to 20 years after that. We don't expect maximum impact on parking until 2050 and even then, for it to fall in the range of 10 to 40% reduction **nationally**. Our model results in about 1/3 of vehicles owned by TNCs and 2/3 owned by private individuals by 2050. The TNC vehicles would comprise 72% of vehicle miles traveled (VMT), and private vehicles 28%. Therefore, we believe our high scenario is truly a maximum impact scenario.



LOSS OF INVENTORY DUE TO PLANNED NORTH SHORE DEVELOPMENT PROJECTS

A review of additional public parking inventory projects a need for 209± spaces within seven (7) of the seventeen (17) blocks in an effort to maintain efficient parking supply needs within the North Shore area. Upon taking a closer look at the new inventory needs by associated block, Walker recognizes an opportunity for nearby blocks to absorb much of the inventory needs. As an example, the loss of on-street public parking inventory associated with the Ocean Terrace development project in Block 3 may be offset with the surplus of public parking inventory available in City lot P106 located in the adjacent Block 2. After potential public parking reallocation needs have been satisfied, Walker projects a net new public parking need of 149± spaces within the North Shore area before new development project needs are projected. We will factor this net amount when calculating final future parking needs for the North Shore area.



PROJECTED PUBLIC PARKING NEEDS – NORTH SHORE PROJECT SPECIFIC

Weekday		Weekend	
Patron/Visitor	358	Patron/Visitor	368
Employee	128	Employee	29
Total	486	Total	397



SUMMARY OF NORTH BEACH PARKING NEEDS

When the net adequacy needs for the North Shore area are combined with the results of the proposed development parking projections by hour, Walker projects an additional peak hour demand shift of 489± public parking spaces to occur during the 4:00pm hour. When compared to the similar peak evening hour demand of 486± public parking spaces, Walker recommends the need to replace the P92 surface lot inventory with a minimum 490± parking structure.

Walker cautions the City when the peak season demand is added to the proposed development parking projections. We anticipate as many as 230± public parking spaces may be added to the proposed peak hour projections to satisfy seasonal visitor activity parking needs impacting daytime demand. When these seasonal numbers are added to the proposed development parking projections by hour, we realize the following impact:

	10:00 am	11:00 am	12:00 pm	1:00 pm	2:00 pm	3:00 pm	4:00 pm
Projected Development Needs	134	279	265	278	289	319	489
Peak Season Add	230	230	230	230	230	230	230
Combined Net Impact	364	509	495	508	519	549	719
Surplus/(Deficit)	125	(20)	(6)	(19)	(30)	(60)	(230)

¹ <http://www.mckinsey.com/industries/high-tech/our-insights/disruptive-trends-that-will-transform-the-auto-industry>

Current off-street parking efficiencies enable the Town Center area to meet overall parking adequacy levels, however we caution the City that much of the parking adequacy levels are the result of the privately owned and operated surface parking lots located south of 71st Street between Abbott and Byron Avenues. We anticipate this inventory to be affected by future Town Center development projects. To this end, we encourage the City to maintain the four (4) pocket parking lots known as P80, P83, P84 and P85 for public parking purpose, or in the event a public/private partnership opportunity exists, we recommend the pursuit of a development agreement that includes a public parking component maintained and operated by the City.



ALTERNATIVES ANALYSIS FOR PHASING DURING CONSTRUCTION

Walker recognizes an opportunity to utilize available inventory in City lot P106 as well as pursue a shared parking opportunity with an underutilized private parking lot north of 73rd Street. We anticipate the use of a portion of the private parking lot could provide the replacement of as many as 30-40 controlled public parking spaces. Furthermore, the development of a joint-use agreement with a private parking lot would provide an opportunity for the City to provide additional public parking on a temporary, or better yet, ongoing basis.

Additionally, we recommend the need to explore the use of the two unimproved parcels north of 85th Street on Collins Avenue as it is estimated these parcels may be able to provide as much as 300-400 public parking spaces. A main consideration for the use of these unimproved parcels would involve a temporary-use application submitted by the Parking Department for approval by the City Commission. In accordance with Chapter 142 of the City of Miami Beach Zoning Districts and Regulations, these parcels are zoned under the Government Use District (GU) and may be permitted for temporary-use parking up to a period of five (5) years².

In our analysis research effort, we recognized similar temporary-use parking applications within Lee County/Fort Myers Beach, Florida³; and the City of Fort Lauderdale, Florida⁴. Unique to the City of Tampa's charter, an interim parking lot code has been developed to assist in providing needed levels of parking service to the City⁵. Similar to the City of Miami Beach, the interim-use allows for a 5-year period subject to a maximum 1-year extension.

The option to allow North Beach area employees to utilize this temporary or interim parking inventory would free up existing North Beach parking inventory for business patrons and neighborhood visitors. Ultimately, lessening the demand impact during the development activity period. To further accommodate access to this inventory, we recognize the North Beach Loop provides transit access from 65th Street to 88th Street, allowing appropriate connections for the north/south Collins express line.

² City of Miami Beach Land Development Regulations, Article III Design Standards, Section 130-70 Temporary Parking Lot Standards.

³ Lee County Land Development Code, Division 26 Parking, Section 34-2022.

⁴ City of Fort Lauderdale Article III, Section 47-20.22 Temporary Parking Lots.

⁵ City of Tampa code of ordinances, Chapter 27 Zoning and Land Development, Article IV, Division 3, Section 27-283-13.

INTRODUCTION

The City of Miami Beach engaged Walker Consultants to perform a regional analysis of the projected parking demand associated with multiple planned development projects in the North Beach area. And to perform a parking alternatives analysis and interim parking plan during the construction phases of the projects, including overlapping periods.

KEY OBJECTIVES

- Identify major demand generators in the North Beach study area and contact concerned parties, including the City, to understand their concerns and interests.
- Inventory the on-street and off-street public parking facilities within the study area.
- Perform occupancy counts on all public areas within the study zone.
- Calculate and compare parking demand with the current supply and identify areas with projected deficits and surpluses.
- Determine the future parking demand under two development scenarios.
- Compare the parking supply with projected future demand to determine the impact each of the development scenarios will have on the area parking conditions.
- Identify areas with parking deficiencies that are likely to require an expansion of the parking supply.
- Perform an Alternatives Analysis to provide parking availability during construction phasing of each project, including overlap periods during construction.

STUDY AREA

For this analysis, the North Beach study area is bound by an area encompassing 67th Street to the south to 75th Street to the north, including a two-block extension past 75th Street covering the North Shore branch of the Miami-Dade Public Library system and City parking lot #106, as well as Altos del Mar Park.

The entire study area is broken down by uniquely numbered blocks within two subdivided areas. The southern portion of the overall North Beach study area is more commonly referenced as Town Center (South of 72nd Street to 67th Street) and the northern portion of the study area is known as North Shore (North of 72nd Street to 75th Street). Vehicular and transit access to and from the North Beach area is provided through the use of three (3) north/south roadway arteries known as Collins Avenue, Harding/Abbott Avenue, and Dickens Avenue/Indian Creek Drive. A separate east/west roadway provides access to and from the North Beach area via the 71st Street corridor, otherwise known as SR 934.

The study area is outlined with the use of the following maps.

