Kimley»Horn

MEMORANDUM

To: Grant Webster
City of Miami Beach

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

Date: July 24, 2024

Subject: 1250 West Avenue Redevelopment
Theoretical Traffic Assessment

The purpose of this memorandum is to summarize the traffic assessment prepared for the proposed redevelopment located at 1250 West Avenue Miami Beach, Florida. Although the redevelopment is proceeding through legislative approval at this time, a theoretical traffic assessment was prepared based on a conceptual site plan. Currently, the property proposed for redevelopment is occupied by a residential tower consisting of 239-high rise multifamily residential units. The contemplated proposed redevelopment consists of a mixed-use tower with 100-high rise multifamily residential units and a 180-seat fine dining restaurant. Parking is contemplated to be provided on-site. Residents are contemplated to self-park or valet and resident guests and restaurant patrons will valet. A project location map and conceptual site plan are provided in Attachment A-A. Kimley-Horn and Associates, Inc. has completed this traffic assessment consistent with the approved City of Miami Beach methodology. The approved methodology detailing the traffic assessment requirements is included in Attachment B-B. The following sections summarize the project trip generation calculations, transportation demand management (TDM) strategies, valet operations analysis, and maneuverability analysis.

TRIP GENERATION

Trip generation calculations for the existing development and the proposed redevelopment were performed using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11th 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 LUC 222 (Multifamily Housing [High-Rise]), and (LUC) 931 (Fine Dining Restaurant).

Multimodal Reduction

A multimodal (public transit, bicycle, and pedestrian) factor based on US Census *Means of Transportation to Work* data was reviewed for the census tract in which the redevelopment is located. A multimodal factor of 6.4 percent (6.4%) was determined for the proposed redevelopment. It is expected that a portion of residents, guests, and patrons will choose to walk, bike, or use public transit to and from the proposed redevelopment.

Internal Capture

Internal capture is expected between the 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. Internal capture rates of 4.8 percent (4.8%) for the A.M. peak hour trip generation and 15.1 percent (15.1%) for the P.M. peak hour trip generation are expected for the proposed development.

Pass-By Capture

Pass-by capture trip rates were determined based on average rates provided in the ITE's *Trip Generation Manual*, 11th Edition. A pass-by rate of 44.0 percent (44.0%) based on LUC 931 (Fine Dining Restaurant) was utilized during the P.M. peak hour for the proposed restaurant space.

Proposed Project Trips

As shown in Table 1, the project is expected to result in a reduction of 26 net new weekday A.M. peak hour vehicular trips and a reduction of 19 net new weekday P.M. peak hour vehicular trips, based on the current contemplated redevelopment program. Trip generation calculations may be revised based on revisions to the development program or site plan modifications. Detailed trip generation information is included in Attachment D-D.

Table 1: Peak Hour Trip Generation Summary

A.M. Peak Hour (P.M. Peak Hour)

Future Land Use (ITE Code)	Scale	Entering Trips	Exiting Trips	Net New External Trips
Existing Development				
Multifamily Housing (High Rise) (222)	239 dwelling unit	17 (50)	49 (30)	66 (80)
Proposed Redevelopment				
Multifamily Housing (High-Rise) (222)	100 dwelling unit	10 (25)	27 (14)	37 (39)
Fine Dining Restaurant (931)	180 seat	2 (15)	1 (7)	3 (22)
	Total	12 (40)	28 (21)	40 (61)
Net New Redevelopment				
Net New Project Trips		**-5 (-10)**	**-21 (-9)**	**-26 (-19)**

Transit Route Information

Two (2) City of Miami Beach Trolley routes and one (1) Miami-Dade County Department of Transportation and Public Works (DPTW) route currently operate within the vicinity of the site during the A.M. and P.M. peak hours. Detailed transit route information is included in Attachment C-C.

- **City of Miami Beach Trolley Loop A** operates along Alton Road in the vicinity of the project site with the nearest stop located just north of 13th Street. This route operates with approximately 20-minute headways in a clockwise loop direction during the A.M and P.M. peak hours.
- **City of Miami Beach Trolley Loop B** operates along Alton Road in the vicinity of the project site with the nearest stop located just south of 13th Street. This route operates with approximately 20-minute headways in a counterclockwise loop direction during the A.M and P.M. peak hours.
- **DTPW Route 20** operates along Alton Road in the vicinity of the project site with the nearest stop located just south of 13th Street. This route operates with approximately 15-minute headways in the eastbound and westbound directions during the A.M and P.M. peak hours.

