Kimley»Horn

July 1, 2021

Mr. Firat Akcay, M.S.C.E, MBA
City of Miami Beach, Transportation and Mobility Department
1688 Meridian Avenue, Suite 801
Miami Beach, FL 33139

Re: 5333 Collins Avenue
Traffic, Valet, and Maneuverability Assessment

Dear Mr. Akcay:

Kimley-Horn and Associates, Inc. has prepared a traffic assessment for the proposed redevelopment of the property located at 5333 Collins Avenue in Miami Beach, Florida. A project location map and conceptual site plan are included in Attachment A-1. Currently, the existing site is occupied by 121 multifamily residential units. The proposed redevelopment includes 100 multifamily residential units and 220 square feet of retail. Note that the 220 square feet of retail are not expected to be open to the public. However, to provide for a conservative analysis it was included in the trip generation calculations. Trip generation calculations, valet operations analysis, maneuverability analysis, and transportation demand management strategies were included as part of the traffic assessment, consistent with the approved methodology. Location map, site plan, and methodology correspondence are included in Attachment A-1. The following sections summarize the traffic assessment.

TRIP GENERATION

Trip generation calculations for the existing development and the proposed redevelopment were performed using Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 10th Edition. The trip generation for the existing development was determined using ITE Land Use Code (LUC) 222 (Multifamily Housing [High- Rise]). The trip generation for the proposed redevelopment was determined using ITE LUC 222 (Multifamily Housing [High-Rise]) and LUC 820 (Shopping Center). Project trips were estimated for the weekday A.M. and P.M. peak hours.

A multimodal (public transit, bicycle, and pedestrian) factor based on US Census *Means of Transportation to Work* data was reviewed for the census tracts in the vicinity of the site. The US Census data indicated that there is a 2.9 percent (2.9%) multimodal factor within the vicinity of the site. It is expected that a portion of residents, employees, guests, and patrons will choose to walk, bike, or use public transit to and from the site.

Internal capture is expected between complementary land uses within the project. Internal capture trips for the project were determined based upon methodology contained in the ITE's *Trip Generation Handbook,* 3rd Edition. An internal capture rate of 4.2 percent (4.2%) is expected for the proposed redevelopment during the P.M. peak hour.

The project is expected to result in a reduction of six (6) net new vehicle trips during the weekday A.M. peak hour and a reduction of five (5) net new vehicle trips during the weekday P.M. peak hour. Detailed trip generation calculations are included as Attachment B-1.

VALET SERVICE AND OPERATIONS

The redevelopment will be served by one (1) valet drop-off/pick-up area located on-site just east of Collins Avenue. Access to the valet drop-off/pick-up area will be provided via one (1) right-in only driveway located along Collins Avenue just south of 5330 Block and one (1) right-out only driveway located along Collins Avenue just north of 5330 Block. The valet drop-off/pick-up area consists of one (1) valet drop-off/pick-up lane with storage for approximately four (4) vehicles and one (1) by-pass lane. It is assumed that three (3) spaces will be used for valet operations and one (1) space will be used for taxi/rideshare vehicles.

Note that the valet drop-off and pick-up routes will be contained on-site and are not expected to impact the external roadway network. The valet drop-off route consists of vehicles exiting the valet drop-off/pick-up area and entering the proposed on-site parking garage. The valet pick-up route consists of vehicles exiting the proposed on-site parking garage and entering the valet drop-off/pick-up area. Refer to the valet routing and queuing plan in Attachment C-1.

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 Collins Avenue. Valet operations were analyzed for the number of valet attendants and required vehicle stacking for the project's anticipated valet trip generation.

Note that the proposed on-site parking garage includes a total of 183 parking spaces consisting of 52 mechanical-lift tandem parking spaces, 16 mechanical-lift parking spaces, 32 tandem parking spaces, 73 conventional parking spaces, six (6) ADA parking spaces, and four (4) electrical charging spaces. For analysis purposes, it was assumed that all vehicles will self-park with the exception of vehicles utilizing the mechanical-lift or tandem parking spaces which are assumed to be valeted. Therefore, it was assumed that 55 percent (55%) of the total external vehicle trips will be valeted.

The valet analysis was prepared for the highest demand scenario (P.M. peak hour). The proposed redevelopment is expected to generate 25 valet trips during the P.M. peak hour, of which 15 enter the site and 10 exit the site. Detailed trip generation calculations are included in Attachment B-1.

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 valet drop-off/pick-up area. 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 and return to the on-site valet drop-off/pick-up area. 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 valet pick-up area. Note that the average mechanical-lift processing time was based on the Klaus Model G61 vehicle lift. The average mechanical-lift and tandem processing time was based on the average processing times of parking and retrieving vehicles from all the various positions within the mechanical-lift and tandem system. The detailed mechanical-lift and tandem processing time analysis is contained in Attachment C-1. 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 (0.5 minutes)
- Valet attendant drives vehicle from valet drop-off area to on-site parking garage (0.7 minutes)
- Valet attendant parks vehicle using mechanical-lift or tandem system (1.5 minutes)
- Valet attendant returns to valet station (1.3 minute)
- **Total service rate: 4.0 minutes**

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

- Valet attendant proceeds to the garage to retrieve the vehicle (1.3 minutes)
- Valet attendant retrieves and moves vehicle from mechanical-lift or tandem system (1.4 minutes)
- Valet attendant drives vehicle from on-site parking garage to the valet pick-up area (0.7 minutes)
- Exchange between valet attendant and driver (0.5 minutes)
- **Total service rate: 3.9 minutes**

The calculated average service time for vehicles valeted from the valet drop-off/pick-up area is 4.0 minutes for valet drop-off and 3.9 minutes for valet pick-up. Detailed travel time calculations are included in Attachment D-1.

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.

Valet Analysis

An iterative approach was used to determine the number of valet attendants required to accommodate the proposed development 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-1.

Results valet operations analysis demonstrate that three (3) valet attendants would be required at the valet drop-off/pick-up area to not exceed the vehicle drop-off/pick-up storage during the P.M. peak hour.

MANEUVERABILITY ANALYSIS

The maneuverability analysis was prepared for the access to the parking garage, valet porte-cochere drop-off area, parking garage, loading, and refuse areas. The analysis was performed using Transoft's *AutoTurn 10* software design vehicle turning templates and vehicle turning templates consistent with American Association of State Highway and Transportation Officials' (AASHTO), *A Policy on Geometric*

Design of Highways and Streets, 2004/2011/2018. The analysis was prepared using passenger car (P) design vehicles for the parking garage access, parking garage, and valet porte-cochere area. Delivery vans comparable to P design vehicles and front-loaded refuse vehicles were used for deliveries and loading activities and refuse collection in the loading area. The following summarizes the results of this analysis.

PARKING GARAGE AND VALET PORTE-COCHERE ACCESS

Access to the on-site valet porte-cochere and parking garage is provided via one (1) right-in only driveway located along Collins Avenue just south of 5330 Block and one (1) right-out only driveway located along Collins Avenue just north of 5330 Block. A P design vehicle will be able to maneuver into and through the valet porte-cochere area and into, around, and out of the parking garage without conflicting with oncoming traffic, refer to Attachment E-1.

LOADING AREA AND ON-SITE REFUSE ACCESS

Access to the loading, delivery, and refuse collection area is provided by the one (1) right-in only driveway located along Collins Avenue just south of 5330 Block and the one (1) right-out only driveway located along Collins Avenue just north of 5330 Block. Delivery vans comparable to P vehicles and front-loaded refuse vehicles will to able to maneuver into the loading area and out of the on-site loading area, refer to Attachment F-1.

TRANSPORTATION DEMAND MANAGEMENT STRATEGIES

Transportation Demand Management (TDM) strategies are proposed to reduce the impacts of the project traffic on the surrounding roadway network. Typical measures promote bicycling and walking, encourage car/vanpooling and offer alternatives to the typical workday hours. Additionally, the applicant will commit to providing the following incentives including:

- Provide 160 long-term bicycle parking spaces (secured)
- Provide wide hallways that can accommodate bikes
- Provide elevators that can accommodate bikes
- Provide bike workroom/shop
- Provide bike washing stations
- Provide shower facility bicyclists can use on-site
- Designated scooter/motorcycle parking spaces

Additionally, please note that a Citi Bike station with nine (9) bicycle docks is located along the west side of Collins Avenue just north of 5300 Block.

CONCLUSION

Based on the valet operations analysis performed, it was determined that the 95th percentile queues will not extend beyond the valet service areas and onto Collins Avenue. Based upon the conservative assumptions applied, it was estimated that three (3) valet attendants would be required at the valet drop-off area/pick-up area during the P.M. peak period. 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.

Additionally, passenger vehicles, loading vehicles, and refuse vehicles will be able to ingress, egress, and travel through the site and loading areas without major conflicts with oncoming traffic.