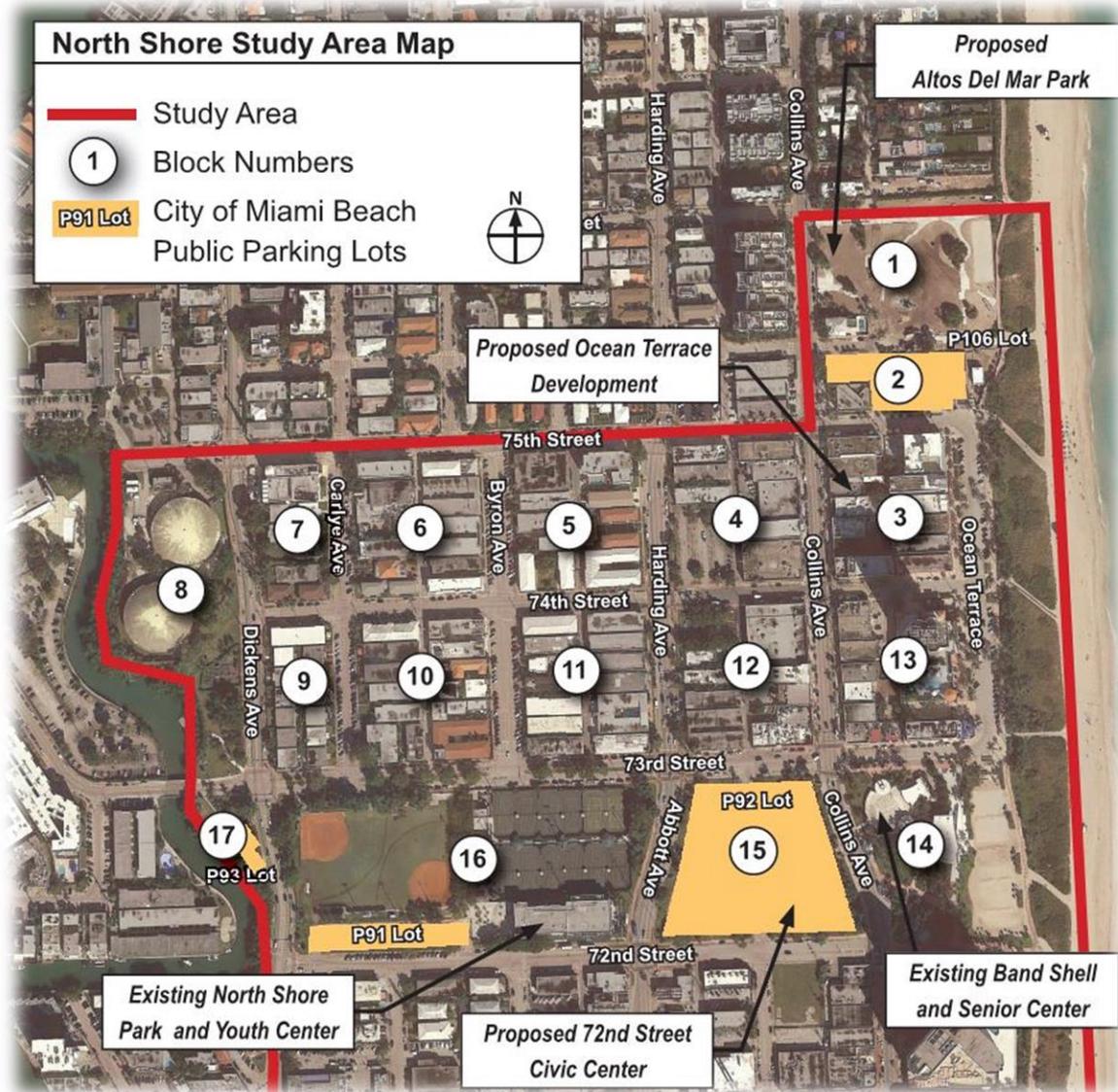


Exhibit 1: Study Area Map



Source: Walker Consultants and Google Earth 2019

Exhibit 2: Study Area Map – North Shore Area



Source: Walker Consultants and Google Earth 2019

Within the North Shore study area, Walker has identified and labeled the City of Miami Beach public parking lots, showing their respective location to several of the key demand generators and proposed development projects. As shown within Exhibit 2, the City owns and operates four (4) separate surface parking lots providing approximately 507± public parking spaces for use by both residents and visitors to the area. Walker understands City lots P91 and P92 will be significantly impacted by at least two of the planned Miami Beach general obligation bond projects.

Exhibit 3: Study Area Map – Town Center Area



Source: Walker Consultants and Google Earth 2019

Within the Town Center study area, Walker has also identified and labeled the City of Miami Beach public parking lots, showing their central location within the Town Center neighborhood. The City owns and operates four (4) separate surface parking lots providing approximately 126± public parking spaces for use by both residents and visitors to the area. With a primary private development focus between 69th Street and 72nd Street, these public parking parcels figure to play an important impact within the Town Center neighborhood.

SUMMARY OF INVENTORY

Public parking spaces were inventoried and labeled according to on-street and off-street designations. The off-street public parking locations have been further classified as either City owned and operated or private owned and operated.⁶ Parking facilities serving residential, resort, and commercial customer parking needs were not included in this analysis due to their reserved or designated parking status restricting public access.

A total of 1,958± public parking spaces were inventoried within the overall study area, including designated ADA parking spaces, motorcycle and scooter parking spaces, loading zone spaces, taxi stand spaces and shared-use loading and parking spaces. Of this total, 65% of the inventory is located north of 72nd Street in the North Beach area, and the remaining 35% of the inventory is located south of 72nd Street in the Town Center area. On-street parking accounts for 63% of the overall parking supply; City owned and operated surface lots account for 32% parking inventory and the remaining 5% is public parking provided by the private sector.

Exhibit 4: Summary of Parking Inventory

	On-Street	Off-Street		Total:
		City Lot	Public Lot	
North Shore	1,061	507	0	1,568
Town Center	169	126	95	390
Total Inventory	1,230	633	95	1,958
Percentages:	63%	32%	5%	

Source: Walker Consultants 2019

OBSERVATION PERIODS

Weekday parking observations were conducted on Wednesday, August 21st during the midday hours of 12:00pm and 3:00pm and weekend parking observations were conducted during a similar time period on Sunday, August 25th. These observation periods were agreed upon during an initial project kickoff meeting with Parking Department representatives.

EFFECTIVE PARKING SUPPLY

A parking system operates at peak efficiency when parking occupancy is at 85 to 95 % of the supply. When occupancy exceeds this level, patrons may experience delays and frustration while searching for a space; moreover, the parking supply may be perceived as inadequate, even though spaces are available within the parking system. As a result, we use the effective supply when analyzing the adequacy of the parking system, rather than the total supply or inventory of spaces. For this analysis, we applied a general Effective Supply Factor

⁶ No public parking structures were identified within the study area.

(ESP) of 85% for the on-street spaces and 90% for off-street public spaces. The total EPS for the North Beach study area is calculated at 1,701± spaces, as shown in the following exhibit.

Exhibit 5: North Beach Study Area – Effective Parking Supply

North Shore				Town Center					
		Inventory	Efficiency Factor	Efficient Supply		Inventory	Efficiency Factor	Efficient Supply	
Block 1	On-Street	19	85%	16	Block 18	On-Street	11	85%	9
	Off-Street	0	90%	0		Off-Street	0	90%	0
Block 2	On-Street	2	85%	2	Block 19	On-Street	28	85%	24
	Off-Street	110	90%	99		Off-Street	0	90%	0
Block 3	On-Street	70	85%	60	Block 20	On-Street	8	85%	7
	Off-Street	0	90%	0		Off-Street	0	90%	0
Block 4	On-Street	37	85%	31	Block 21	On-Street	18	85%	15
	Off-Street	0	90%	0		Off-Street	0	90%	0
Block 5	On-Street	56	85%	48	Block 22	On-Street	23	85%	20
	Off-Street	0	90%	0		Off-Street	0	90%	0
Block 6	On-Street	82	85%	70	Block 23	On-Street	12	85%	10
	Off-Street	0	90%	0		Off-Street	0	90%	0
Block 7	On-Street	47	85%	40	Block 24	On-Street	2	85%	2
	Off-Street	0	90%	0		Off-Street	0	90%	0
Block 8	On-Street	18	85%	15	Block 25	On-Street	34	85%	29
	Off-Street	0	90%	0		Off-Street	29	90%	26
Block 9	On-Street	57	85%	48	Block 26	On-Street	44	85%	37
	Off-Street	0	90%	0		Off-Street	53	90%	48
Block 10	On-Street	89	85%	76	Block 27	On-Street	24	85%	20
	Off-Street	0	90%	0		Off-Street	125	90%	113
Block 11	On-Street	72	85%	61	Block 28	On-Street	46	85%	39
	Off-Street	0	90%	0		Off-Street	14	90%	13
Block 12	On-Street	44	85%	37	Block 29	On-Street	7	85%	6
	Off-Street	0	90%	0		Off-Street	0	90%	0
Block 13	On-Street	59	85%	50	Block 30	On-Street	18	85%	15
	Off-Street	0	90%	0		Off-Street	0	90%	0
Block 14	On-Street	7	85%	6	Block 31	On-Street	34	85%	29
	Off-Street	0	90%	0		Off-Street	0	90%	0
Block 15	On-Street	43	85%	37	Block 32	On-Street	71	85%	60
	Off-Street	328	90%	295		Off-Street	0	90%	0
Block 16	On-Street	73	85%	62	Block 33	On-Street	69	85%	59
	Off-Street	51	90%	46		Off-Street	0	90%	0
Block 17	On-Street	0	85%	0	Block 34	On-Street	6	85%	5
	Off-Street	18	90%	16		Off-Street	0	90%	0
Sub-Total		1,282		1,115	Sub-Total		676		586

Source: Walker Consultants 2019

CURRENT CONDITIONS

The following provides a summary of the weekday and weekend observations for each subdivision of the North Beach study area. Upon comparison to the aforementioned effective parking supply, we were able to calculate a current condition parking adequacy. The results of the current condition parking adequacy will be used throughout the remaining sections of this analysis when factoring proposed development scenarios and their future impact on public parking needs.

NORTH SHORE PARKING ADEQUACY

The overall peak observation within the North Shore area occurred during the weekend observation period with 57% of the spaces being occupied. When compared to Walker’s 2014 Parking Demand Analysis this percentage reflects a 12% decrease from a 69% peak weekend observation.⁷ Added demand for residential and commercial areas was evident as several streets west of Harding Avenue and south of 74th along Collins Avenue experienced heavy use. At least four (4) of the blocks exceeded high occupancy at or above 85%. Parking adequacy for the North Shore study area is defined in the following exhibit.

