Severe girdling roots around tree # 40

Tree number 41

View from west side

Tree # 41 growing into overhead wires

Girdling roots around tree # 41

End Report

I certify that all the statements of fact in this evaluation are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Jeremy T. Chancey
ASCA AMERICAN SOCIETY of CONSULTING ARBORISTS
ASCA Registered Consulting Arborist #646
ISA Certified Arborist FL 0762-A

ISA Tree Risk Assessment Qualified
LIAF Certified Landscape Inspector
(954) 612-2500

Kristopher Ratliff ISA Certified Arborist # FL 6512-A
TRAQ Qualified / BIS Specialist

Kimley»Horn

MEMORANDUM

To: Josiel Ferrer, E.I., City of Miami Beach
Firat Akcay, City of Miami Beach

From: Adrian K. Dabkowski, P.E., PTOE AK

Date: April 4, 2018

Subject: 1685 Washington Avenue Redevelopment
Miami Beach, Florida
Maneuverability Analysis

Kimley-Horn and Associates, Inc. has prepared a maneuverability analysis for the 1685 Washington Avenue redevelopment. The areas included in the analysis include the on-site porte-cochere, parking garage, and loading areas. The analysis was performed using Transoft Solutions Inc.'s *AutoTurn 10.2* software which applies vehicle turning templates consistent with American Association of State Highway and Transportation Officials' (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 2011. The analysis was prepared using passenger car (P) design vehicle for the porte-cochere and parking garage areas. Delivery vans comparable to P design vehicles will be used for deliveries and loading activities. The following summarizes the results of this analysis.

Porte-cochere

Access to the site's porte-cochere is provided by a left-in/right-in driveway from 17th Street along the north side of the property and a right-out only driveway along the west side of the property onto Washington Avenue. A P design vehicle will be able to maneuver into and through the porte-cochere area without conflicting with by-passing traffic, refer to Figure 1 Attachment A.

Parking Garage and Loading Area Access

Access to the parking garage will be provided via an entry and exit ramp along the south side of the property. A P design vehicle will be able to maneuver into and through the parking garage without conflicting with oncoming traffic, refer to Figure 2 in Attachment A. Delivery vans, comparable to P vehicles, will be used for loading activities at the site and will be able to maneuver through the parking garage and site drive aisles.

Note that refuse receptacles will wheeled out to either 17th Street or Washington Avenue for waste and trash pick-up.

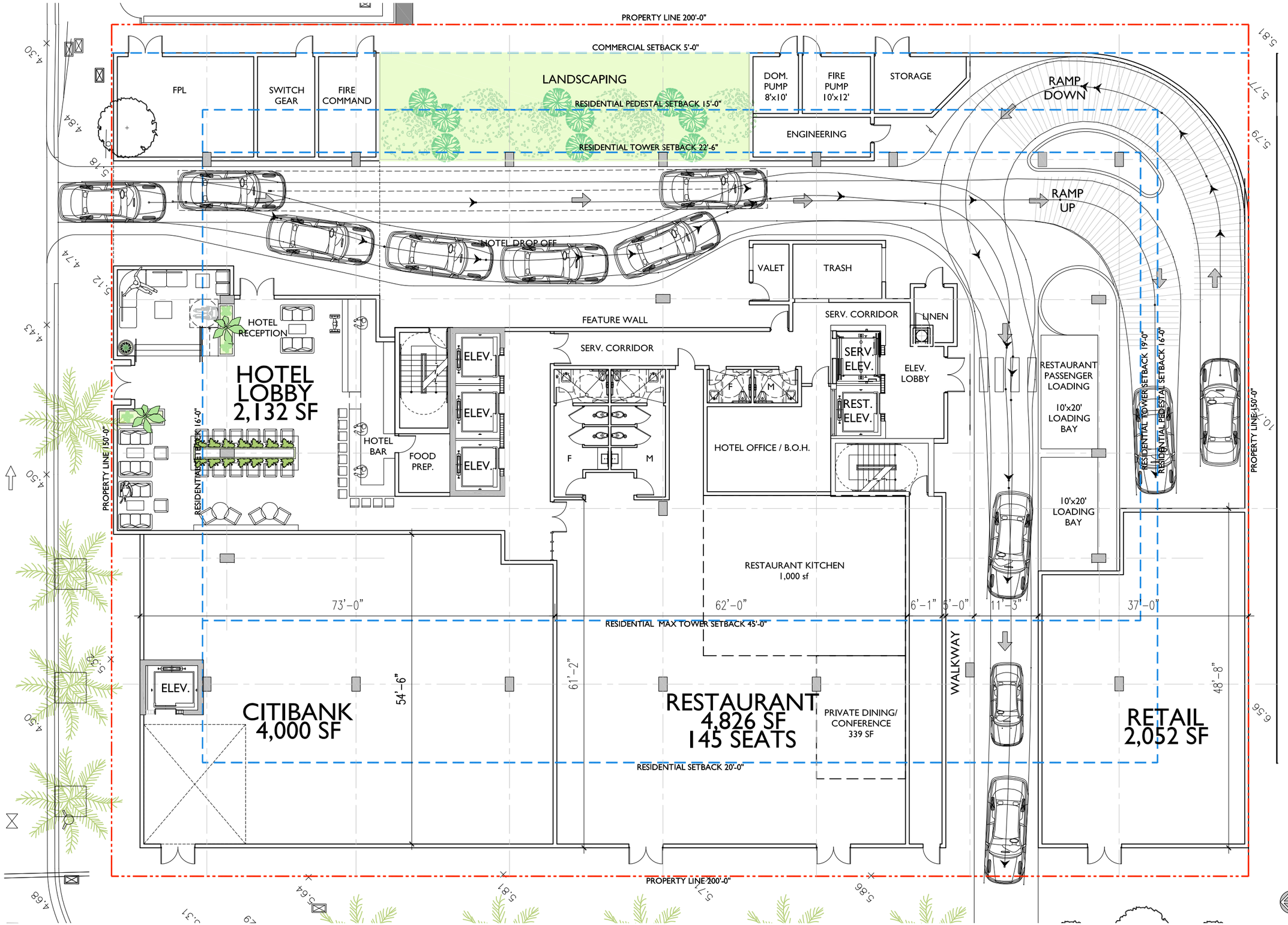
Conclusion

In conclusion, passenger vehicles and delivery van traffic will be able to ingress and egress from the site's porte-cochere and parking garage without conflicting with oncoming traffic.