Furthermore, the applicant will commit to providing the following TDM incentives including:

- Provide 160 long-term bicycle parking spaces (secured)
- Provide wide hallways that can accommodate bikes
- Provide elevators that can accommodate bikes
- Provide bike workroom/shop
- Provide bike washing stations
- Provide shower facility bicyclists can use on-site
- Designated scooter/motorcycle parking spaces

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.

Adrian K. Dabkowski, P.E., PTOE
Vice President

Attachments

ADRIAN K. DABKOWSKI
LICENSE
No. 78828
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

7/1/2021

Adrian K. Dabkowski, P.E., PTOE
Florida Registration Number 78828
Kimley-Horn and Associates, Inc.
8201 Peters Road, Suite 2200
Plantation, Florida 33324
Registry # 00000696

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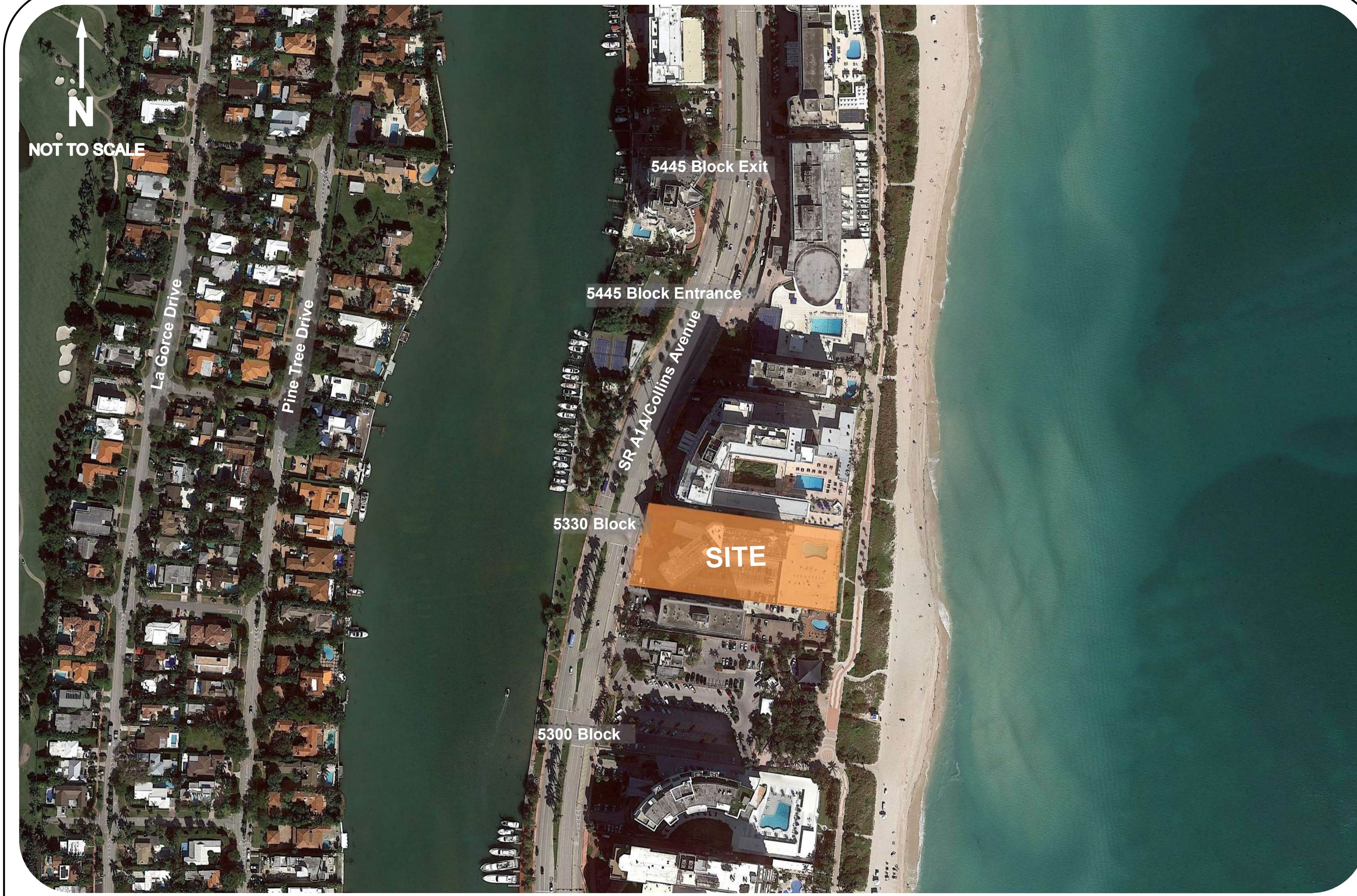
Attachment A-1