PRELIMINARY TRANSPORTATION DEMAND MANAGEMENT STRATEGIES

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

- Providing transit information within the site including route schedules and maps.
- Designated scooter/motorcycle parking spaces
- Providing wide hallways that can accommodate bikes
- Providing elevators that can accommodate bikes

PRELIMINARY VALET OPERATIONS ANALYSIS

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

Although the redevelopment is proceeding through legislative approval at this time, a theoretical valet analysis was prepared based on a conceptual site plan. The redevelopment may be served by one (1) valet drop-off/pick-up area located onsite within the ground level of the proposed parking garage. 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. Valet vehicles are contemplated to be parked in the on-site parking garage. The project is expected to generate 28 valet trips (8 drop-off and 20 pick-up) during the A.M. peak hour and 55 valet trips (36 drop-off and 19 pick-up) during the P.M. peak hour. Note that the valet trips for this project were split proportionally based on the number of parking spaces currently contemplated to be dedicated for valet. Based on the combined 194 tandem and stacker parking spaces allocated for valet, it was assumed that 70.3 percent (70.3%) of all trips may utilize valet. Detailed trip generation calculations are included in Attachment D-D. These calculations will be refined as part of the site plan application. Graphic illustrations of the proposed valet routes to and from the valet drop-off/pick-up areas are contained in Attachment E-E.

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 off-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 valet pick-up area. Note that the service time for the stacker spaces was conservatively utilized for the analysis as it provides a higher service time than the tandem spaces. The following summarizes the total contemplated valet drop-off and pick-up service times.

The following summarizes the valet drop-off service time:

- Exchange between valet attendant and driver (0.5 minutes)
- Valet attendant drives vehicle from valet drop-off/pick-up area to on-site parking garage (0.3 minutes)
- Valet attendant parks vehicle utilizing mechanical-lift (1.6 minutes)
- Valet attendant returns to valet station (0.7 minutes)
- **Total service rate: 3.1 minutes**

The following summarizes the valet pick-up service time:

- Valet attendant proceeds to the on-site parking garage to retrieve the vehicle (0.7 minutes)
- Valet attendant retrieves vehicle from mechanical-lift (1.0 minutes)
- Valet attendant drives vehicle from on-site parking garage to the valet drop-off/pick-up area (0.4 minutes)
- Exchange between valet attendant and driver (0.5 minutes)
- **Total service rate: 2.6 minutes**

Detailed travel time calculations are included in Attachment E-E.

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%). Four (4) 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 redevelopment demand during the analysis hour and ensure that the 95th percentile valet queue does not extend beyond the designated valet service area.

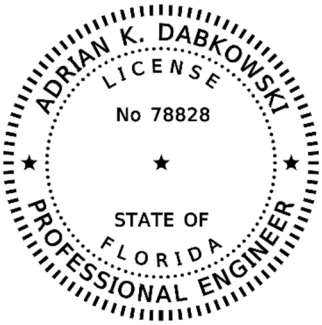
The results of the valet operations analysis demonstrate that three (3) valet attendants would be needed during the A.M. peak hour and five (5) valet attendants would be needed during the P.M. peak hour to ensure that valet queues do not exceed the current contemplated storage. It should be noted that 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. Detailed valet analysis worksheets are provided in Attachment E-E.

PRELIMINARY MANEUVERABILITY ANALYSIS

A maneuverability analysis was prepared for the ground level passenger vehicle circulation areas and loading area. Although the redevelopment is proceeding through legislative approval at this time, a theoretical maneuverability analysis was prepared based on a conceptual site plan. The analysis was performed using Transoft's *AutoTurn 11* 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*, 2018. The analysis was prepared using a passenger car (P) design vehicle for the contemplated parking garage areas and a single-unit 30-foot (SU-30) design vehicle for loading activities.

The preliminary maneuverability evaluated the circulation of passenger and loading vehicles within the site. Note that conflicts will be resolved as part of the site plan application process. Maneuverability analysis plots are included in Attachment F-F.



This item has been digitally signed and sealed by Adrian K. Dabkowski, P.E., PTOE, on the date adjacent to the seal.