K:\FTL_TPTO\043896000-1685 Washington Avenue\Correspondence\memo\1685 Washington Avenue - Maneuverability Analysis.docx

Attachment A

Maneuverability Plots



PROPOSED GROUND LEVEL PLAN 1/16" = 1'-0"

McG
ARCHITECTURE + PLANNING
7580 NE 4th Court
Studio 100
Miami, FL 33138

1723
PROJECT NUMBER

PROJECT:

1685 Washington

1685 Washington Ave
Miami Beach, FL 33139

FINVARB GROUP
CLIENT

RUDY RICCIOTTI architecte
ARTISTIC ADVISOR

DRAWING:

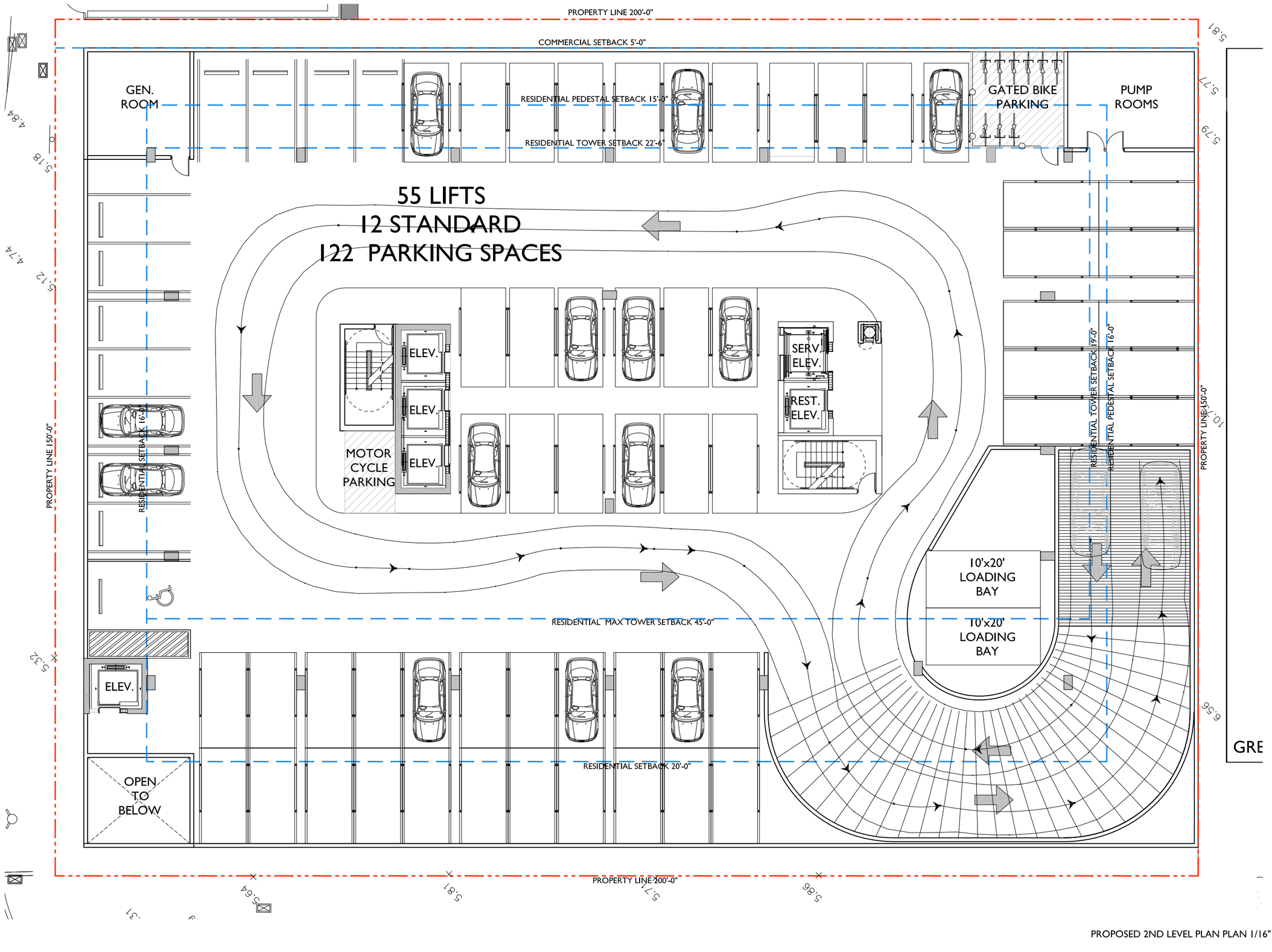
PROPOSED GROUND LEVEL PLAN

SCALE:	N.T.S.
CHECK:	JMcG
DATE:	04/02/2018

SHEET NUMBER

FIGURE 1

A2.01A



PROPOSED 2ND LEVEL PLAN PLAN 1/16" = 1'-0"

MCG
ARCHITECTURE + PLANNING

7580 NE 4th Court
Studio 100
Miami, FL 33138

1723
PROJECT NUMBER

PROJECT:

1685 Washington

1685 Washington Ave
Miami Beach, FL 33139

FINVARB GROUP
CLIENT

RUDY RICCIOTTI architecte
ARTISTIC ADVISOR

DRAWING:

PROPOSED 2ND LEVEL PLAN

SCALE:	N.T.S.
CHECK:	JMcG
DATE:	04/02/2018

SHEET NUMBER

FIGURE 2
A2.02

Kimley»Horn

MEMORANDUM

To: Josiel Ferrer, E.I., City of Miami Beach
Firat Akcay, City of Miami Beach

From: Adrian K. Dabkowski, P.E., PTOE
Cory D. Dorman, E.I.