Exhibit 6: North Shore Parking Adequacy – Weekend Peak Observation

NORTH SHORE		INVENTORY	EFFICIENCY FACTOR	EFFICIENT SUPPLY	PEAK OBSERVATIONS	SURPLUS/ (DEFICIT)
BLOCK 1	On-Street	19	85%	16	5	11
	Off-Street	0	90%	0	0	0
BLOCK 2	On-Street	2	85%	2	2	0
	Off-Street	110	90%	99	18	81
BLOCK 3	On-Street	70	85%	60	48	12
	Off-Street	0	90%	0	0	0
BLOCK 4	On-Street	37	85%	31	36	(5)
	Off-Street	0	90%	0	0	0
BLOCK 5	On-Street	56	85%	48	44	4
	Off-Street	0	90%	0	0	0
BLOCK 6	On-Street	82	85%	70	74	(4)
	Off-Street	0	90%	0	0	0
BLOCK 7	On-Street	47	85%	40	38	2
	Off-Street	0	90%	0	0	0
BLOCK 8	On-Street	18	85%	15	14	1
	Off-Street	0	90%	0	0	0
BLOCK 9	On-Street	57	85%	48	38	10
	Off-Street	0	90%	0	0	0

⁷ Observation periods for Walker’s 2014 Parking Demand Analysis were conducted during the month of April, while 2019 observation periods were conducted during the month of August. In an effort to normalize these observations, we’ve added the peak season activity to our summary of North Beach parking needs.

NORTH SHORE		INVENTORY	EFFICIENCY FACTOR	EFFICIENT SUPPLY	PEAK OBSERVATIONS	SURPLUS/ (DEFICIT)
BLOCK 10	On-Street	89	85%	76	64	12
	Off-Street	0	90%	0	0	0
BLOCK 11	On-Street	72	85%	61	55	6
	Off-Street	0	90%	0	0	0
BLOCK 12	On-Street	44	85%	37	39	(2)
	Off-Street	0	90%	0	0	0
BLOCK 13	On-Street	59	85%	50	52	(2)
	Off-Street	0	90%	0	0	0
BLOCK 14	On-Street	7	85%	6	5	1
	Off-Street	0	90%	0	0	0
BLOCK 15	On-Street	43	85%	37	12	25
	Off-Street	328	90%	295	130	165
BLOCK 16	On-Street	73	85%	62	30	32
	Off-Street	51	90%	46	19	27
BLOCK 17	On-Street	0	85%	0	0	0
	Off-Street	18	90%	16	11	5
SUB-TOTAL		1,282		1,115	734	381

Source: Walker Consultants 2019

Comparing our peak weekend observation to the efficient parking supply, we noted an overall parking surplus of 381± public parking spaces in the North Shore study area. In general, nearly all of the on-street parking was observed to have little to no parking adequacy, while four (4) of the seventeen (17) blocks experienced minor parking adequacy deficits. Blocks two (2), fifteen (15) and sixteen (16) experienced the greatest amount of parking adequacy due to the low off-street utilization of City lot P106, City lot P92 and City lot P91.

TOWN CENTER PARKING ADEQUACY

The overall peak observation within the Town Center area also occurred during the weekend observation period with 66% of the spaces being occupied. When compared to Walker’s 2014 Parking Demand Analysis this percentage reflects a 24% decrease from a 90% peak weekend. A further review of the 2014 analysis data reveals two distinct factors, 1) the 2014 Town Center study area was significantly larger than the 2019 study area, including private resort parking inventory, and 2) Walker’s notation for assuming all private resort parking areas to be fully utilized during the weekend observation period. When these observed occupancy levels are removed from the from the peak observation period totals, Walker calculates the average on- and off-street utilization levels to range between 67% and 84%. Thus, an 18% decrease from the overall 84% peak weekend observations.⁸ Parking adequacy for the Town Center study area is defined in the following exhibit.

⁸ Observation periods for Walker’s 2014 Parking Demand Analysis were conducted during the month of April, while 2019 observation periods were conducted during the month of August. In an effort to normalize these observations, we’ve added the peak season activity to our summary of North Beach parking needs.

Exhibit 7: Town Center Parking Adequacy – Weekend Peak Observation

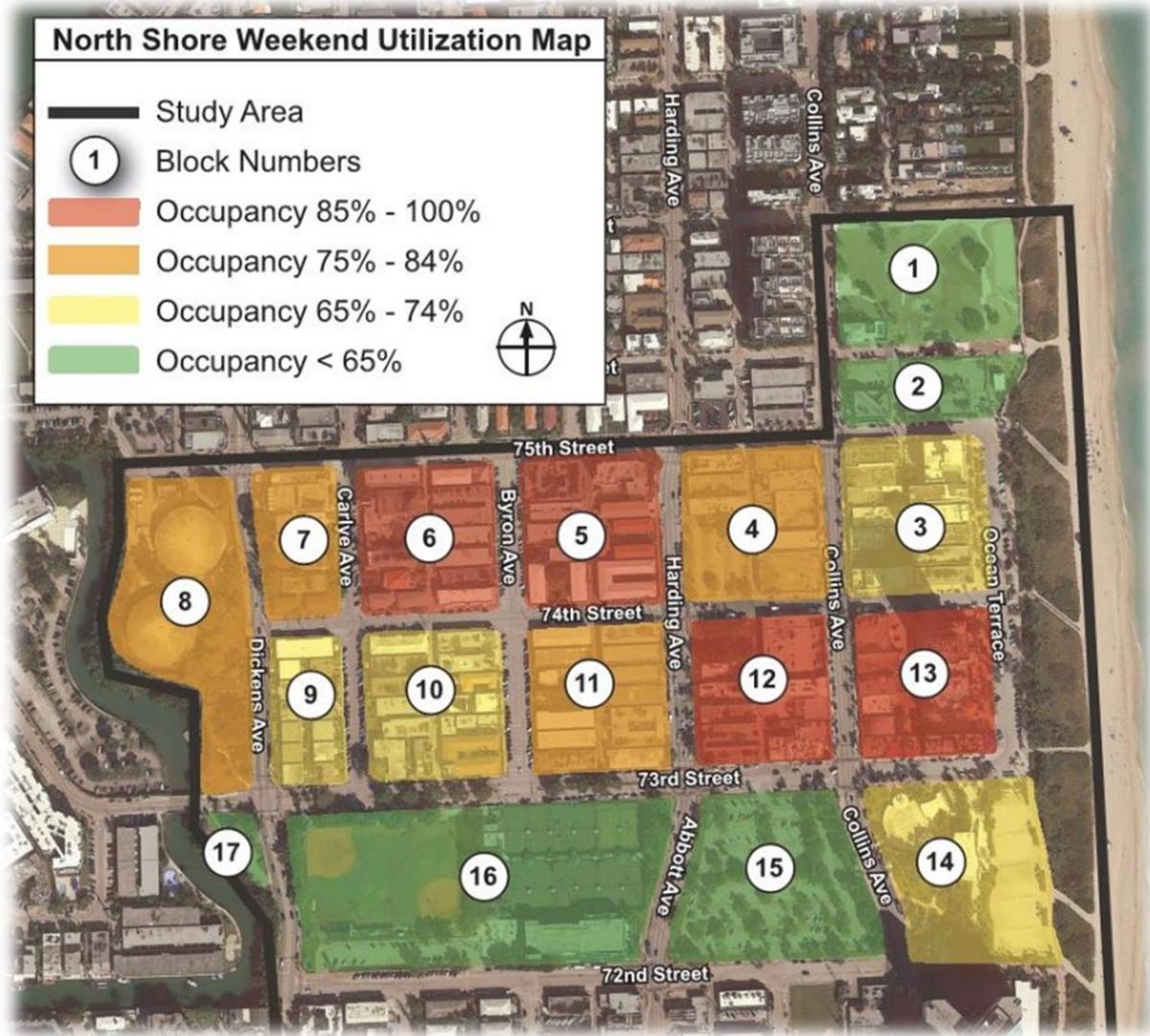
TOWN CENTER		INVENTORY	EFFICIENCY	EFFICIENT	PEAK	SURPLUS/
			FACTOR	SUPPLY	OBSERVATIONS	(DEFICIT)
BLOCK 18	On-Street	11	85%	9	9	0
	Off-Street	0	90%	0	0	0
BLOCK 19	On-Street	28	85%	24	23	1
	Off-Street	0	90%	0	0	0
BLOCK 20	On-Street	8	85%	7	8	(1)
	Off-Street	0	90%	0	0	0
BLOCK 21	On-Street	18	85%	15	12	3
	Off-Street	0	90%	0	0	0
BLOCK 22	On-Street	23	85%	20	19	1
	Off-Street	0	90%	0	0	0
BLOCK 23	On-Street	12	85%	10	8	2
	Off-Street	0	90%	0	0	0
BLOCK 24	On-Street	2	85%	2	3	(1)
	Off-Street	0	90%	0	0	0
BLOCK 25	On-Street	34	85%	29	29	0
	Off-Street	29	90%	26	23	3
BLOCK 26	On-Street	44	85%	37	34	3
	Off-Street	53	90%	48	14	34
BLOCK 27	On-Street	24	85%	20	18	2
	Off-Street	125	90%	113	7	106
BLOCK 28	On-Street	46	85%	39	41	(2)
	Off-Street	14	90%	13	6	7
BLOCK 29	On-Street	7	85%	6	3	3
	Off-Street	0	90%	0	0	0
BLOCK 30	On-Street	18	85%	15	16	(1)
	Off-Street	0	90%	0	0	0
BLOCK 31	On-Street	34	85%	29	37	(8)
	Off-Street	0	90%	0	0	0
BLOCK 32	On-Street	71	85%	60	72	(12)
	Off-Street	0	90%	0	0	0
BLOCK 33	On-Street	69	85%	59	60	(1)
	Off-Street	0	90%	0	0	0
BLOCK 34	On-Street	6	85%	5	1	4
	Off-Street	0	90%	0	0	0
SUB-TOTAL		676		586	443	143

Source: Walker Consultants 2019

PARKING OCCUPANCY HEAT MAPS

To illustrate parking occupancy in greater detail, heat maps have been developed to depict the parking demand observed during the overall peak weekday and weekend observations.