Project Location Map, Site Plan, and Methodology Correspondence

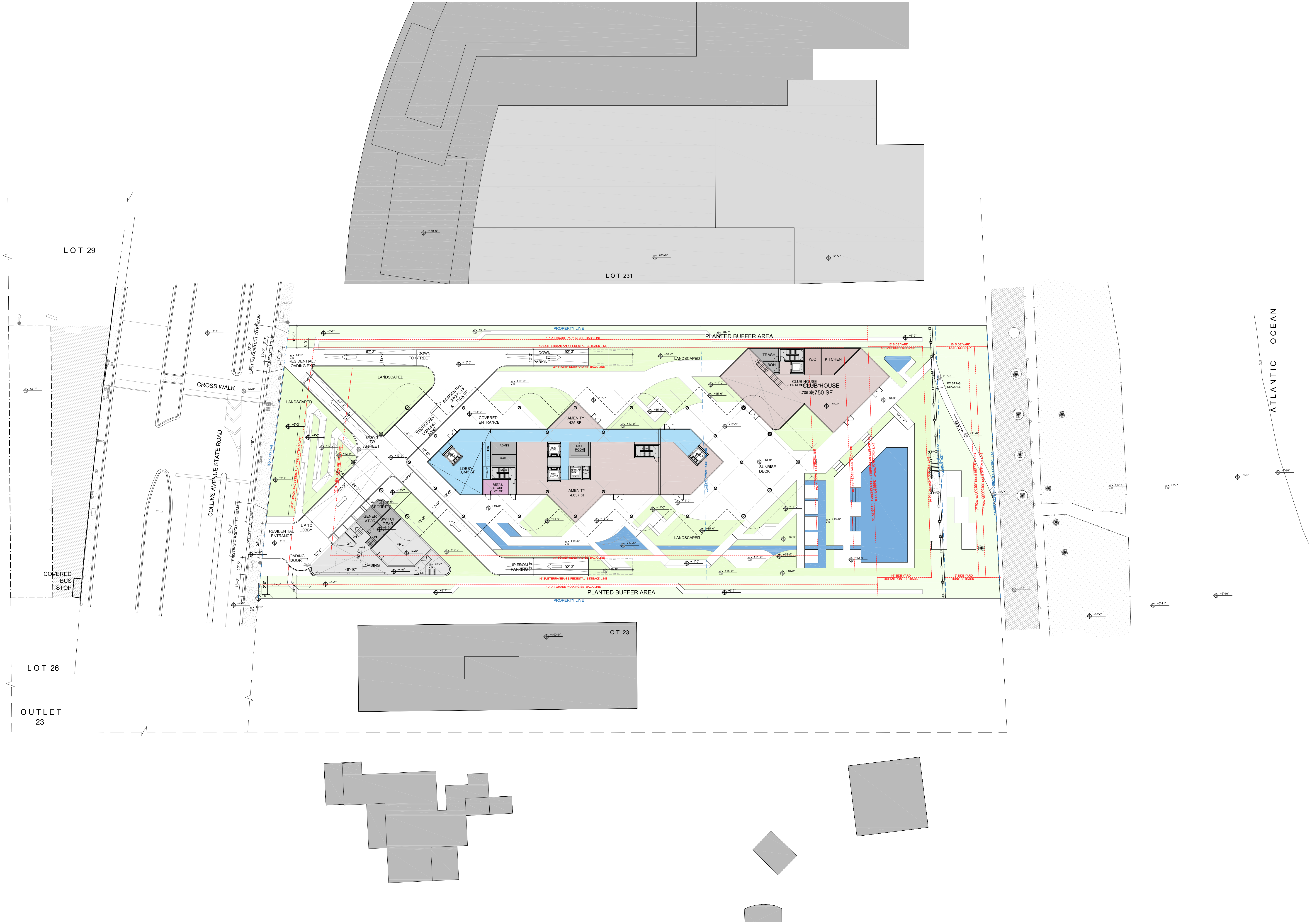
Project Location Map and Site Plan



Kimley»Horn

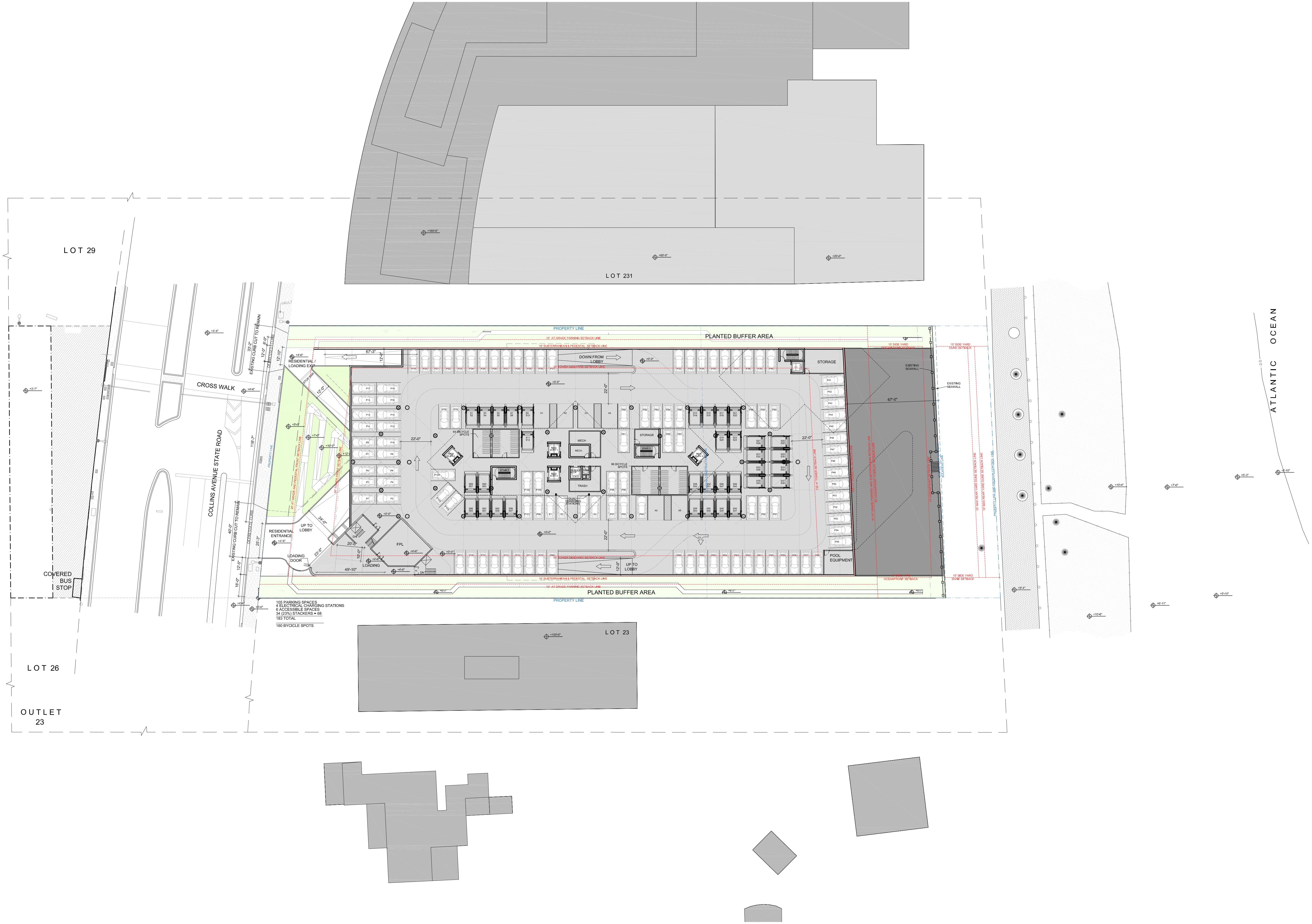
Figure 1
Location Map
5333 Collins Avenue
Miami Beach, Florida

GF



LOT 29
LOT 231
LOT 26
LOT 23
OUTLET 23
CROSS WALK
COLLINS AVENUE STATE ROAD
COVERED BUS STOP
PLANTED BUFFER AREA
PROPERTY LINE
LANDSCAPED
RESIDENTIAL / LOADING EXIT
DOWN TO STREET
DOWN TO PARKING
COVERED ENTRANCE
AMENITY 425 SF
AMENITY 4,637 SF
LOBBY 3,345 SF
ADMIN
BOH
RETAIL STORE 220 SF
TRASH
W/C
KITCHEN
CLUB HOUSE 4,750 SF
SUNRISE DECK
RESIDENTIAL ENTRANCE
UP TO LOBBY
SECURITY
SWITCH GEAR
FPL
LOADING DOOR
LOADING
UP FROM PARKING
EXISTING SEAWALL
ATLANTIC OCEAN

B1



LOT 29
LOT 231
LOT 23
LOT 26
OUTLET
23
ATLANTIC OCEAN
PLANTED BUFFER AREA
PROPERTY LINE
CROSS WALK
COLLINS AVENUE STATE ROAD
EXISTING CURB CUT TO REMAIN
COVERED BUS STOP
RESIDENTIAL / LOADING EXIT
RESIDENTIAL ENTRANCE
UP TO LOBBY
LOADING DOOR
LOADING
FPL
DOWN FROM LOBBY
STORAGE
MECH
TRASH
POOL EQUIPMENT
EXISTING SEAWALL
105 PARKING SPACES
4 ELECTRICAL CHARGING STATIONS
6 ACCESSIBLE SPACES
34 (23%) STACKERS = 68
183 TOTAL
160 BYCICLE SPOTS

Methodology Correspondence

Kimley»Horn

Memorandum

To: Firat Akcay
City of Miami Beach

Cc: Josiel Ferrer, P.E., City of Miami Beach

From: Adrian K. Dabkowski, P.E., PTOE AK
Raquel Selanikio, E.I. RS

Date: May 11, 2021

Subject: 5333 Collins Avenue Redevelopment
Traffic Assessment Methodology

The purpose of this memorandum is to summarize the traffic assessment methodology for the proposed redevelopment of the property located at 5333 Collins Avenue in Miami Beach, Florida. Currently, the existing site is currently occupied by 121 multifamily residential units. The proposed redevelopment includes 100 multifamily residential units and 200 square feet of retail. Note that the 200 square feet of retail are not expected to be open to the public. However, to provide for a conservative analysis it was included in the trip generation calculations. A project location map and conceptual site plan are included in Attachment A. The following sections summarize our proposed methodology.

TRIP GENERATION

Trip generation calculations for the proposed redevelopment were performed using Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 10th Edition. The trip generation for the existing development was determined using ITE Land Use Code (LUC) 222 (Multifamily Housing [High-Rise]). The trip generation for the proposed redevelopment was determined using ITE LUC 222 (Multifamily Housing [High-Rise]) and LUC 820 (Shopping Center). Project trips were estimated for the weekday A.M. and P.M. peak hours.

A multimodal (public transit, bicycle, and pedestrian) factor based on US Census *Means of Transportation to Work* data was reviewed for the census tracts in the vicinity of the site. The US Census data indicated that there is a 2.9 percent (2.9%) multimodal factor within the vicinity of the site. It is expected that a portion of residents, employees, guests, and patrons will choose to walk, bike, or use public transit to and from the site.

Internal capture is expected between complementary land uses within the project. Internal capture trips for the project were determined based upon methodology contained in the ITE's *Trip Generation Handbook,* 3rd Edition. An internal capture rate of 4.3 percent (4.3%) is expected for the proposed development during the P.M. peak hour.

The project is expected to generate a reduction of six (6) net new vehicle trips during the weekday A.M. peak hour and a reduction of five (5) net new vehicle trips during the weekday P.M. peak hour. Detailed trip generation calculations are included as Attachment B.

INTERNAL CIRCULATION

A figure depicting internal circulation and valet routes will be provided.

VALET ANALYSIS

A valet operations queuing analysis will be prepared for the vehicle drop-off/pick-up area to ensure that queues do not spill back into public right-of-way.

Trip generation estimates will be utilized to provide for the highest demand scenario. The valet operations queuing analysis will be conducted consistent with procedures described in ITE's *Transportation and Land Development*, 1988. A traffic circulation figure will be prepared to illustrate the valet routes to and from the vehicle drop-off/pick-up area.

MANEUVERABILITY ANALYSIS

A maneuverabilty analysis for the parking garage and site loading areas will be performed utilizing Transoft Solutions' *AutoTURN* software.

TRANSPORTATION DEMAND MANAGEMENT STRATEGIES

Transportation Demand Management (TDM) strategies will be developed to reduce the impact of project traffic on the surrounding roadway network and promote trip reduction. Typical measures promote bicycling and walking, encourage car/vanpooling and offer alternatives to the typical workday hours.

DOCUMENTATION

The results of the traffic assessment will be summarized in a technical letter. The technical letter will include supporting documents including trip generation calculations, the required number of valet attendants under both typical and highest demand, deficiencies related to maneuverability, traffic flow, and vehicular conflicts, and text and graphics necessary to summarize the assumptions and analysis. An electronic copy of the technical letter will be provided as part of the submittal package.