Date: April 4, 2018

Subject: 1685 Washington Avenue
Valet Operations Analysis

Kimley-Horn and Associates, Inc. has prepared a valet operations analysis for the proposed redevelopment located at 1685 Washington Avenue in Miami Beach, Florida. Currently, the site is occupied by a 6,644 square-foot drive-in bank. The proposed redevelopment will consist of a 150-room hotel, 2,023 square feet of specialty retail space, a 4,000 square-foot walk-in bank, and 295 total restaurant seats with 145 seats located on the ground floor (5,258 square feet) and 150 seats located on the rooftop level (2,156 indoor square feet and 2,244 exterior square feet). The parking garage includes 110 mechanical-lift parking spaces and 12 conventional parking spaces. Please note that on-site self-parking will be provided for the proposed walk-in bank and all other vehicles will be valeted to the on-site parking garage with the exception of taxis/rideshare. A conceptual site plan and project location map are included in Attachment A.

VALET SERVICE AND OPERATIONS

The redevelopment will be served by one (1) porte-cochere for valet drop-off and pick-up. The porte-cochere is located on-site just south of 17th Street project driveway. The porte-cochere consists of one (1) storage lane with approximately four (4) vehicles of storage and one (1) bypass lane. It is assumed that three (3) spaces will be used for valet operations and one (1) space will be used for taxi/rideshare.

Access to the proposed redevelopment will be provided by one (1) ingress left-in/right-in driveway along 17th Street between Washington Avenue and James Avenue and one (1) egress right-out only driveway along Washington Avenue between 17th Street and Lincoln Road. On-site self-parking will be provided for the proposed walk-in bank. All other vehicles will be valeted on-site with the exception of taxis and rideshare. The parking garage includes 110 mechanical-lift parking spaces and 12 conventional parking spaces. All mechanical-lift parking spaces are assumed to be used for valet and all conventional parking spaces are assumed to be used for self-parking.

The valet drop-off route is contained within the site and is not expected to impact the external roadway network. It is assumed that valet pick-up vehicles will exit the site via the Washington Avenue project driveway, travel northbound along Washington Avenue, travel eastbound along 17th Street, and utilize the 17th Street project driveway to access the on-site porte-cochere. Figure 2 contained in Attachment A provides a graphic illustration of the proposed valet routes to and from the on-site parking garage.

TRIP GENERATION

Trip generation for the proposed redevelopment was calculated using rates contained in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 9th Edition. Trip generation rates were examined for the weekday P.M. peak hour. Please note that a 42.6 percent (42.6%) taxi/rideshare trip factor was applied to the hotel, retail, and restaurant components of the redevelopment to account for guests and patrons arriving via taxi/rideshare to the site and to determine the number of valet trips. The proposed redevelopment is expected to generate 60 valet trips of which 35 enter the site and 25 exit the site during the P.M. peak hour. Detailed trip generation calculations are included in Attachment B.

VALET OPERATIONS ANALYSIS

The valet queuing operations analysis was performed based on the methodology outlined in ITE's *Transportation and Land Development,* 1988. The analysis was performed to determine if valet operations could accommodate vehicular queues without blocking travel lanes on 17th Street. Valet operations were analyzed for the number of valet attendants and required vehicle stacking for the redevelopment proposed traffic.

Valet Assumptions

The queuing analysis used the multiple-channel waiting line model with Poisson arrivals and exponential service times. The queuing analysis is based on the coefficient of utilization, ρ, which is the ratio of the average vehicle arrival rate over the average service rate multiplied by the number of channels.

Valet attendants will be stationed at the on-site porte-cochere. Valet drop-off trip service time was calculated based on the time it would take a valet parking attendant to obtain and park a drop-off vehicle within the on-site parking garage. Valet pick-up trip service time was calculated based on the time it would take a valet parking attendant to bring a parked vehicle back to a patron at the on-site porte-cochere for pick-up. Note that the average mechanical-lift processing time was based on the Klaus Model G61 vehicle lift. The average mechanical-lift processing time was based on the average processing times of parking and retrieving vehicles from all the various positions within the tandem mechanical-lift system. The detailed mechanical-lift processing time analysis is contained in Attachment C. The following summarizes the total valet drop-off and pick-up service times.