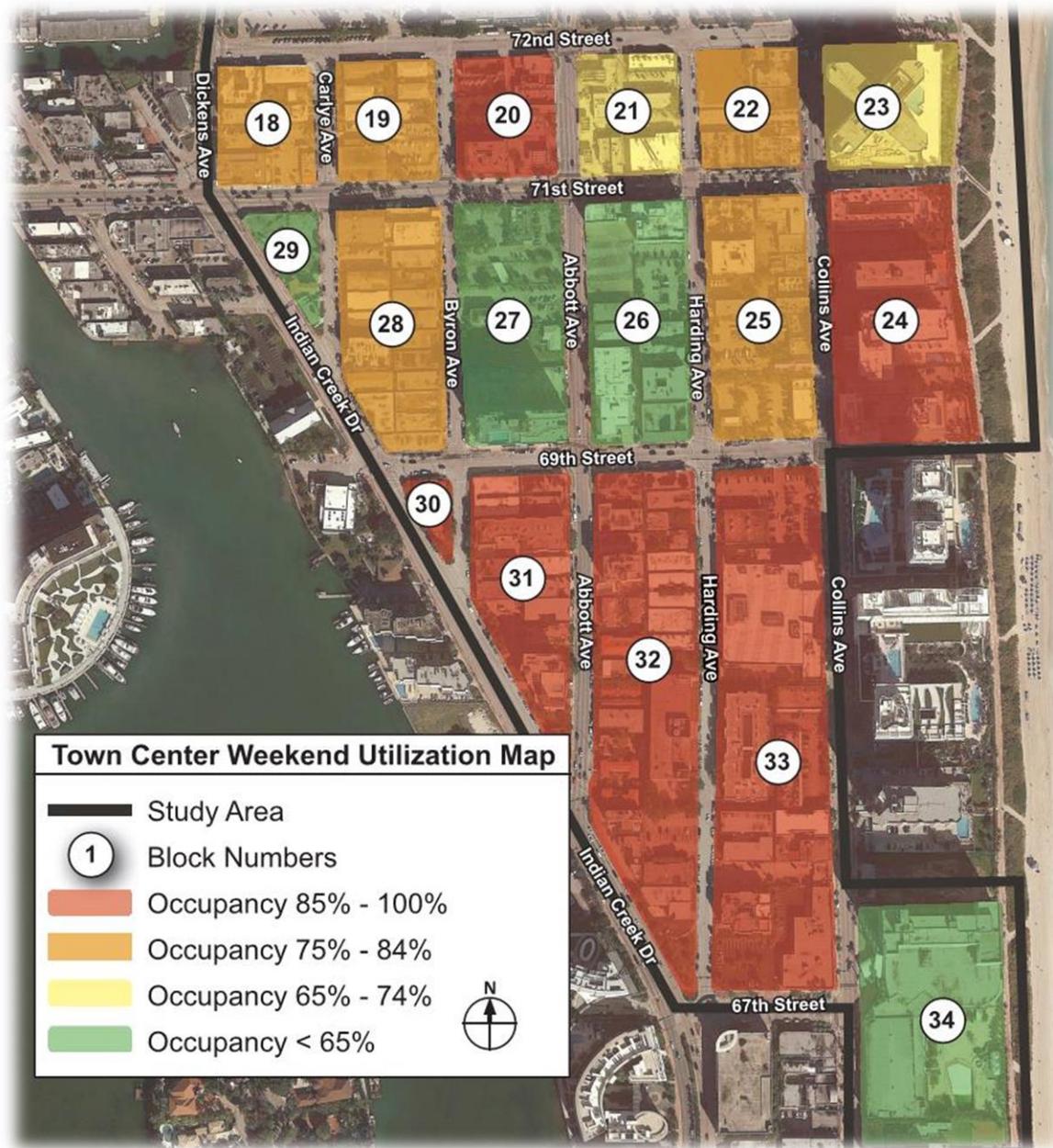
Exhibit 8: North Shore Peak Parking Occupancy - Weekend



Source: Walker Consultants 2019

As detailed in this exhibit, nearly 50% of the inventory exceeds 75% utilization during peak weekend observations in the North Shore study area, while 25% of the inventory exceeds 85% utilization. Conversely, low utilization levels observed at City owned and operated parking lots may be directly related to a reduction in seasonal activity surrounding the beach, Band Shell, and North Shore Park.

Exhibit 9: Town Center Peak Parking Occupancy - Weekend



Source: Walker Consultants 2019

Similar to the North Shore observations, Walker observed 50% of the inventory in the Town Center area exceeds 75% utilization levels, and approximately 35% of the inventory exceeds 85% utilization levels. City public parking lots located throughout blocks 25 through 28 reflect the most significant utilization in block 25 (City lot P83 at 79%), while the remaining three blocks reflect utilization at levels ranging between 23 and 50%.

CURRENT CONDITIONS SUMMARY

Current conditions in the North Beach study area provide the following parking adequacy surplus levels:

North Shore Area	Efficient Supply	Peak Observations	Surplus/(Deficit)
On-Street	659	556	103
Off-Street	456	178	278
Sub-Total	1,115	734	381

Town Center Area	Efficient Supply	Peak Observations	Surplus/(Deficit)
On-Street	387	393	(6)
Off-Street	199	50	149
Sub-Total	586	443	143

Total	1,701	1,177	524
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Walker recognizes the current conditions reported in this analysis are representative of non-peak seasonal activity periods. Peak season activity levels are typically indicative of a heightened influx of visitors to the area during winter, spring, and early summer tourism months. Additionally, this same time of year typically lends itself to an abundance of community events and festivals. Because North Beach is primarily residential, much of the seasonal tourism activity initiates with the Collins Avenue beach resort locations. Having recognized this, we believe it is not uncommon for other Miami-Dade County tourists and locals to visit the North Beach public access areas on a daily basis creating a need for the City to manage inflated midday parking demands.

As mentioned in Walker's 2014 Parking Demand Analysis, we continue to recommend the need to explore parking management strategies in lieu of overbuilding public parking inventory to satisfy inflated seasonal demand periods. Examples of such parking management strategies include the following:

- Increased branding and incentives for public transit options for Miami-Dade County tourists and locals to visit the North Beach neighborhood amenities in lieu of driving a vehicle onto the Miami Beach barrier island. The goal should focus on changing travel behaviors while not limiting access. Many business merchants depend upon seasonal tourism and therefore should be included as part of the solution.
- Implementing dynamic public parking pricing based on seasonality and occupancy surveys. Yet another opportunity to change travel behaviors while not limiting access.
- Implementing a residential parking permit program to ensure that North Beach residents and service employees are afforded parking access where inadequacy issues exist.

FUTURE CONDITIONS

Considering the overall parking adequacy within the study area, when considering parking adequacy as a whole, it may appear to be adequate for the immediate future. While this could be stated as the condition within the larger area, it is somewhat misleading, as the majority of the parking serves the parking needs for neighborhood residents or is restricted for specific users. The primary land use within the study area is residential, which has limited ability to expand based on the current occupancy levels. As demonstrated in this analysis, increased parking demand will come from redevelopment projects.

Many planners and consultants expect that using driverless ride-hailing (with or without transit for some trips) will cost significantly less than owning a personal vehicle in the future. Walker employs the airport term for Uber and Lyft, which is Transportation Network Companies (TNC). Many other players including Waymo, Ford and GM are poised to enter the TNC market. Some project up to a 90% reduction in parking required, with some expecting the shift to occur by 2030. Those same entities are strongly recommending that most if not all parking structures should be designed for future adaptive reuse, by which they mean easy conversion to other uses.

That scenario of 90% or more reduction in parking would take a significant change in auto ownership, with most residents of an area giving up cars and using ride-hailing and/or transit for all trips. Some cite, among other trends, that Lyft estimated that approximately 250,000 of their users gave up their cars in 2017 alone, which seems significant until you realize it is a little more than 1% of its 23 million users, and only 1/10 of 1% of the cars on the road in the US.⁹ Others cite “urbanization”, in which increased density will make car free living feasible. We believe this project is a perfect example of where highly desirable and sustainable, walkable, “live work play” developments with increased density are still not likely to result in significantly reduced car ownership.

More recently, a number of management consultants, auto experts and other academics have projected that the impact on vehicle ownership will be significantly less than a 90% reduction and that it would occur on a much longer time frame than 2030, with more and more skeptics expecting that fully autonomous vehicles won’t be available for “decades.” It is true however, that L4 autonomy is now available, which means that a vehicle is able to operate driverless, but only in a very limited area that has been thoroughly mapped in its programming (i.e., it knows exactly where a traffic signal head is to be able to read it) and also only in good weather conditions. To our knowledge, no manufacturer has solved all weather conditions of snow and rain.

A study recently released by Cal DOT¹⁰ posits that there will be impact of autonomous TNCs in the next decade, but once fully-autonomous vehicles are available to the public, the majority of vehicles will still be privately owned.