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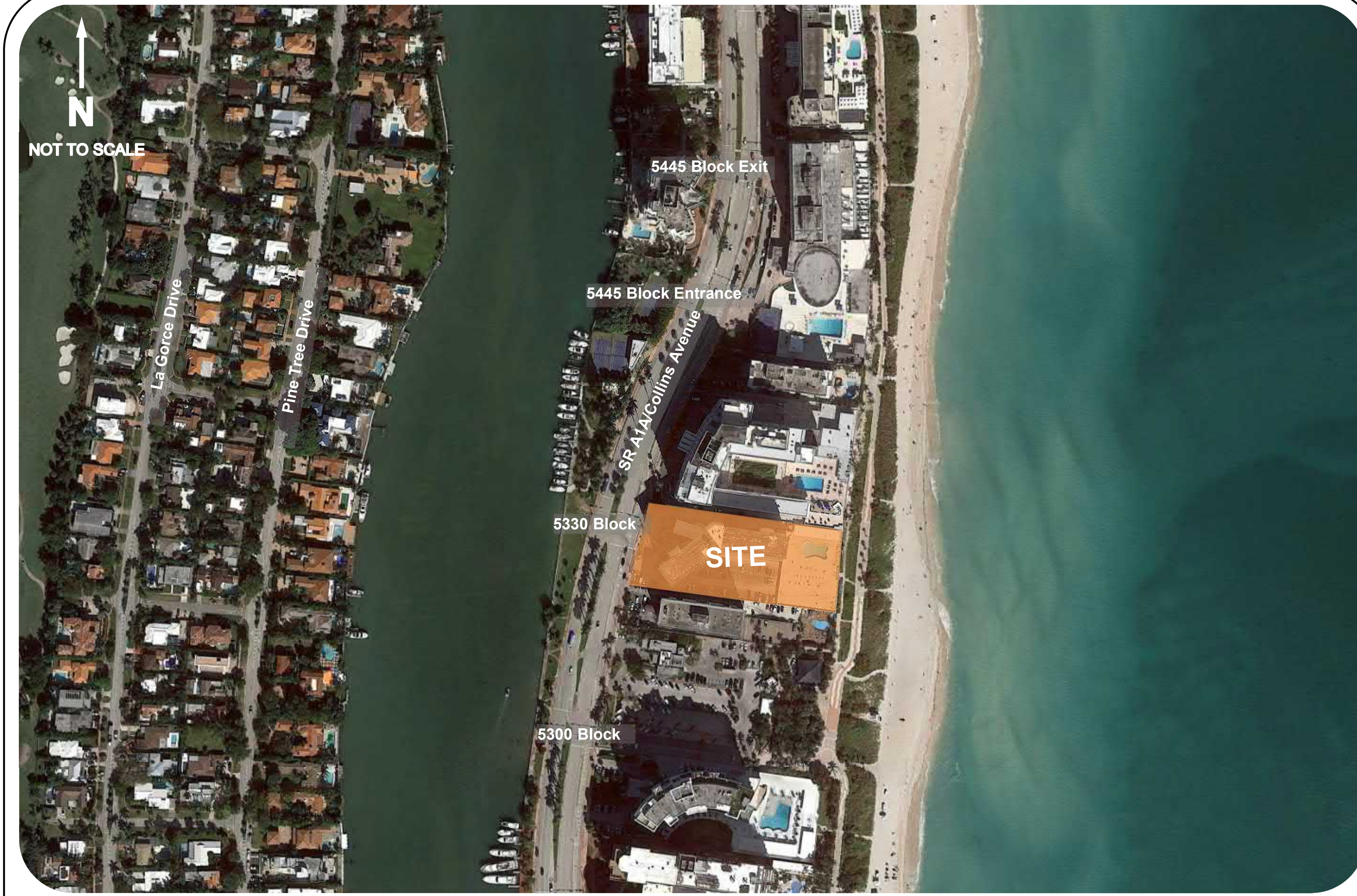
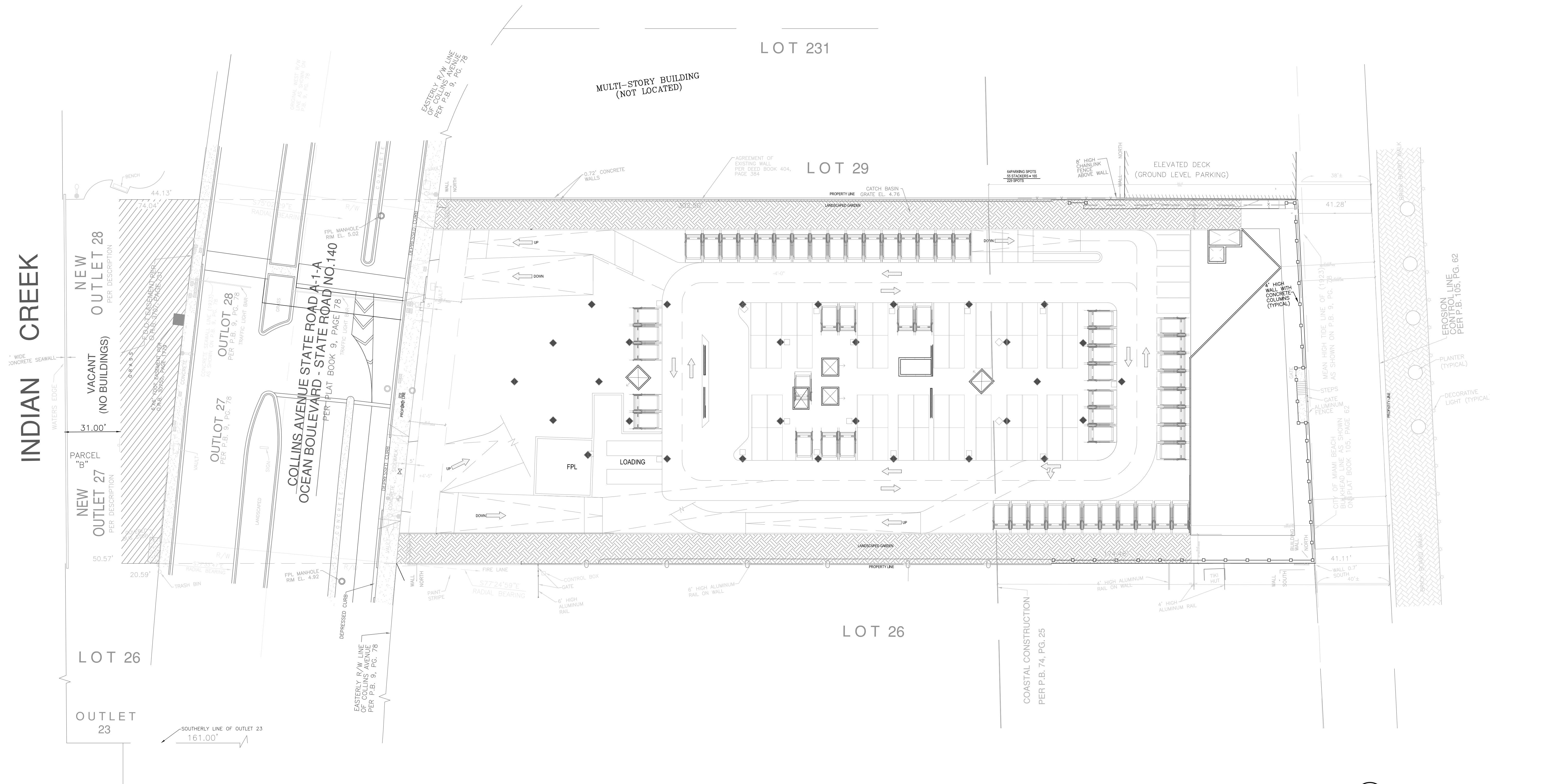
Attachment A

Project Location Map and Site Plan



Kimley»Horn

Figure 1
Location Map
5333 Collins Avenue
Miami Beach, Florida



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ARCHITECTURE AND DESIGN

05.06.2021
5333 COLLINS AVE NUE
MIAMI BEACH , FLORIDA

Attachment B
Trip Generation Calculations

AM PEAK HOUR TRIP GENERATION COMPARISON

EXISTING WEEKDAY AM PEAK HOUR TRIP GENERATION

		ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE 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	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
	1	Multifamily Housing (High-Rise)	10	222	121	du	24%	76%	11	36	47	2.9%	1	11	35	46	0.0%	0	11	35	46	0.0%	0	11	35	46
	2																									
	3																									
	4																									
G	5																									
R	6																									
O	7																									
U	8																									
P	9																									
	10																									
1	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code			Rate or Equation			**Total:**	11	36	47	2.9%	1	11	35	46	0.0%	0	11	35	46	0.0%	0	11	35	46
		222			Y=0.28*(X)+12.86																					