The service time for valet drop-off operation corresponds to the following:

- Exchange between valet attendant and driver including unloading luggage (1.0 minute)
- Valet attendant drives vehicle from porte-cochere to on-site parking garage (0.6 minutes)
- Valet attendant parks vehicle using mechanical-lift (1.7 minutes)
- Valet attendant returns to valet station (0.4 minutes)
- Total service rate: 3.7 minutes

The service time for valet pick-off operation corresponds to the following:

- Valet attendant proceeds to the garage to retrieve the vehicle (0.4 minutes)

- Valet attendant retrieves moves vehicle from mechanical-lift (1.6 minutes)
- Valet attendant drives vehicle from on-site parking garage to the porte-cochere (1.2 minutes)
- Exchange between valet attendant and driver and loading baggage (1.0 minute)
- Total service rate: 4.2 minutes

The calculated average service time for vehicles valeted from the on-site porte-cochere 3.7 minutes for valet drop-off and 4.2 minutes for valet pick-up. However, to provide a conservative analysis, a service time of 4.0 minutes for valet drop-off and 5.0 minutes for valet pick-up was used. Processing times include the time for the exchange between the driver and valet attendants and time to unload and load baggage is assumed for all vehicles valeted. Note that this results in a conservative analysis. Detailed trip length calculations are included in Attachment C.

If the coefficient of utilization (average service rate/valet attendant service capacity) is greater than one (> 1), the calculation methodology does not yield a finite queue length. This result indicates overcapacity conditions for the valet area. The valet attendant service capacity is the number of total trips a valet attendant can make in a one-hour period multiplied by the number of valet attendants.

The analysis determined the required queue storage, *M*, which is exceeded *P* percent of the time. This analysis seeks to ensure that the queue length does not exceed the storage provided at a level of confidence of 95 percent (95%). Three (3) vehicle drop-off/pick-up spaces are provided for valet operations based on the attached site plan for the porte-cochere valet drop-off/pick-up located.

Valet Analysis

An iterative approach was used to determine the number of valet attendants required to accommodate the proposed redevelopment demand during the analysis hour and ensure that the 95th percentile valet queue does not extend beyond the designated valet service area. Detailed valet analysis worksheets are provided in Attachment D.

Results of the highest demand condition valet operations analysis demonstrate that seven (7) valet attendants would be required so that the vehicle drop-off/pick-up storage would not be exceeded.

VALET CONCLUSION

Based on the valet operations analysis performed, it was determined that the 95th percentile valet queues will not extend beyond the valet service area onto 17th Street. Based upon the conservative assumptions applied to the highest traffic demand condition, it was estimated that seven (7) valet attendants may be required during peak periods. It should be noted that projected vehicular volumes and estimated valet processing times were conservatively assumed in the analysis. If it is determined that valet processing times can be performed more efficiently and/or actual traffic volumes are lower than projected, a reduced number of valet attendants may be adequate to serve the site.