Adrian K. Dabkowski

Digitally signed by Adrian K. Dabkowski
DN: C=US + CN=Adrian K. Dabkowski + E=adrian.dabkowski@kimley-horn.com
Date: 2024.07.24 12:29:36-04'00'

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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

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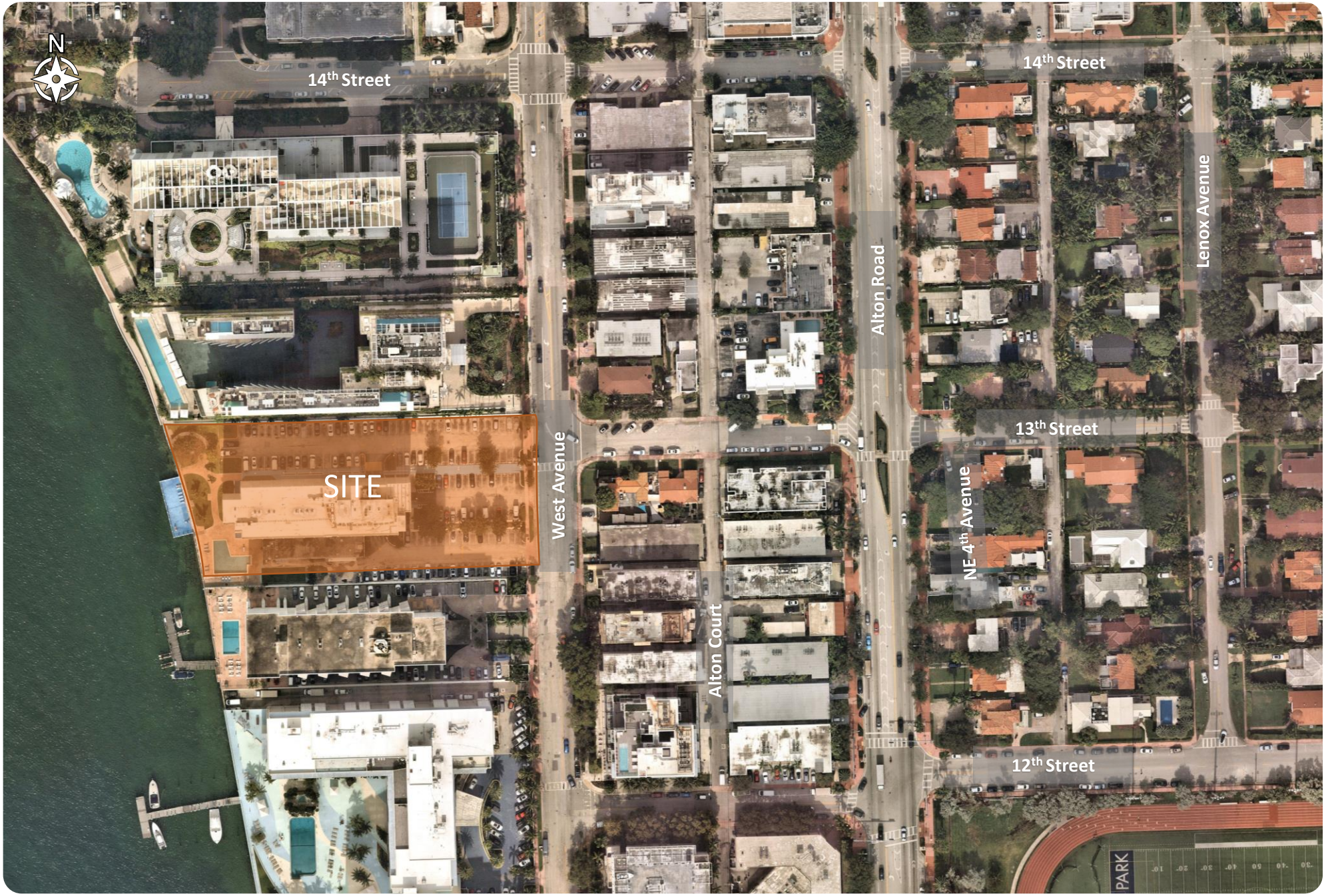
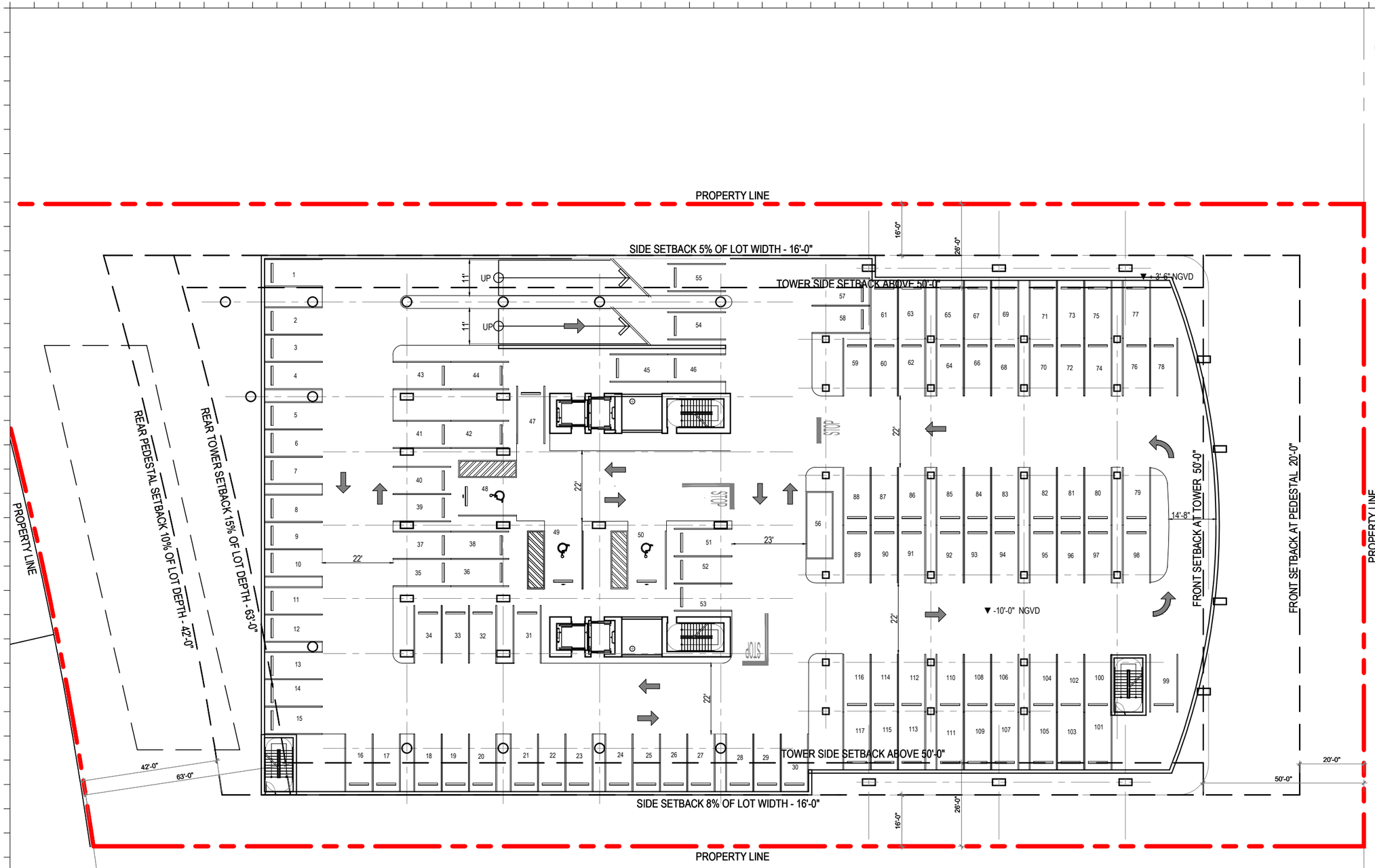
Attachment A-A