PROPOSED WEEKDAY AM PEAK HOUR TRIP GENERATION

		ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE 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	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
	1	Multifamily Housing (High-Rise)	10	222	100	du	24%	76%	10	31	41	2.9%	1	10	30	40	0.0%	0	10	30	40	0.0%	0	10	30	40
	2	Shopping Center	10	820	0.2	ksf	62%	38%	0	0	0	2.9%	0	0	0	0	0.0%	0	0	0	0	0.0%	0	0	0	0
	3																									
	4																									
G	5																									
R	6																									
O	7																									
U	8																									
P	9																									
	10																									
2	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code			Rate or Equation			**Total:**	10	31	41	2.9%	1	10	30	40	0.0%	0	10	30	40	0.0%	0	10	30	40
		222			Y=0.28*(X)+12.86																					
		820			Y=0.94(X)																					

	IN	OUT	TOTAL
NET NEW TRIPS	**-1**	**-5**	**-6**

PM PEAK HOUR TRIP GENERATION COMPARISON

EXISTING WEEKDAY PM PEAK HOUR TRIP GENERATION

		ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE 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	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
	1	Multifamily Housing (High-Rise)	10	222	121	du	61%	39%	30	20	50	2.9%	1	29	20	49	0.0%	0	29	20	49	0.0%	0	29	20	49
	2																									
	3																									
	4																									
G	5																									
R	6																									
O	7																									
U	8																									
P	9																									
	10																									
1	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code		Rate or Equation				Total:	30	20	50	2.9%	1	29	20	49	0.0%	0	29	20	49	0.0%	0	29	20	49
		222		Y=0.34*(X)+8.56																						

PROPOSED WEEKDAY PM PEAK HOUR TRIP GENERATION

		ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE 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	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
	1	Multifamily Housing (High-Rise)	10	222	100	du	61%	39%	26	17	43	2.9%	1	25	17	42	2.4%	1	24	17	41	0.0%	0	24	17	41
	2	Shopping Center	10	820	0.2	ksf	48%	52%	2	3	5	2.9%	0	2	3	5	20.0%	1	2	2	4	34.0%	1	2	1	3
	3																									
	4																									
G	5																									
R	6																									
O	7																									
U	8																									
P	9																									
	10																									
2	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code		Rate or Equation				Total:	28	20	48	2.9%	1	27	20	47	4.3%	2	26	19	45	2.2%	1	26	18	44
		222		Y=0.34*(X)+8.56																						
		820		LN(Y) = 0.74*LN(X)+2.89																						

	IN	OUT	TOTAL
NET NEW TRIPS	-3	-2	-5

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	A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit
Office	0	0	0	0
Retail	0	0	2	3
Restaurant	0	0	0	0
Cinema/Entertainment	0	0	0	0
Residential	10	30	25	17
Hotel	0	0	0	0
	10	30	27	20

INTERNAL TRIPS

OUTPUT

Land Use	A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit
Office	0	0	0	0
Retail	0	0	0	1
Restaurant	0	0	0	0
Cinema/Entertainment	0	0	0	0
Residential	0	0	1	0
Hotel	0	0	0	0
	0	0	1	1

OUTPUT

Total % Reduction	***0.0%***	***4.3%***
Office		
Retail		20.0%
Restaurant		
Cinema/Entertainment		
Residential	0.0%	2.4%
Hotel		

EXTERNAL TRIPS

OUTPUT

Land Use	A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit
Office	0	0	0	0
Retail	0	0	2	2
Restaurant	0	0	0	0
Cinema/Entertainment	0	0	0	0
Residential	10	30	24	17
Hotel	0	0	0	0
	10	30	26	19

MEANS OF TRANSPORTATION TO WORK

United States Census Bureau

Note: This is a modified view of the original table produced by the U.S. Census Bureau. This download or printed version may have missing information from the original table.

(11+19)/1038=2.9%

	Census Tract 39.22, Miami-Dade County, Florida	
Label	**Estimate**	**Margin of Error**
Total:	1,038	±290
Car, truck, or van:	777	±204
Drove alone	594	±173
Carpooled:	183	±135
In 2-person carpool	143	±126
In 3-person carpool	0	±14
In 4-person carpool	40	±34
In 5- or 6-person carpool	0	±14
In 7-or-more-person carpool	0	±14
Public transportation (excluding taxicab):	11	±19
Bus	11	±19
Subway or elevated rail	0	±14
Long-distance train or commuter rail	0	±14
Light rail, streetcar or trolley (carro público in Puerto Rico)	0	±14
Ferryboat	0	±14
Taxicab	89	±109
Motorcycle	0	±14
Bicycle	0	±14
Walked	19	±31
Other means	18	±22
Worked from home	124	±89

Table Notes

MEANS OF TRANSPORTATION TO WORK

Survey/Program:
American Community Survey
Universe:
Workers 16 years and over
Year:
2019
Estimates:
5-Year
Table ID:
B08301

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.

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

2019 ACS data products include updates to several categories of the existing means of transportation question. For more information, see: Change to Means of Transportation.

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 ACS Technical Documentation). 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.

The 2015-2019 American Community Survey (ACS) data generally reflect the September 2018 Office of Management and Budget (OMB) delineations of metropolitan and micropolitan statistical areas. In certain instances, the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB delineation lists due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Explanation of Symbols:

An "**" entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
An "-" entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution, or the margin of error associated with a median was larger than the median itself.
An "-" following a median estimate means the median falls in the lowest interval of an open-ended distribution.
An "+" following a median estimate means the median falls in the upper interval of an open-ended distribution.

An "***" entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
An "*****" entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
An "N" entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
An "(X)" means that the estimate is not applicable or not available.

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

Attachment B-1

Trip Generation

AM PEAK HOUR TRIP GENERATION COMPARISON

EXISTING WEEKDAY AM PEAK HOUR TRIP GENERATION

		ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE 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	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
	1	Multifamily Housing (High-Rise)	10	222	121	du	24%	76%	11	36	47	2.9%	1	11	35	46	0.0%	0	11	35	46	0.0%	0	11	35	46
	2																									
	3																									
	4																									
G	5																									
R	6																									
O	7																									
U	8																									
P	9																									
	10																									
1	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code			Rate or Equation			Total:	11	36	47	2.9%	1	11	35	46	0.0%	0	11	35	46	0.0%	0	11	35	46
		222			Y=0.28*(X)+12.86																					

PROPOSED WEEKDAY AM PEAK HOUR TRIP GENERATION

		ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE 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	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
	1	Multifamily Housing (High-Rise)	10	222	100	du	24%	76%	10	31	41	2.9%	1	10	30	40	0.0%	0	10	30	40	0.0%	0	10	30	40
	2	Shopping Center	10	820	0.22	ksf	62%	38%	0	0	0	2.9%	0	0	0	0	0.0%	0	0	0	0	0.0%	0	0	0	0
	3																									
	4																									
G	5																									
R	6																									
O	7																									
U	8																									
P	9																									
	10																									
2	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code			Rate or Equation			Total:	10	31	41	2.9%	1	10	30	40	0.0%	0	10	30	40	0.0%	0	10	30	40
		222			Y=0.28*(X)+12.86																					
		820			Y=0.94(X)																					

	IN	OUT	TOTAL
NET NEW TRIPS	-1	-5	-6

K:\FTL_TPTO\043812004-5333 Collins Avenue\calcs\trip gen\TRIP GEN 10_Redevelopment_clean.xlsx: PRINT-AM PEAK HOUR
6/11/2021,1:11 PM

PM PEAK HOUR TRIP GENERATION COMPARISON

EXISTING WEEKDAY PM PEAK HOUR TRIP GENERATION

		ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE 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	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
	1	Multifamily Housing (High-Rise)	10	222	121	du	61%	39%	30	20	50	2.9%	1	29	20	49	0.0%	0	29	20	49	0.0%	0	29	20	49
	2																									
	3																									
	4																									
G	5																									
R	6																									
O	7																									
U	8																									
P	9																									
	10																									
1	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code		Rate or Equation				Total:	30	20	50	2.9%	1	29	20	49	0.0%	0	29	20	49	0.0%	0	29	20	49
		222		Y=0.34*(X)+8.56																						

PROPOSED WEEKDAY PM PEAK HOUR TRIP GENERATION

		ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE 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	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
	1	Multifamily Housing (High-Rise)	10	222	100	du	61%	39%	26	17	43	2.9%	1	25	17	42	2.4%	1	24	17	41	0.0%	0	24	17	41
	2	Shopping Center	10	820	0.22	ksf	48%	52%	3	3	6	2.9%	0	3	3	6	16.7%	1	3	2	5	34.0%	2	2	1	3
	3																									
	4																									
G	5																									
R	6																									
O	7																									
U	8																									
P	9																									
	10																									
2	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code		Rate or Equation				Total:	29	20	49	2.9%	1	28	20	48	4.2%	2	27	19	46	4.3%	2	26	18	44
		222		Y=0.34*(X)+8.56																						
		820		LN(Y) = 0.74*LN(X)+2.89																						