We have evaluated the impact on parking demand based on sales and other projections by international business and auto consultancies. We rely primarily on a McKinsey study¹¹, which projects that 10% of all passenger vehicles sold in 2030 will be to ride-hailing services, resulting in a potential reduction in private vehicle auto sales by 2.3 private vehicles sold per TNC vehicle sold. This would reduce overall vehicle sales by about 5 million vehicles, or about 25% of sales in 2030. However, there are 260 million cars on the road today, and millions more sold between now and 2030 that will be on the road for 10 to 20 years after that. We don’t

⁹ <https://techcrunch.com/2018/01/16/lyft-says-nearly-250k-of-its-passengers-ditched-a-personal-car-in-2017/>

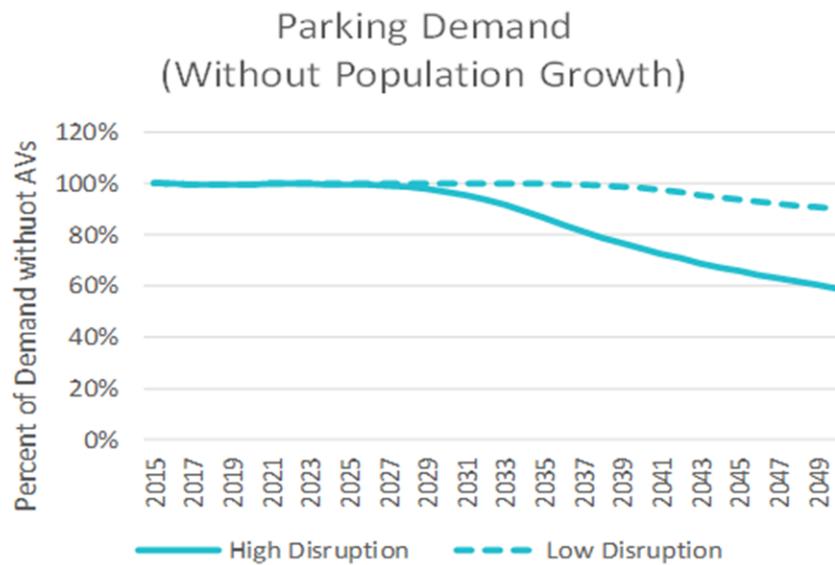
¹⁰ Gordon et al, 2018. The Future of Autonomous Vehicles: Lessons from the Literature on Technology Adoption. Cal DOT: CA 17-2796-3.

¹¹ <http://www.mckinsey.com/industries/high-tech/our-insights/disruptive-trends-that-will-transform-the-auto-industry>

expect maximum impact on parking until 2050 and even then, for it to fall in the range of 10 to 40% reduction **nationally**. Our model results in about 1/3 of vehicles owned by TNCs and 2/3 owned by private individuals by 2050. The TNC vehicles would comprise 72% of vehicle miles traveled (VMT), and private vehicles 28%. Therefore, we believe our high scenario is truly a maximum impact scenario.

The exhibit below is for the average reduction in parking--again we stress--nationally. In other words, the reduction for the average building in the US is 40% at the high scenario. There will be more impact in downtowns and where residential density is high, and less in rural areas. The impact will also vary by land use. Further once autonomous vehicles are available to private individuals, they will be able to drop the passengers and park farther away, particularly if parking is paid.

Exhibit 10: Walker's Projection of Future United States Parking Demand



Source: Walker Consultants 2018

Because the North Beach area will have a fixed quantity of land uses that will not grow in capacity over time with population growth, we do not include population growth in this graph. Due to the size, location and density of Miami Beach, we would expect this analysis to more likely follow our low disruption scenario, with little impact expected by 2030, and perhaps only a 10% reduction in parking demand by 2050. For further discussion we can provide white papers documenting the development of our opinions.

Another factor is that Level 2/3 autonomy, i.e., a specific set of functions that allow autonomous parking, will be available long before Level 5 cars are driving around public streets. Autonomous parking means that the driver and passenger can get out of the vehicle and send the car off to park itself in the lot or structure. Because the car doors do not have to open at the parking stall, we expect to be able to park roughly 4 cars in 3 stalls.

This means that even without extensive driverless ride-hailing, the parking capacity will go up as the parking demand may be going down! Walker raises this issue at this time due to the potential reduction of parking

demand of 10% by 2050, as well as autonomous parking growing in the next decade, we strongly recommend providing the minimum acceptable number of spaces for planned development projects.

PLANNED DEVELOPMENTS

The City of Miami Beach seeks to understand the future public parking demand associated with the following planned development projects, including any related impacts to the existing neighborhood demand generators.

1. A new Civic Complex at 72nd Street and Collins Avenue: The project includes the construction of a new parking structure with a minimum of 500 parking spaces, to replace the current 318 parking spaces and allow for additional spaces as required by project programming for civic and commercial space at the ground level, as well as a new recreational park. The project program also includes a rooftop competition pool, a warm-up pool and support facilities, a new 5,000 to 10,000-sf library/media center, and a 7,500-sf upscale fitness gym with an outdoor running track.
2. Ocean Terrace Development: The City is pursuing a potential public/private partnership with Ocean Terrace Holdings, LLC, the owner of adjacent lots on the west side of Ocean terrace. The development agreement includes the vacation of certain rights-of-way on and adjacent to Ocean Terrace in exchange for a public benefit to fund and/or construct a new public park along Ocean Terrace. It is anticipated, the development agreement will require the removal of sixty (60)± on-street public parking spaces managed by the Miami Beach Parking Department.
3. North Shore Park and Youth Center: Located at 501 72nd Street, this public facility includes a twelve-court tennis center, two fully-lit ballfields and a 30,000-sf climate-controlled indoor facility. There are approximately fifty (50)± public parking spaces adjacent to the ballfields that may potentially be removed due to a planned GO Bond project to add two additional ballfields.
4. North Beach Band Shell/The Rhythm Foundation: Located at 7275 Collins Avenue, this outdoor facility typically hosts a variety of seasonal performances with attendance estimates ranging from 500 to 1,000 attendees. Current renovations include the installation of an overhead canopy allowing for an extended seasonal event calendar.
5. Intermodal Facility and expansion of Green Bicycle Lanes: The Department of Transportation has shared plans for adding intermodal stations on Collins Avenue and Harding where current transit stops exist between 72nd and 73rd Streets. While these enhanced transit stations may not directly impact public parking inventory, the stations will provide greater pedestrian access to and from the neighborhood through the addition of a bus rapid transit (BRT) program. More specific to the public parking inventory, the Department has also shared a concept plan to expand the Green Bicycle Lane program by adding east/west bicycle lanes to 72nd and 73rd Streets. The additional lanes will not be designed to eliminate parallel parking inventory on these streets, however it is anticipated that parking inventory may be reduced by as much as 10-20% in accordance with a complete streets design strategy.

FUTURE PARKING ADEQUACY

It is anticipated that the planned developments mentioned in the previous section are expected to begin within the next two to three years. Each of these projects will have a direct impact on parking and pedestrian activity in the North Shore area. The Ocean Terrace Development timeline depends largely upon the ability to engage the right hotel brand and the pace at which condominium sales occur. Speaking with the developer, Walker has learned construction has been planned as early as the fall of 2021 with a forecasted opening date of 2023. Other public projects involving GO Bond financing are subject to the availability of funding authorization by the City of Miami Beach. It is highly anticipated that construction for the Civic Center and the Ocean Terrace Development will occur simultaneously. Walker will discuss construction impacts and alternatives phasing with respect to public parking inventory in the following section of this analysis.

Expected development that reflects projects likely to occur within four to seven years, and optimistic development that may come to fruition in the longer term relates to potential opportunities within the Town Center area. Upon speaking with the Planning Department, Walker has learned as many as three (3) potential projects are being discussed in the Town Center area. Potential projects being considered include full-block developments with mixed-use retail and residential components with possible “big box” drivers. As of the date of this analysis, none of these projects have formalized to the extent of reaching the Design Review Board yet. A successful component of the Town Center master plan raises concerns about the oversaturation of public parking. With the approved density levels, Walker understands the plan is designed to promote significant behavioral changes in users from car-centric needs to the use of micro-transit and walkability needs.

LOSS OF INVENTORY DUE TO DEVELOPMENT PROJECTS

The removal of public parking inventory associated with the known development projects in the North Shore area suggests the loss of 62± on-street public parking spaces surrounding the Ocean Terrace development and combined 328± off-street public parking spaces for motorcycles and automobiles in City lot P92 for a total loss of 441± public parking spaces in the North Shore area. The following exhibit details the amount of lost public parking inventory by development block and demonstrates the need for new public parking inventory before any development parking projects are considered.