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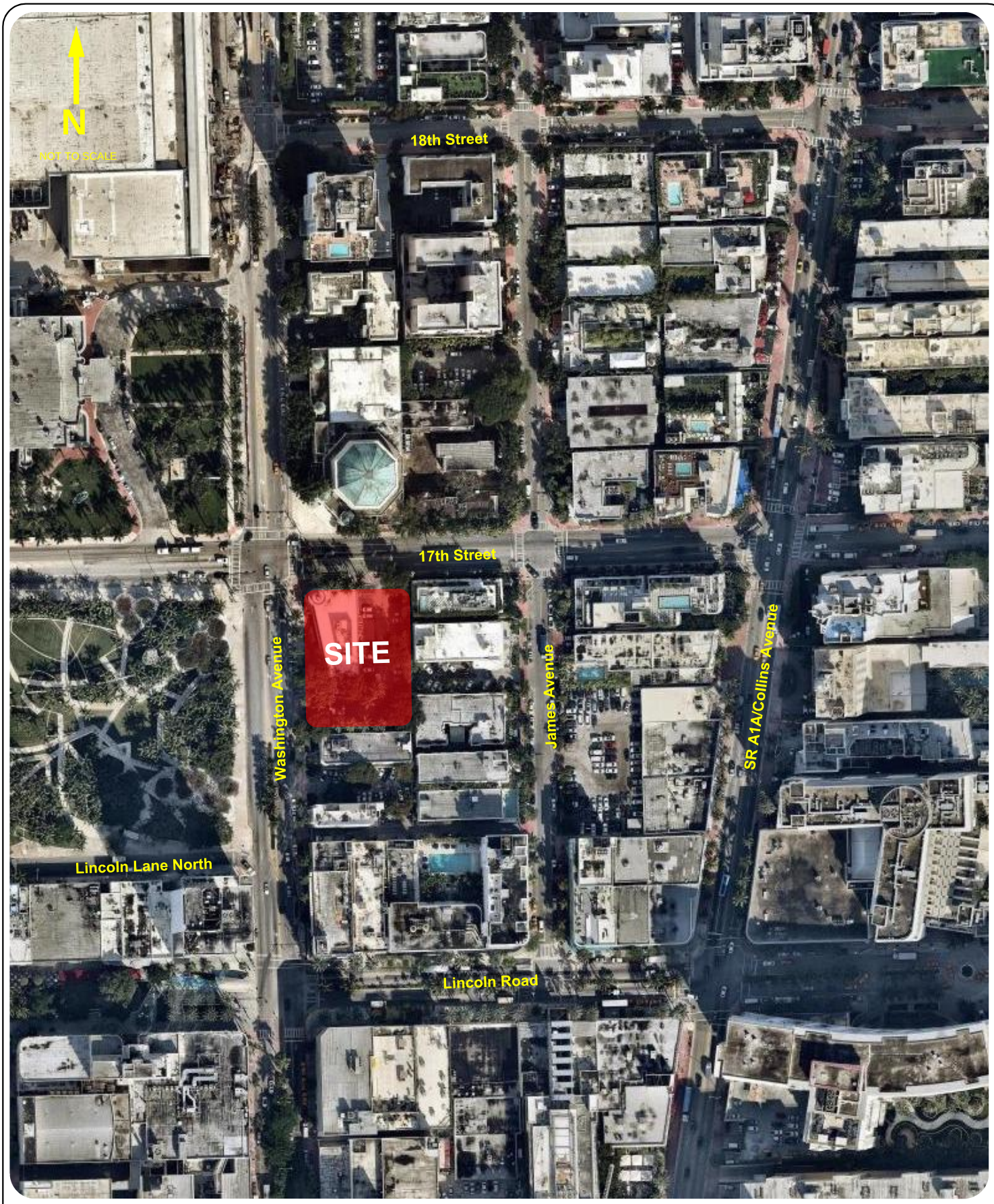
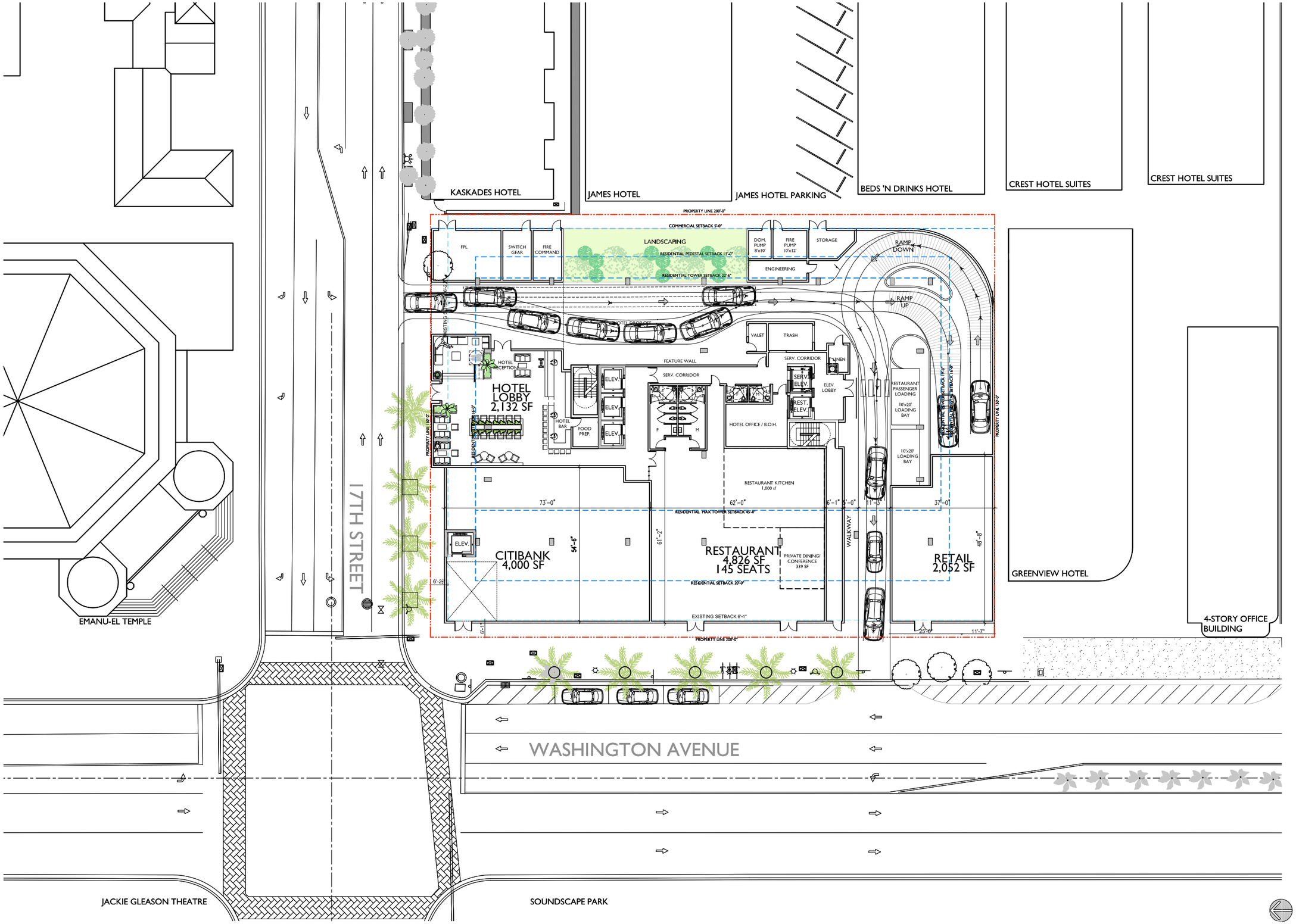
Attachment A

Conceptual Site Plan and Project Location Map



Kimley»Horn

Figure 1
Location Map
1685 Washington Avenue
Miami Beach, Florida



PROPOSED SITE PLAN 1/32" = 1'-0"

MCG
ARCHITECTURE + PLANNING

7580 NE 4th Court
Studio 100
Miami, FL 33138

1723

PROJECT NUMBER

PROJECT:

1685 Washington

1685 Washington Ave
Miami Beach, FL 33139

FINVARB GROUP
CLIENT

RUDY RICCIOTTI architecte
ARTISTIC ADVISOR

DRAWING:

PROPOSED SITE PLAN

SCALE:	N.T.S.
CHECK:	JMcG
DATE:	04/02/2018

SHEET NUMBER

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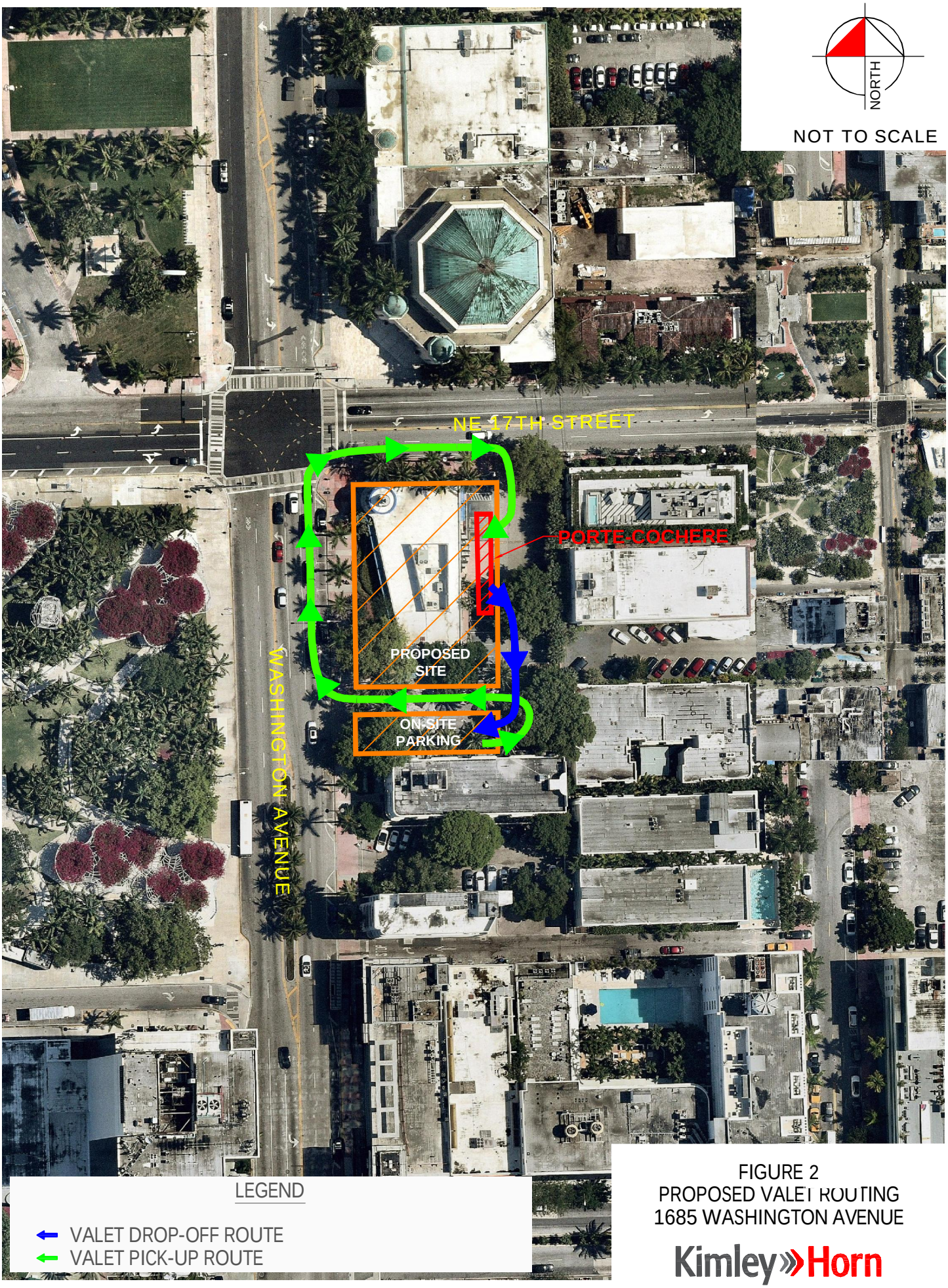


FIGURE 2
PROPOSED VALET ROUTING
1685 WASHINGTON AVENUE

Kimley»Horn

Drawing name: K:\FTL_TPTO\043896000-1685 Washington Avenue\CADD\Valet\Valet Figures.dwg Figure 6 Jan 08, 2018 12:54pm by: cory.dorman

Attachment B

Trip Generation

PM PEAK HOUR TRIP GENERATION COMPARISON

EXISTING WEEKDAY PM PEAK HOUR TRIP GENERATION

		ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		GROSS VOLUMES			MULTIMODAL REDUCTION[1]		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL TRIPS			PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS		
		Land Use	ITE Edition	ITE Code	Scale	ITE Units	Percent In	Percent Out	In	Out	Total	Percent	Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
GROUP 1	1	Drive-In Bank	9	912	6.644	ksf	50%	50%	81	80	161	31.7%	51	55	55	110	0.0%	0	55	55	110	35.0%	39	36	35	71
	2																									
	3																									
	4																									
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code		Rate or Equation				**Total:**	81	80	161	31.7%	51	55	55	110	0.0%	0	55	55	110	35.0%	39	36	35	71
		912		Y=24.3(X)																						

Note: [1]**Multimodal reduction based on census tract data from the US Census Bureau's *Means of Transportation to Work* survey.**

PROPOSED WEEKDAY PM PEAK HOUR TRIP GENERATION

		ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		GROSS VOLUMES			MULTIMODAL REDUCTION[1]		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL TRIPS			PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS		
		Land Use	ITE Edition	ITE Code	Scale	ITE Units	Percent In	Percent Out	In	Out	Total	Percent	Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
GROUP 2	1	Hotel	9	310	150	room	51%	49%	46	44	90	31.7%	29	31	30	61	6.6%	4	29	28	57	0.0%	0	29	28	57
	2	Specialty Retail Center	9	826	2.023	ksf	44%	56%	11	15	26	31.7%	8	8	10	18	31.4%	6	5	7	12	0.0%	0	5	7	12
	3	Walk-in Bank	9	911	4	ksf	44%	56%	22	27	49	31.7%	16	15	18	33	31.4%	10	11	12	23	0.0%	0	11	12	23
	4	Quality Restaurant	9	931	295	seat	67%	33%	52	25	77	31.7%	24	36	17	53	34.0%	18	26	9	35	44.0%	15	15	5	20
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code		Rate or Equation				**Total:**	131	111	242	31.7%	77	90	75	165	23.0%	38	71	56	127	11.8%	15	60	52	112
		310		Y=0.6(X)																						
		826		Y=2.4*(X)+21.48																						
		911		Y=12.13(X)																						
		931		Y=0.26(X)																						