	IN	OUT	TOTAL
NET NEW TRIPS	**-3**	**-2**	**-5**

K:\FTL_TPTO\043812004-5333 Collins Avenue\calcs\trip gen\TRIP GEN 10_Redevelopment_clean.xlsx: PRINT-PM PEAK HOUR
6/11/2021,1:11 PM

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	A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit
Office	0	0	0	0
Retail	0	0	3	3
Restaurant	0	0	0	0
Cinema/Entertainment	0	0	0	0
Residential	10	30	25	17
Hotel	0	0	0	0
	10	30	28	20

INTERNAL TRIPS

OUTPUT

Land Use	A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit
Office	0	0	0	0
Retail	0	0	0	1
Restaurant	0	0	0	0
Cinema/Entertainment	0	0	0	0
Residential	0	0	1	0
Hotel	0	0	0	0
	0	0	1	1

OUTPUT

Total % Reduction	***0.0%***	***4.2%***
Office		
Retail		16.7%
Restaurant		
Cinema/Entertainment		
Residential	0.0%	2.4%
Hotel		

EXTERNAL TRIPS

OUTPUT

Land Use	A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit
Office	0	0	0	0
Retail	0	0	3	2
Restaurant	0	0	0	0
Cinema/Entertainment	0	0	0	0
Residential	10	30	24	17
Hotel	0	0	0	0
	10	30	27	19

MEANS OF TRANSPORTATION TO WORK

United States Census Bureau

Note: This is a modified view of the original table produced by the U.S. Census Bureau. This download or printed version may have missing information from the original table.

(11+19)/1038=2.9%	Census Tract 39.22, Miami-Dade County, Florida	
Label	**Estimate**	**Margin of Error**
Total:	1,038	±290
Car, truck, or van:	777	±204
Drove alone	594	±173
Carpooled:	183	±135
In 2-person carpool	143	±126
In 3-person carpool	0	±14
In 4-person carpool	40	±34
In 5- or 6-person carpool	0	±14
In 7-or-more-person carpool	0	±14
Public transportation (excluding taxicab):	11	±19
Bus	11	±19
Subway or elevated rail	0	±14
Long-distance train or commuter rail	0	±14
Light rail, streetcar or trolley (carro público in Puerto Rico)	0	±14
Ferryboat	0	±14
Taxicab	89	±109
Motorcycle	0	±14
Bicycle	0	±14
Walked	19	±31
Other means	18	±22
Worked from home	124	±89

Table Notes

MEANS OF TRANSPORTATION TO WORK

Survey/Program:
American Community Survey
Universe:
Workers 16 years and over
Year:
2019
Estimates:
5-Year
Table ID:
B08301

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Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

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Explanation of Symbols:

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An "-" entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution, or the margin of error associated with a median was larger than the median itself.
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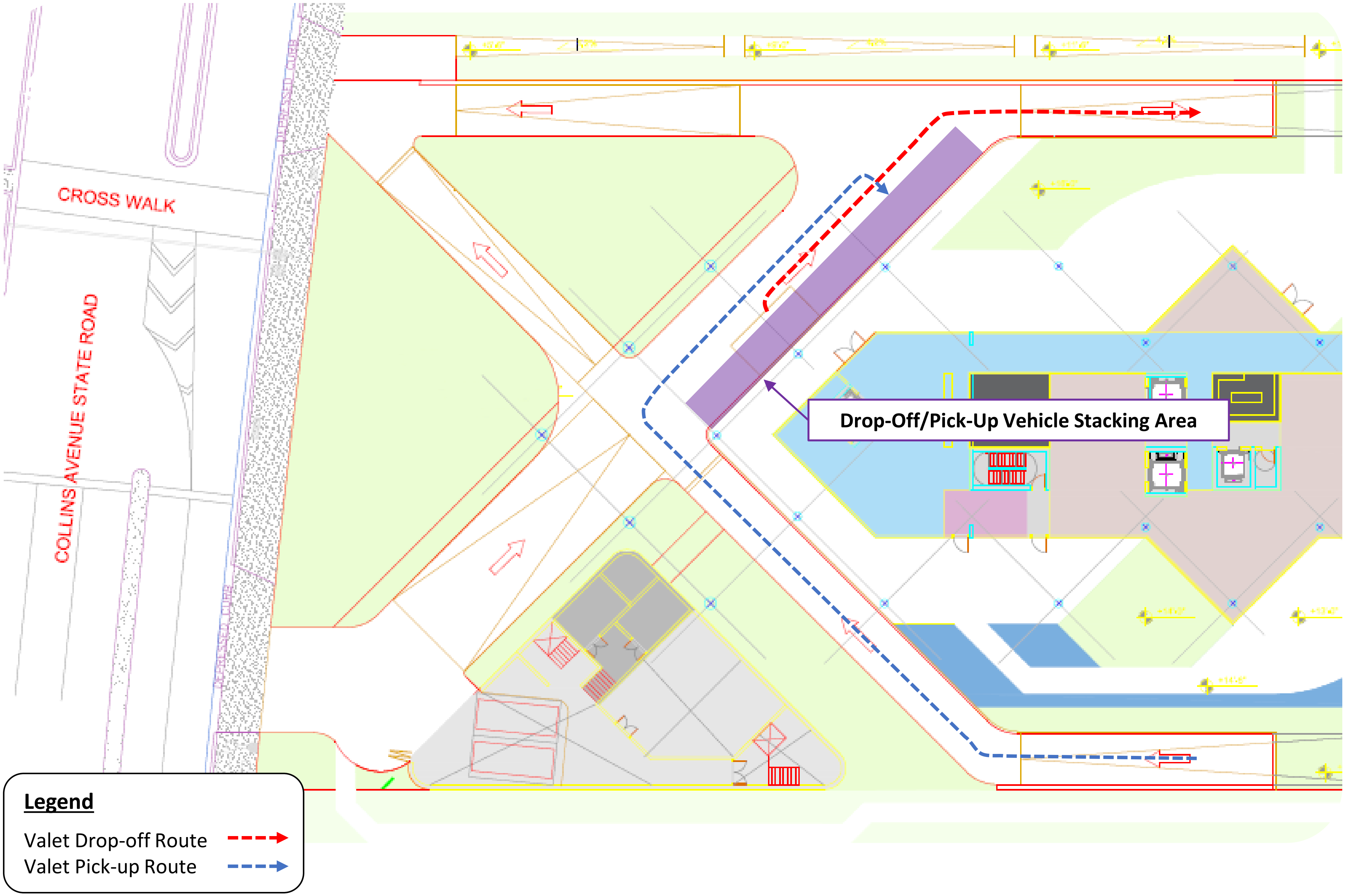
Attachment C-1

Valet Routing and Queueing Plan



Kimley»Horn

Figure 2
Valet Routing
5333 Collins Avenue
Miami Beach, Florida

Attachment D-1

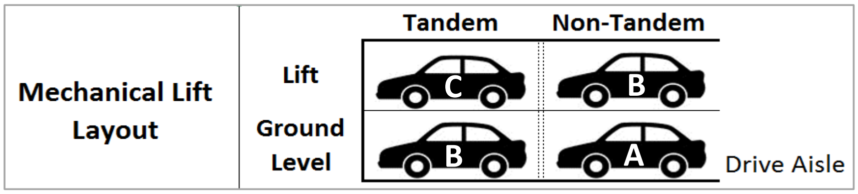
Valet Analysis

Valet Processing Time

5333 Collins On-Site Parking Calculated Average Travel Time					
VALET DROP-OFF					
VEHICLE TRAVEL TIME			**VALET ATTENDANT TRAVEL TIME**		
Travel Times (Assume)	15	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
	0.16 miles	0.7 minutes		0.08 miles	1.3 minutes
Controlled Delay	0.5	Minutes			
Average Mechanical-Lift/Tandem Processing Time	1.5	Minutes			
Total Time	**4.0**	**Minutes**			

5333 Collins On-Site Parking Calculated Average Travel Time					
VALET PICK-UP					
VALET ATTENDANT TRAVEL TIME			**VEHICLE TRAVEL TIME**		
Travel Times (Assume)	5	ft/s speed)	Travel Times (Assume)	15	mph speed)
To Valet Garage (Walk/Run)			**Return from Valet Garage (In Vehicle) to Valet Area**		
Distance		Travel Time	Distance		Travel Time
	0.07 miles	1.3 minutes		0.18 miles	0.7 minutes
Controlled Delay	0.5	Minutes			
Average Mechanical-Lift/Tandem Processing Time	1.4	Minutes			
Total Time	**3.9**	**Minutes**			