Exhibit 11: North Shore Area Loss of Public Parking by Development Block

North Shore		Efficient Supply	Peak Observations	Surplus/ (Deficit)	Lost Inventory	New Inventory Need
Block 1	On-Street	16	5	11	0	0
	Off-Street	0	0	0	0	0
Block 2	On-Street	2	2	0	0	0
	Off-Street	99	18	81	0	0
Block 3	On-Street	60	48	12	(62)	48
	Off-Street	0	0	0	0	0
Block 4	On-Street	31	36	(5)	0	5
	Off-Street	0	0	0	0	0
Block 5	On-Street	48	44	4	0	0
	Off-Street	0	0	0	0	0

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North Shore		Efficient Supply	Peak Observations	Surplus/ (Deficit)	Lost Inventory	New Inventory Need
Block 6	On-Street	70	74	(4)	0	4
	Off-Street	0	0	0	0	0
Block 7	On-Street	40	38	2	0	0
	Off-Street	0	0	0	0	0
Block 8	On-Street	15	14	1	0	0
	Off-Street	0	0	0	0	0
Block 9	On-Street	48	38	10	0	0
	Off-Street	0	0	0	0	0
Block 10	On-Street	76	64	12	0	0
	Off-Street	0	0	0	0	0
Block 11	On-Street	61	55	6	0	0
	Off-Street	0	0	0	0	0
Block 12	On-Street	37	39	(2)	0	2
	Off-Street	0	0	0	0	0
Block 13	On-Street	50	52	(2)	0	2
	Off-Street	0	0	0	0	0
Block 14	On-Street	6	5	1	0	0
	Off-Street	0	0	0	0	0
Block 15	On-Street	37	12	25	0	0
	Off-Street	295	130	165	(328)	130
Block 16	On-Street	62	30	32	0	0
	Off-Street	46	19	27	(51)	19
Block 17	On-Street	0	0	0	0	0
	Off-Street	16	11	5	0	0
Sub-Total		1,115	734	381	(441)	209

Source: Walker Consultants 2019

As demonstrated in the exhibit above, gross new public parking inventory needs project a need for 209± spaces within seven (7) of the seventeen (17) blocks in an effort to maintain efficient parking supply needs within the North Shore area. Upon taking a closer look at the new inventory needs by associated block, Walker recognizes an opportunity for nearby blocks to absorb much of the inventory needs. As an example, the loss of on-street public parking inventory associated with the Ocean Terrace development project in Block 3 may be offset with the surplus of public parking inventory available in City lot P106 located in the adjacent Block 2. Upon the potential relocation of the North Shore Branch Library to the new Civic Complex at 72nd, Walker recommends the removal of the building structure to allow for additional public parking at this location. It is anticipated that the removal of the building structure could provide as much as 20-25% more parking spaces.

Likewise, Block 4 inventory needs of five (5) spaces may also be offset by the available parking inventory in City lot P106. Parking inadequacy needs in residential Blocks 6, 12, and 13 may simply be satisfied by available inventory within other neighboring residential blocks.

New public parking inventory needs for the opening of Altos Del Mar Park may be initially satisfied with available on-street inventory on Collins Avenue and City lot P106. Upon speaking with the Department of Parks and Recreation, Walker has learned that no programmed activity has been planned for this park, however it is anticipated that activity may begin to populate the area due to the availability of public restrooms at this site.

After potential public parking reallocation needs have been satisfied, Walker projects a net new public parking need of 149± spaces within the North Shore area before new development project needs are projected. We will factor this net amount when calculating final future parking needs for the North Shore area.

PROJECTED PUBLIC PARKING NEEDS FOR NORTH SHORE DEVELOPMENTS

Although the methodology for shared parking analysis was developed in the early 1980s, the concept of shared parking was already well established: a fundamental principle of planning from the earliest days of the automobile has always been to share parking resources rather than to have each use or building have its own parking. The resurgence of many central cities resulting from the addition of vibrant residential, retail, restaurant and entertainment developments continues to rely heavily on shared parking for economic viability. In addition, mixed-use projects in many different settings have benefited from shared parking. There are numerous benefits of shared parking, including the community at large, not the least of which is the environmental benefit of significantly reducing the square feet of parking (usually in surface lots) provided to serve several developments.

As a result of this analysis, Walker developed a recommended parking supply, based on the projected peak hour of design day parking demand. This does not represent the maximum ever generated by the developments. In Walker's experience, designing a parking system for the absolute peak busiest day of the year leads to overbuilding of parking spaces. Similarly, one does not build for an average day and have insufficient supply for the peak (if not multiple) hours on 50 percent of the days in a year. The peak in this analysis refers to the "design day" or "design hour," one that recurs frequently enough to justify providing spaces for that level of parking activity. The 85th percentile of peak-hour observations is generally recommended by *Shared Parking*, except for retail shopping, for which the 20th highest hour of the year is employed.

Within the known North Shore developments, each land use was evaluated and assigned a "drive ratio" for daytime and evenings on weekdays and weekends. The reason that driving ratio, rather than modal split, must be used is that it is applied against a "parking ratio" that reflects the number of cars parked at a stand-alone land use where nearly all persons arrive by car, and thus already reflects persons per car. In other words, modal split is stated in persons; the drive ratio converts that to cars.

Walker first reviewed the 2013-2017 American Community Survey (ACS) 5-year estimates. In accordance with US census tract most closely associated with the North Beach area, we learned that 69% of owner occupied households have at least one (1) vehicle, 34% have at least two (2) vehicles, and 7% have at least three (3) vehicles. Conversely, 46% of renter occupied households have at least one (1) vehicle, 34% have at least two (2) vehicles, and 11% have at least three (3) vehicles. Walker also reviewed the means of transportation data to work for workers in the City of Miami Beach. The resulting drive ratio is 53.2%, when driving alone (SOV) and carpooling is combined. To supplement the ACS means of transportation, Walker researched the Walk Score for the site, which is 94/100, and is classified as "Walker's Paradise" with daily errands not requiring a car. The Transit Score is 51/100 and the Bike Score is 82/100, "very bikeable".¹²

¹²www.walkscore.com

WALKER'S MODEL

Walker's model calculates the parking demand 18 hours a day for weekdays and weekends for each of 12 months, plus a special period between Christmas and New Year's Day. In the latter period, office and other professional employment parking is reduced, while retail/dining/entertainment is high. Weekend is defined to begin at 5 pm on Friday and continue through Saturday. The parking demand of recreation and entertainment venues is similar to that on Saturday and thus is included in weekends.

Exhibit 12 below summarizes the peak parking needs analysis for weekdays and weekends, while Exhibit 13 provides the detail for weekdays and Exhibit 14 presents the weekend analysis.

Exhibit 12: Parking Needs Analysis

Weekday		Weekend	
Patron/Visitor	358	Patron/Visitor	368
Employee	128	Employee	29
Total	486	Total	397

Source: Walker Consultants 2019

The overall peak is projected to occur on a weekday in February at approximately 7:00 PM, at which time 486± parking spaces are recommended to serve the North Shore Park, Civic Complex, Band Shell and Senior Center/UNIDAD activity centers. On a weekend, the peak hour is projected to occur at 8:00 PM, with 397± spaces required. Much of the evening peak hour demand reflects the potential for special event gatherings held at the North Beach Band Shell/The Rhythm Foundation and North Beach Senior Center/UNIDAD of Miami Beach, Inc. Without the availability of further program information, it is anticipated that special event activity occurring at the Civic Complex will generally take place during daytime recreational hours of 7:00am to 7:00pm.

Walker cautions the City when the peak season demand is added to these proposed development parking projections. We anticipate as many as 230± public parking spaces may be added to the proposed peak hour projections to satisfy seasonal visitor activity parking needs impacting daytime demand. When these seasonal numbers are added to the proposed development parking projections by hour, the overall peak weekday period shifts to a late afternoon 4:00 pm hour impact:

	10:00 am	11:00 am	12:00 pm	1:00 pm	2:00 pm	3:00 pm	4:00 pm
Projected Development Needs	134	279	265	278	289	319	489
Peak Season Add	230	230	230	230	230	230	230
Combined Net Impact	364	509	495	508	519	549	719
Surplus/(Deficit)	125	(20)	(6)	(19)	(30)	(60)	(230)

Exhibit 15 presents the parking demand by time of day for the peak weekday demand period. To project a calculation of future parking demand, Walker will then combine the projected parking needs for the North Shore developments with the adjusted public parking needs to determine the impact each of the development scenarios will have on area parking conditions. In the absence of known development plans for the Town Center area, Walker recommends the City revisit public parking needs as Town Center development projects unfold. As previously mentioned in this analysis, overbuilding parking inventory to satisfy future unknown developments is not considered an industry best practice.