	IN	OUT	TOTAL
NET NEW TRIPS	**24**	**17**	**41**

Note: [1]**Multimodal reduction based on census tract data from the US Census Bureau's *Means of Transportation to Work* survey.**

	IN	OUT	TOTAL
PROPOSED VEHICLE TRIPS	71	56	127
WALK-IN BANK SELF-PARK TRIPS	11	12	23
NON WALK-IN BANK PROPOSED VEHICLE TRIPS	60	44	104
42.6% TAXI/RIDESHARE TRIPS	25	19	44
PROPOSED VALET TRIPS	**35**	**25**	**60**

Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY (PROPOSED)

GROSS TRIP GENERATION

INPUT

Land Use	P.M. Peak Hour	
	Enter	Exit
Office		
Retail	23	28
Restaurant	36	17
Cinema/Entertainment		
Residential		
Hotel	31	30
	90	75

INTERNAL TRIPS

OUTPUT

Land Use	P.M. Peak Hour	
	Enter	Exit
Office	0	0
Retail	7	9
Restaurant	10	8
Cinema/Entertainment	0	0
Residential	0	0
Hotel	2	2
	19	19

OUTPUT

Total % Reduction	*23.0%*
Office	
Retail	31.4%
Restaurant	34.0%
Cinema/Entertainment	
Residential	
Hotel	6.6%

EXTERNAL TRIPS

OUTPUT

Land Use	P.M. Peak Hour	
	Enter	Exit
Office	0	0
Retail	16	19
Restaurant	26	9
Cinema/Entertainment	0	0
Residential	0	0
Hotel	29	28
	71	56

B08301

MEANS OF TRANSPORTATION TO WORK
Universe: Workers 16 years and over
2011-2015 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

(105 + 183) / 909 = 31.68%

	Census Tract 42.06, Miami-Dade County, Florida	
	Estimate	Margin of Error
Total:	909	+/-277
Car, truck, or van:	524	+/-194
Drove alone	509	+/-193
Carpooled:	15	+/-16
In 2-person carpool	8	+/-11
In 3-person carpool	0	+/-13
In 4-person carpool	0	+/-13
In 5- or 6-person carpool	0	+/-13
In 7-or-more-person carpool	7	+/-11
Public transportation (excluding taxicab):	105	+/-77
Bus or trolley bus	56	+/-51
Streetcar or trolley car (carro publico in Puerto Rico)	0	+/-13
Subway or elevated	49	+/-56
Railroad	0	+/-13
Ferryboat	0	+/-13
Taxicab	7	+/-11
Motorcycle	0	+/-13
Bicycle	0	+/-13
Walked	183	+/-123
Other means	25	+/-32
Worked at home	65	+/-42

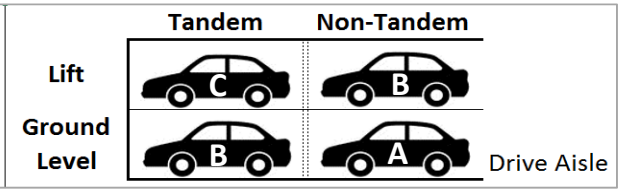
Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Workers include members of the Armed Forces and civilians who were at work last week.

Attachment C

Valet Processing Time

Vehicle Processing Scenarios

Mechanical Lift Layout	

Vehicle A (non-tandem) - Drop-Off

1.	Attendant drives onto lift	10
		10 sec

Vehicle A (non-tandem) - Pick-Up

1.	Attendant drives off of lift	10
		10 sec

Vehicle B (non-tandem): No Vehicle A - Drop-Off

1.	Attendant maneuvers in front of lift	10
2.	Attendant exits vehicle to lower lift	5
3.	Attendant lowers lift	30
4.	Attendant re-enters vehicle and drives onto lift	15
5.	Attendant exits vehicle	5
6.	Attendant raises lift	30
		95 sec

Vehicle B (non-tandem): No Vehicle A - Pick-Up

1.	Attendant lowers lift	30
2.	Attendant enters vehicle and drives off of lift	15
3.	Attendant exits vehicle to raise lift	5
4.	Attendant raises lift	30
5.	Attendant re-enters vehicle	5
		85 sec

Vehicle B (non-tandem): Vehicle A Parked - Drop-Off

1.	Attendant exits Vehicle B	5
2.	Attendant enters Vehicle A	5
3.	Attendant moves Vehicle A to drive aisle	10
4.	Attendant exits Vehicle A	5
5.	Attendant lowers lift	30
6.	Attendant re-enters Vehicle B and drives onto lift	15
7.	Attendant exits Vehicle B	5
8.	Attendant raises lift	30
9.	Attendant re-enters Vehicle A and drives into parking space	15
10.	Attendant exits Vehicle A	5
		125 sec

Vehicle B (non-tandem): Vehicle A Parked - Pick-Up

1.	Attendant moves Vehicle A underneath lift to drive aisle	10
2.	Attendant exits Vehicle A	5
3.	Attendant lowers lift	30
4.	Attendant enters Vehicle B and drives off of lift	15
5.	Attendant exits Vehicle B to raise lift	5
6.	Attendant raises lift	30
7.	Attendant re-enters Vehicle A and drives into parking space	15
8.	Attendant exits Vehicle A	5
9.	Attendant re-enters Vehicle B	5
		120 sec