Vehicle Processing Scenarios



<u>Vehicle A (non-tandem) - Drop-Off</u>

1.	Attendant drives onto lift	10
		10 sec

<u>Vehicle A (non-tandem) - Pick-Up</u>

1.	Attendant drives off of lift	10
		10 sec

<u>Vehicle B (non-tandem): No Vehicle A - Drop-Off</u>

1.	Attendant maneuvers in front of lift	10
2.	Attendant exits vehicle to lower lift	5
3.	Attendant lowers lift	20
4.	Attendant re-enters vehicle and drives onto lift	15
5.	Attendant exits vehicle	5
6.	Attendant raises lift	30
		85 sec

<u>Vehicle B (non-tandem): No Vehicle A - Pick-Up</u>

1.	Attendant lowers lift	20
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
		75 sec

<u>Vehicle B (non-tandem): Vehicle A Parked - Drop-Off</u>

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	20
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
		115 sec

<u>Vehicle B (non-tandem): Vehicle A Parked - Pick-Up</u>

1.	Attendant moves Vehicle A underneath lift to drive aisle	10
2.	Attendant exits Vehicle A	5
3.	Attendant lowers lift	20
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
		110 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	20
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
		155 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	20
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
		145 sec

Average Drop-off Processing Time	**91 sec**
Average Pick-up Processing Time	**85 sec**

Valet Analysis

P.M. Valet Drop-Off Analysis

Arrival Rate

IN	OUT	
15	10	veh/hr

Service Rate

IN	OUT	
4.00	3.90	mins/veh

Service Time = 4.0 mins/veh

Number of Valet Attendants (N) =	3	
Level of Confidence =	0.95	
Storage Provided On-Site =	3	vehicles
Total Entering and Exiting Vehicles(q) =	25	veh/hr
Service Capacity per N (60 mins/Service Rate) (Q) =	15.15	veh/hr/pos
Average Service Rate (t) =	3.96	mins/veh
rho (t/Q) =	0.550	

Expected (avg.) number of vehicles in the system	E(m)=	0.36	
Expected (avg.) number of vehicles waiting in queue	E(n)=	2.01	
Mean time in the queue	E(w)=	0.86	mins
Mean time in system	E(t)=	4.82	mins

Proportion of customers who wait (P) (E(w) > 0)= 29.32%

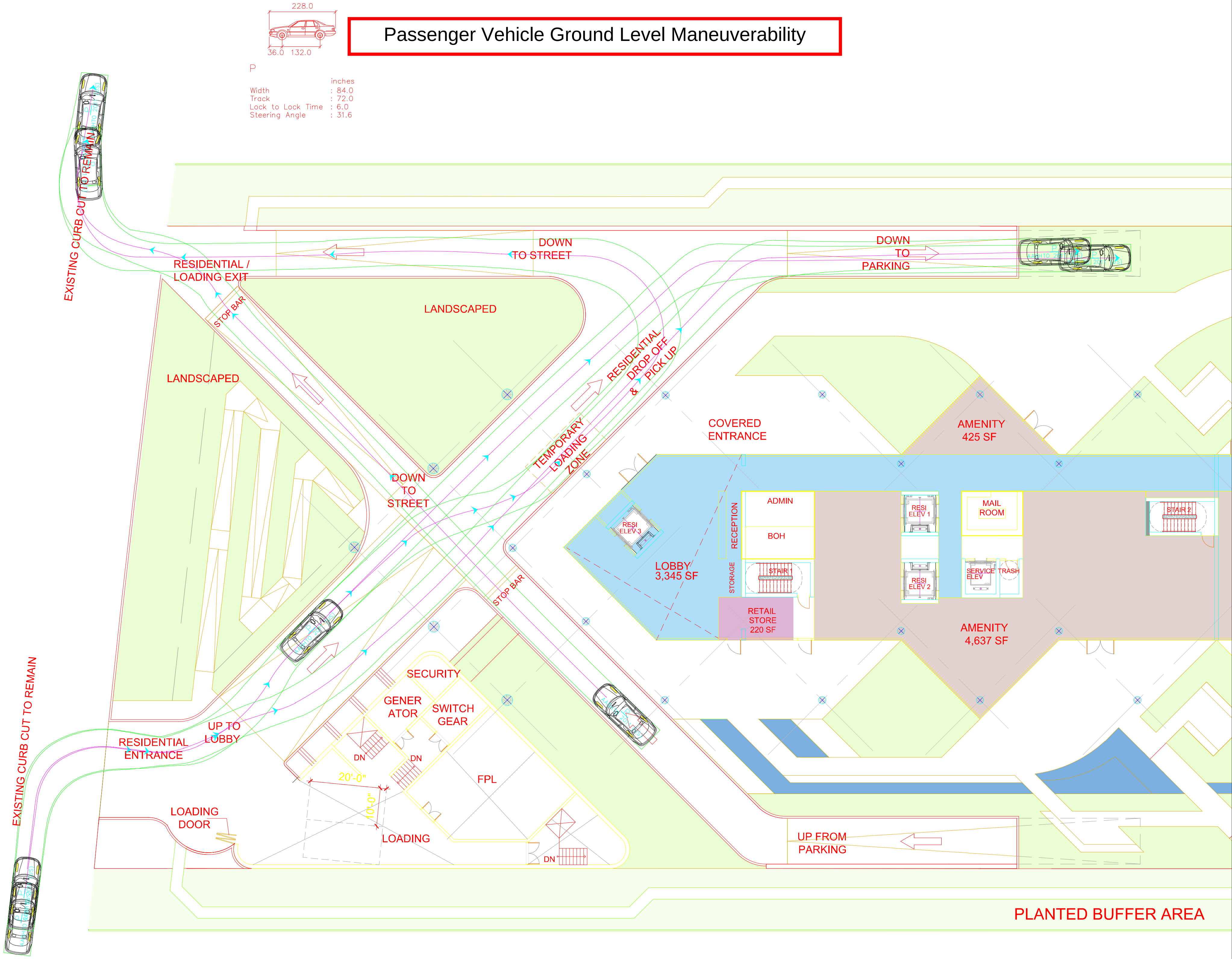
Probability of a queue exceeding a length (M) P(x > M)= 5.00%