Exhibit 13: Weekday Projected Parking Demand

Parking Demand Summary										
Peak Month: FEBRUARY -- Peak Period: 7 PM, WEEKDAY										
Land Use	Project Data		Weekday					Weekday		Estimated Parking Demand
			Base Rate	Mode Adj	Non-Captive Ratio	Project Rate	Unit	Peak Hr Adj	Peak Mo Adj	
	Quantity	Unit						7 PM	February	
Entertainment and Institutions										
North Shore Youth Center (Patron)	30,000	sf GLA	1.80	65%	100%	1.16	sf GLA	90%	90%	28
Employee			4.00	53%	100%	2.13		90%	90%	52
Civic Complex (Track and Field Patron)	2	acre	1.50	65%	100%	0.97	acre	95%	90%	2
Employee			0.15	53%	100%	0.08		100%	100%	1
Competition Pool Amenity Level (Patron)	45,000	sf GLA	2.60	65%	100%	1.68	sf GLA	75%	90%	51
Employee			3.00	53%	100%	1.60		75%	100%	54
Outdoor Amphitheater (Patron)	1,000	seats	0.30	65%	100%	0.19	seats	70%	100%	136
Employee			0.03	53%	100%	0.02		100%	10%	2
North Shore Park (Ballfields and Tennis Courts Patron)	5	acre	5.00	65%	100%	3.24	acre	100%	100%	18
Employee			2.50	53%	100%	1.33		100%	50%	4
Community Center (Patron)	10,000	sf GLA	6.60	65%	98%	4.17	sf GLA	90%	100%	38
Employee			0.40	53%	100%	0.21		75%	100%	2
Public Library (Patron)	7,500	sf GLA	4.00	65%	100%	2.59	sf GLA	0%	75%	-
Employee			1.00	53%	100%	0.53		20%	85%	1
Senior Center/UNIDAD Event (Patron)		sf GLA	6.67	70%	100%	4.67	sf GLA	100%	100%	85
Employee			1.20	53%	100%	0.64		100%	100%	12
Patron/Visitor									358	
Employee									128	
Total									486	

Source: Walker Consultants 2019

Exhibit 14: Weekend Projected Parking Demand

Parking Demand Summary										
Peak Month: FEBRUARY -- Peak Period: 7 PM, WEEKDAY										
Land Use	Project Data		Weekend					Weekend		Estimated Parking Demand
			Base Rate	Mode Adj	Non-Captive Ratio	Project Rate	Unit	Peak Hr Adj	Peak Mo Adj	
	Quantity	Unit						8 PM	February	
Entertainment and Institutions										
North Shore Youth Center (Patron)	30,000	sf GLA	2.00	65%	100%	1.29	sf GLA	0%	90%	-
Employee			4.00	53%	100%	2.13		0%	100%	-
Civic Complex (Track and Field Patron)	2	acre	1.80	65%	100%	1.16	acre	20%	90%	0
Employee			0.20	53%	100%	0.11		100%	100%	1
Competition Pool Amenity Level (Patron)	45,000	sf GLA	3.00	65%	100%	1.94	sf GLA	10%	90%	8
Employee			3.00	53%	100%	1.60		10%	100%	7
Outdoor Amphitheater (Patron)	1,000	seats	0.33	65%	100%	0.21	seats	100%	100%	214
Employee			0.03	53%	100%	0.02		100%	10%	2
North Shore Park (Ballfields and Tennis Courts Patron)	5	acre	6.00	65%	100%	3.88	acre	100%	100%	21
Employee			3.50	53%	100%	1.86		100%	50%	5
Community Center (Patron)	10,000	sf GLA	5.50	65%	99%	3.52	sf GLA	80%	100%	28
Employee			0.25	53%	100%	0.13		50%	100%	1
Public Library (Patron)	7,500	sf GLA	3.90	65%	100%	2.52	sf GLA	0%	75%	-
Employee			1.00	53%	100%	0.53		0%	85%	-
Senior Center/UNIDAD Event (Patron)		sf GLA	7.67	70%	100%	5.37	sf GLA	100%	100%	97
Employee			1.33	53%	100%	0.71		100%	100%	13
									Patron/Visitor	368
									Employee	29
									Total	397

Source: Walker Consultants 2019

Exhibit 15: Weekday Parking Demand by Hour

Land Use	Monthly Adjustment	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM
Entertainment and Institutions											
North Shore Youth Center (Patron)	90%	0	28	31	27	13	9	8	11	14	16
Employee	90%	11	52	57	49	23	17	14	20	26	29
Civic Complex (Track and Field Patron)	90%	0	0	0	0	0	1	1	2	2	2
Employee	100%	0	0	0	0	0	1	1	1	1	1
Competition Pool Amenity Level (Patron)	90%	0	48	55	51	17	17	17	17	17	24
Employee	100%	14	50	57	54	18	18	18	18	18	25
Outdoor Amphitheater (Patron)	100%	0	0	0	2	2	2	2	2	2	2
Employee	10%	0	0	0	0	0	0	0	0	0	0
North Shore Park (Ballfields and Tennis Courts Patron)	100%	0	9	11	7	9	8	7	8	9	18
Employee	50%	0	2	2	1	2	2	1	2	2	4
Community Center (Patron)	100%	29	17	17	29	29	34	25	29	29	29
Employee	100%	2	2	2	2	2	2	2	2	2	2
Public Library (Patron)	75%	0	0	0	15	15	14	14	11	10	9
Employee	85%	0	0	2	4	4	4	4	4	4	4
Senior Center/UNIDAD Event (Patron)	100%	0	0	0	0	0	0	0	0	0	0
Employee	100%	0	0	0	0	0	0	0	1	4	5
	Patron/Visitor	30	102	114	131	85	86	75	81	84	100
	Employee	28	106	121	110	49	43	40	47	55	68
		57	208	234	241	134	129	115	128	139	169

Land Use	Monthly Adjustment	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	12 AM	Overall Pk	AM Peak Hr	PM Peak Hr	Eve Peak Hr
											7 PM	9 AM	5 PM	7 PM
Entertainment and Institutions														
North Shore Youth Center (Patron)	90%	31	31	31	28	0	0	0	0	0	28	27	31	28
Employee	90%	57	57	57	52	9	3	0	3	3	52	49	57	52
Civic Complex (Track and Field Patron)	90%	2	2	2	2	0	0	0	0	0	2	0	2	2
Employee	100%	1	1	1	1	1	0	0	0	0	1	0	1	1
Competition Pool Amenity Level (Patron)	90%	68	68	68	51	14	0	0	0	0	51	51	68	51
Employee	100%	72	72	72	54	14	7	0	0	0	54	54	72	54
Outdoor Amphitheater (Patron)	100%	2	49	78	136	194	194	0	0	0	136	2	49	136
Employee	10%	0	0	2	2	2	2	0	0	0	2	0	0	2
North Shore Park (Ballfields and Tennis Courts Patron)	100%	18	17	16	18	18	14	0	0	0	18	7	17	18
Employee	50%	4	4	3	4	4	3	0	0	0	4	1	4	4
Community Center (Patron)	100%	34	38	42	38	33	29	15	4	0	38	29	38	38
Employee	100%	2	2	2	2	1	0	0	0	0	2	2	2	2
Public Library (Patron)	75%	10	12	9	0	0	0	0	0	0	0	15	12	0
Employee	85%	4	3	3	1	0	0	0	0	0	1	4	3	1
Senior Center/UNIDAD Event (Patron)	100%	27	68	76	85	85	59	17	8	0	85	0	68	85
Employee	100%	7	8	11	12	12	12	1	0	0	12	0	8	12
	Patron/Visitor	192	284	322	358	344	297	32	13	0	358	131	284	358
	Employee	146	147	150	128	42	27	2	3	3	128	110	147	128
		339	431	472	486	386	324	34	16	3	486	241	431	486

Source: Walker Consultants 2019

Exhibit 16: Adjusted Weekday Parking Demand by Hour

Land Use	Monthly Adjustment	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM
Entertainment and Institutions												
North Shore Youth Center (Patron)	90%	0	28	31	27	13	9	8	11	14	16	31
Employee	90%	11	52	57	49	23	17	14	20	26	29	57
Civic Complex (Track and Field Patron)	90%	0	0	0	0	0	1	1	2	2	2	2
Employee	100%	0	0	0	0	0	1	1	1	1	1	1
Competition Pool Amenity Level (Patron)	90%	0	48	55	51	17	17	17	17	17	24	68
Employee	100%	14	50	57	54	18	18	18	18	18	25	72
Outdoor Amphitheater (Patron)	100%	0	0	0	2	2	2	2	2	2	2	2
Employee	10%	0	0	0	0	0	0	0	0	0	0	0
North Shore Park (Ballfields and Tennis Courts Patron)	100%	0	9	11	7	9	8	7	8	9	18	18
Employee	50%	0	2	2	1	2	2	1	2	2	4	4
Community Center (Patron)	100%	29	17	17	29	29	34	25	29	29	29	34
Employee	100%	2	2	2	2	2	2	2	2	2	2	2
Public Library (Patron)	75%	0	0	0	15	15	14	14	11	10	9	10
Employee	85%	0	0	2	4	4	4	4	4	4	4	4
Senior Center/UNIDAD Event (Patron)	100%	0	0	0	0	0	0	0	0	0	0	27
Employee	100%	0	0	0	0	0	0	0	1	4	5	7
Patron/Visitor		30	102	114	131	85	86	75	81	84	100	192
Employee		28	106	121	110	49	43	40	47	55	68	146
Net Needs		0	0	0	0	0	150	150	150	150	150	150
Total		57	208	234	241	134	279	265	278	289	319	489