Vehicle Processing Scenarios

Vehicle B/C (Tandem): Vehicle A and B Parked - Drop-Off

1.	Attendant exits Vehicle C	5
2.	Attendant enters Vehicle A	5
3.	Attendant moves Vehicle A to drive aisle	10
4.	Attendant exits Vehicle A	5
5.	Attendant enters Vehicle B and moves to drive aisle	15
6.	Attendant exits Vehicle B	5
7.	Attendant lowers lift	30
8.	Attendant re-enters Vehicle C and drives into lift	15
9.	Attendant exits Vehicle C	5
10.	Attendant raises lift	30
11.	Attendant re-enters Vehicle B and drives into parking space	15
12.	Attendant exits Vehicle B	5
13.	Attendant re-enters Vehicle A and drives into parking space	15
14.	Attendant exits Vehicle A	5
		165 sec

Vehicle B/C (Tandem): Vehicle A and B Parked - Pick-Up

1.	Attendant moves Vehicle A underneath lift to drive aisle	10
2.	Attendant exits Vehicle A	5
3.	Attendant moves Vehicle B underneath lift to drive aisle	10
4.	Attendant exits Vehicle B	5
5.	Attendant lowers lift	30
6.	Attendant enters Vehicle C and drives of off lift to drive aisle	15
7.	Attendant exits Vehicle C to raise lift	5
8.	Attendant raises lift	30
9.	Attendant re-enters Vehicle B and drives into parking space	15
10.	Attendant exits Vehicle B	5
11.	Attendant re-enters Vehicle A and drives into parking space	15
12.	Attendant exits Vehicle A	5
13.	Attendant re-enters Vehicle C	5
		155 sec

Average Drop-off Processing Time	**99 sec**
Average Pick-up Processing Time	**93 sec**

KLAUS

Parking Systems Atlantic, Inc.

Klaus Model G61 Vehicle lift Processing time:

- 7.5 HP Power Pack
- 12 Liters per Minute Valves
- Raising Lift Platform < 30 seconds
  (With Vehicle)
- Lowering Lift Platform < 30 seconds
  (With Vehicle)

When operating Klaus Model G61 Vehicle Lifts with 7.5 HP Power Pack and 12 Liters per Minute Valves, valet can expect the time required to raise platform (With Vehicle) to be no longer than 30 seconds and the time required to lower platform (With Vehicle) no longer than 30 seconds.

Bruce B. Roden Jr.
KLAUS Parking Systems Atlantic, Inc.
Vice President

655 NW. 128th St, North Miami, Fl 33168
O: (305) 687-5733 | F: (305) 687-5734 | Email: Bruce@klauspark.com
www.klausparking.com | www.multiparking.com

1685 Washington Avenue On-Site Parking Calculated Average Travel Time	
VALET DROP-OFF	
VEHICLE TRAVEL TIME	**VALET ATTENDANT TRAVEL TIME**
Travel Times (Assume 10 mph speed)	Travel Times (Assume 5 ft/s speed)
To Valet Garage (In vehicle)	**Return from Valet Garage (Walk/Run) to Valet Area**
Distance / Travel Time	Distance / Travel Time
0.09 miles / 0.6 minutes	0.02 miles / 0.4 minutes
Controlled Delay* 1.0 Minutes	
Average Mechanical-Lift Processing Time 1.7 Minutes	
Total Time 3.7 Minutes	

1685 Washington Avenue On-Site Parking Calculated Average Travel Time	
VALET PICK-UP	
VALET ATTENDANT TRAVEL TIME	**VALET ATTENDANT TRAVEL TIME**
Travel Times (Assume 5 ft/s speed)	Travel Times (Assume 10 mph speed)
To Valet Garage (Walk/Run)	**Return from Valet Garage (In Vehicle) to Valet Area**
Distance / Travel Time	Distance / Travel Time
0.02 miles / 0.4 minutes	0.19 miles / 1.2 minutes
Controlled Delay* 1.0 Minutes	
Average Mechanical Lift Processing Time 1.6 Minutes	
Total Time 4.2 Minutes	

Attachment D

Valet Analysis

1685 Washington Avenue

Highest Demand Condition P.M. Peak Hour

Arrival Rate

IN	OUT	
35	25	veh/hr

Service Rate

IN	OUT	
4.00	5.00	mins/veh

Number of Valet Attendants (N) =	7	
Level of Confidence =	0.95	
Storage Provided On-Site =	4	vehicles
Total Entering and Exiting Vehicles(q) =	60	veh/hr
Service Capacity per N (60 mins/Service Rate) (Q) =	13.58	veh/hr/pos
Average Service Rate (t) =	4.42	mins/veh
rho (t/Q) =	0.631	

N	N-1		
1	0	P(n=0)=	1.000
2	1	P(n=1)=	4.417
3	2	P(n=2)=	9.753
4	3	P(n=3)=	14.359
5	4	P(n=4)=	15.855
6	5	P(n=5)=	14.005
7	6	P(n=6)=	10.309
8	7	P(n=7)=	0.000

P(0) = 1.15%

Service Time = 4.42 mins/veh

Expected (avg.) number of vehicles in the system	E(m)=	0.35	
Expected (avg.) number of vehicles waiting in queue	E(n)=	4.76	
Mean time in the queue	E(w)=	0.35	mins
Mean time in system	E(t)=	4.76	mins

Proportion of customers who wait (P) (E(w) > 0)=	20.18%
Probability of a queue exceeding a length (M) P(x > M)=	5.00%

Queue length which is exceeded 5.00% of the times is equal to 1.8 vehicles