Queue length which is exceeded 5.00% of the times is equal to 2.0 vehicles

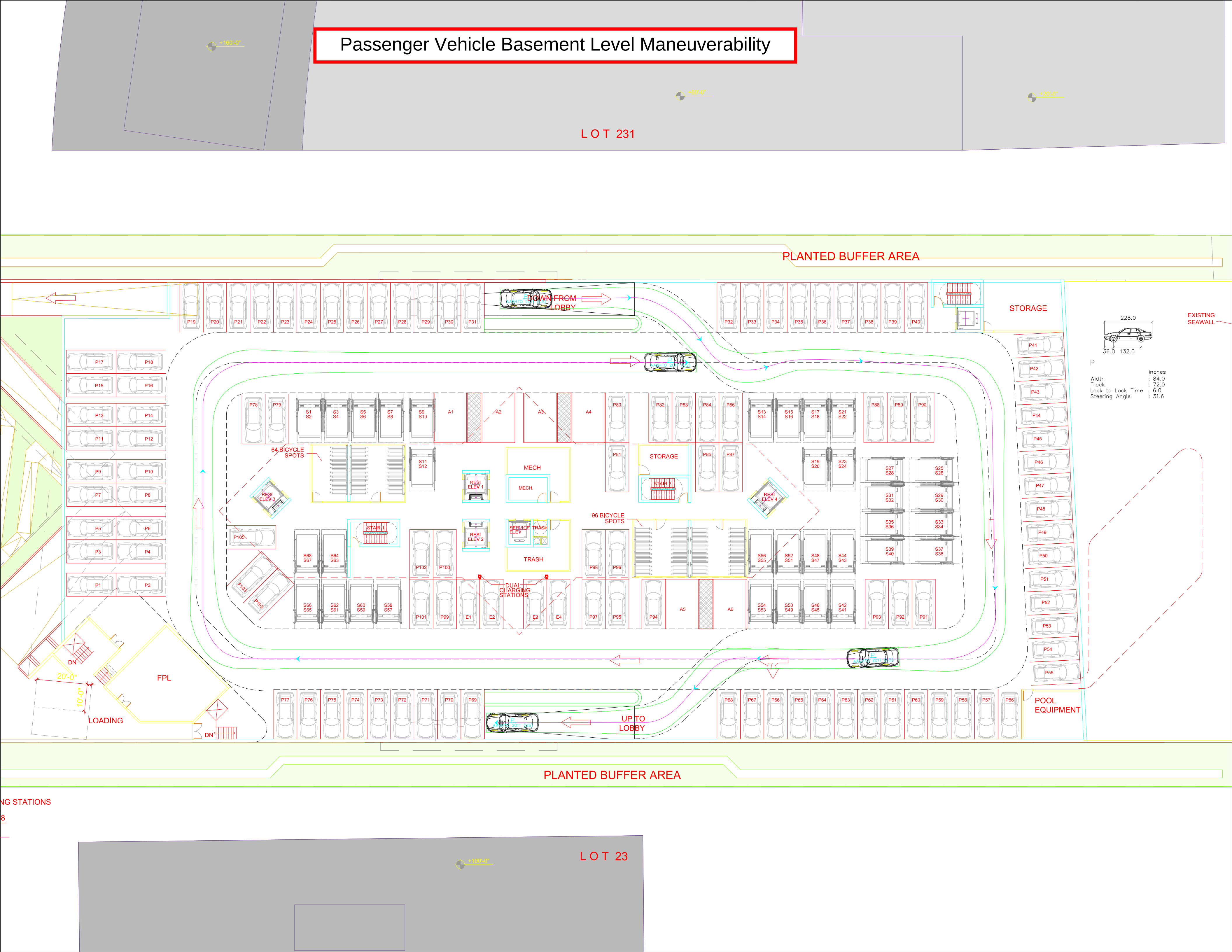
Attachment E-1

Passenger Vehicle Maneuverability Plots

Passenger Vehicle Ground Level Maneuverability



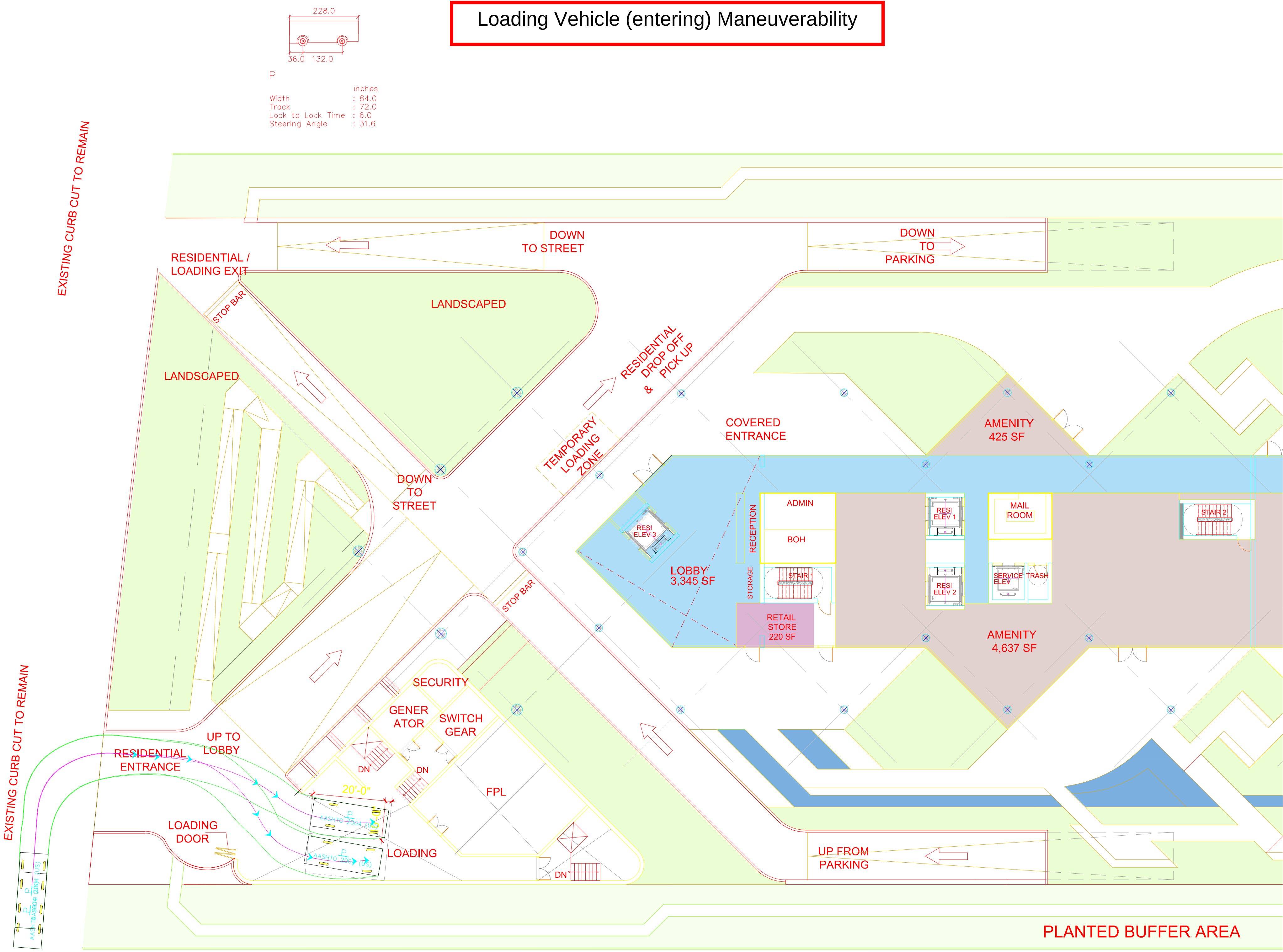
Passenger Vehicle Basement Level Maneuverability



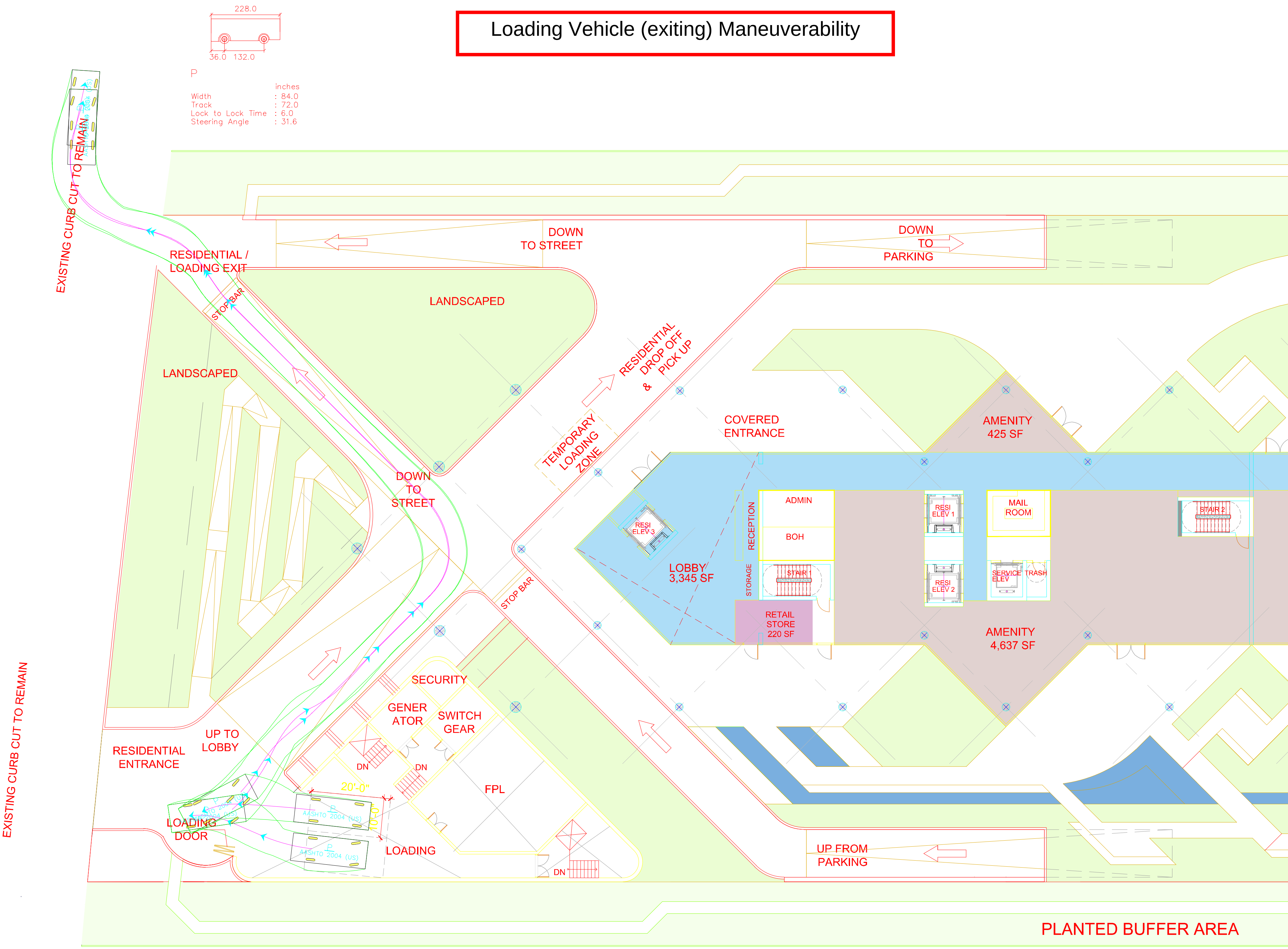
Attachment F-1

Loading and Collection Maneuverability Plots

Loading Vehicle (entering) Maneuverability



Loading Vehicle (exiting) Maneuverability



Refuse Vehicle Maneuverability