Land Use	Monthly Adjustment	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	12 AM	Overall Pk	AM Peak Hr	PM Peak Hr	Eve Peak Hr
		4 PM	4 PM	5 PM	7 PM	4 PM	4 PM	5 PM	7 PM				
Entertainment and Institutions													
North Shore Youth Center (Patron)	90%	31	31	28	0	0	0	0	0	31	31	31	28
Employee	90%	57	57	52	9	3	0	3	3	57	57	57	52
Civic Complex (Track and Field Patron)	90%	2	2	2	0	0	0	0	0	2	2	2	2
Employee	100%	1	1	1	1	0	0	0	0	1	1	1	1
Competition Pool Amenity Level (Patron)	90%	68	68	51	14	0	0	0	0	68	68	68	51
Employee	100%	72	72	54	14	7	0	0	0	72	72	72	54
Outdoor Amphitheater (Patron)	100%	49	78	136	194	194	0	0	0	2	2	49	136
Employee	10%	0	2	2	2	2	0	0	0	0	0	0	2
North Shore Park (Ballfields and Tennis Courts Patron)	100%	17	16	18	18	14	0	0	0	18	18	17	18
Employee	50%	4	3	4	4	3	0	0	0	4	4	4	4
Community Center (Patron)	100%	38	42	38	33	29	15	4	0	34	34	38	38
Employee	100%	2	2	2	1	0	0	0	0	2	2	2	2
Public Library (Patron)	75%	12	9	0	0	0	0	0	0	10	10	12	0
Employee	85%	3	3	1	0	0	0	0	0	4	4	3	1
Senior Center/UNIDAD Event (Patron)	100%	68	76	85	85	59	17	8	0	27	27	68	85
Employee	100%	8	11	12	12	12	1	0	0	7	7	8	12
Patron/Visitor		284	322	358	344	297	32	13	0	192	192	284	358
Employee		147	150	128	42	27	2	3	3	146	146	147	128
Net Needs		0	0	0	0	0	0	0	0	150	150	0	0
Total		431	472	486	386	324	34	16	3	489	489	431	486

Source: Walker Consultants 2019

SUMMARY OF NORTH BEACH AREA PARKING NEEDS

NORTH SHORE AREA

As demonstrated in Exhibit 16, when the net adequacy needs for the North Shore area are combined with the results of the proposed development parking projections by hour, Walker projects an additional peak hour demand shift of $489\pm$ public parking spaces during the 4:00pm hour. When compared to the similar peak evening hour demand of $486\pm$ public parking spaces, Walker recommends the need to replace the P92 surface lot inventory with a minimum $490\pm$ parking structure. It is important to recognize the addition of net needs are a direct result of Walker's peak hour observations. The peak hour observation period of 12:00pm to 4:00pm represents a typical period during the day when the parking system experiences the busiest activity.

TOWN CENTER AREA

In the absence of approved development plans for the Town Center area, Walker recognizes a need to replace inadequacy levels associated with on-street parking deficiencies. Current off-street parking efficiencies enable the Town Center area to meet overall parking adequacy levels, however we caution the City that much of the parking adequacy levels are the result of the privately owned and operated surface parking lots located south of 71st Street between Abbott and Byron Avenues. We anticipate this inventory to be affected by future Town Center development projects. To this end, we encourage the City to maintain the four (4) pocket parking lots known as P80, P83, P84 and P85 for public parking purpose, or in the event a public/private partnership opportunity exists, we recommend the pursuit of a development agreement that includes a public parking component maintained and operated by the City.

ALTERNATIVES ANALYSIS FOR PHASING DURING CONSTRUCTION

As briefly mentioned in the *Future Adequacy* section of this analysis, Walker understands that the planned North Shore development projects are anticipated to begin within the next two to three years. Under this timeline, on-street public parking inventory located on Ocean Terrace and off-street parking inventory located in City lot P92 may simultaneously be removed from service for a period of twenty-four to thirty-six months. It is anticipated that much of the project staging needs will occur on each development site and not require the use of additional parking inventory. Construction parking arrangements for the Ocean Terrace development have been factored into the phasing needs, ultimately requiring the use of the West Lots inventory during weekday construction periods.

To accommodate the loss of on-street inventory surrounding the Ocean Terrace development, Walker recognizes an opportunity to utilize available inventory in City lot P106 as well as pursue a shared parking opportunity with an underutilized private parking lot north of 73rd Street. During our weekday and weekend observation periods, we verified a number of parking spaces controlled by a private entity, whereby no more than 20% of the parking spaces were utilized at any one time. This surface lot location uniquely lends itself to two segregated parcels allowing for two separate vehicle ingress and egress points. Logically, patrons of the private entity could use the inventory closest to the rear of their building and public parking could be offered in the remaining portion of the lot. We anticipate the use of a portion of this private parking lot could provide the replacement of as many as 30-40 controlled public parking spaces. Furthermore, the development of a joint-use agreement with a private parking lot would provide an opportunity for the City to provide additional public parking on a temporary, or better yet, ongoing basis.

Once City lot P92 is removed from service, Walker anticipates the need for the City to provide suitable public parking inventory to offset observed daily utilization levels. Three of the West Lots are currently utilized for surface parking for the beach. These lots along with on-street parking total 650± public parking spaces. We recommend the need to explore the temporary-use of two additional unimproved parcels north of 85th Street on Collins Avenue as it is estimated these parcels may be able to provide as much as 300-400 public parking spaces. A main consideration for the use of these unimproved parcels would involve a temporary-use application submitted by the Parking Department for approval by the City Commission.

The option to allow North Beach area employees to utilize this temporary or interim parking inventory would free up existing North Beach parking inventory for business patrons and neighborhood visitors. Ultimately, reducing the demand impact during the development activity period. To further accommodate access to this inventory, we recognize the North Beach Loop provides transit access from 65th Street to 88th Street, allowing appropriate connections for the north/south Collins express line.

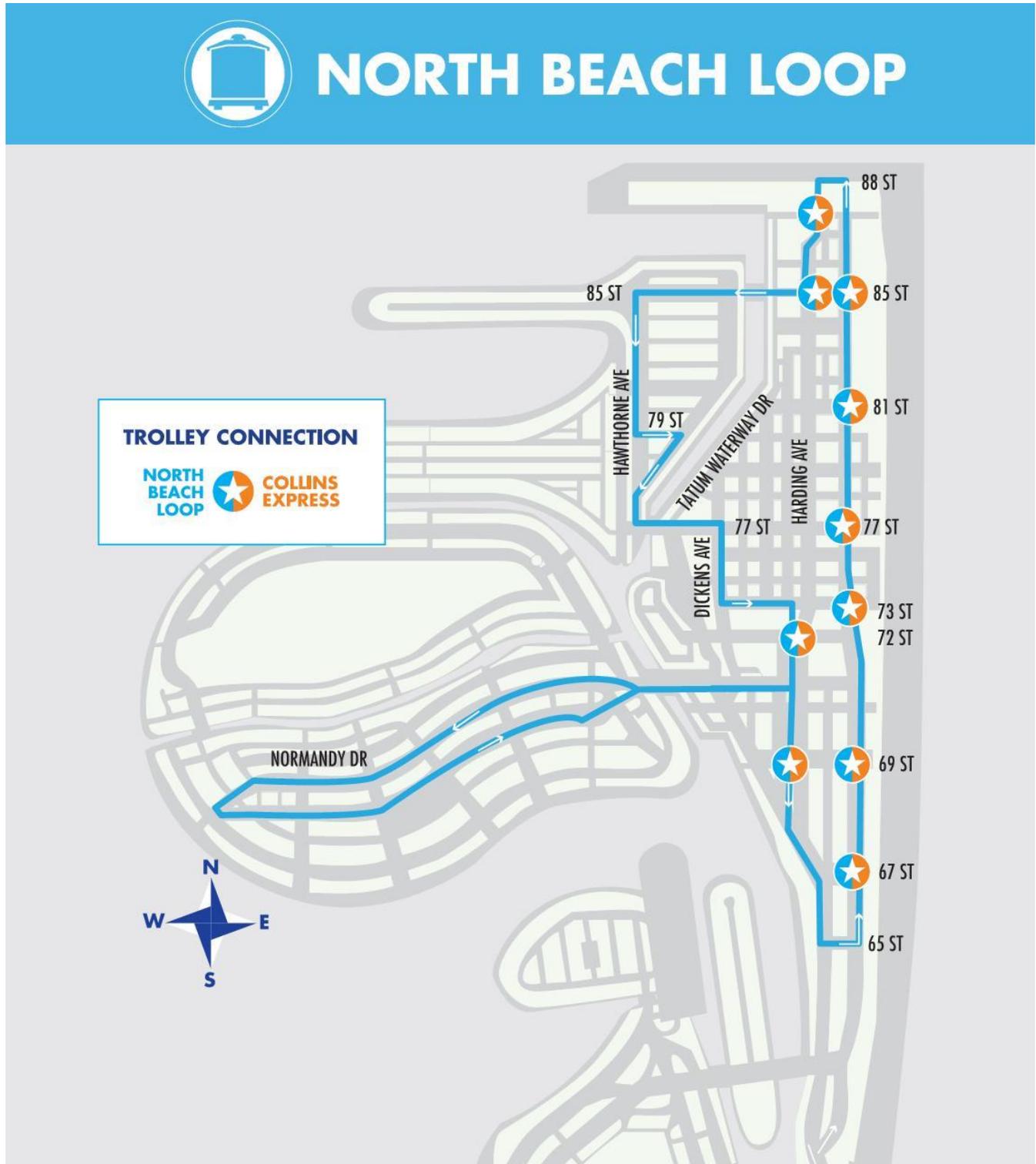
Exhibit 17: West Lots Parking Options



Source: City of Miami Beach; Dover, Kohl & Partners; West Lots Design Plan, 2018



Exhibit 18: North Beach Trolley Loop



Source: City of Miami Beach Department of Transportation website, 2019