Project Location Map and Conceptual Site Plan



Kimley»Horn

Figure 1
Project Location Map
1250 West Avenue
Miami Beach, Florida



1 LEVEL -2 LOWER LEVEL PARKING PLAN
SCALE: 1/32" = 1'-0"

Rev.	Date	Rev.	Date

RM-3 RESIDENTIAL MULTIFAMILY HIGH INTENSITY
MIAMI BEACH, FLORIDA

1250 West Avenue
Miami Beach, Florida, 33139

Owner:
Name
Address
Address
Tel:
Email

Developer:
1250 West Owner LLC C/O JDS Development Group
120NE 27th St
Miami, FL 33137

Structural Engineering:
DeSimone
140 Broadway, 25th Floor
New York, NY 10005
T. 212.532.2211
F. 212.481.6108

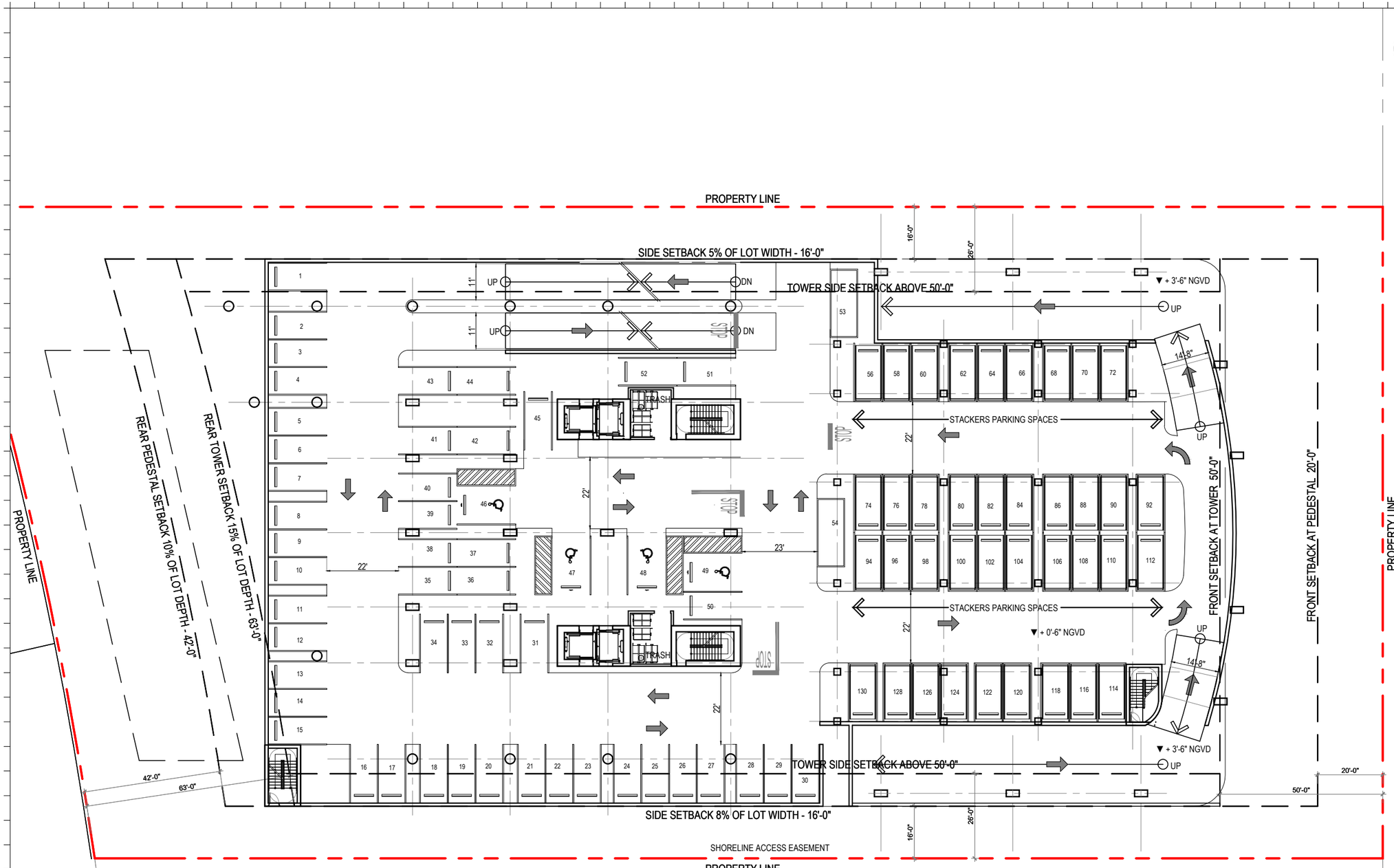
Mechanical Engineering:
MGE
116 West 32nd Street
New York, NY 10001
Tel: 212.643.9055

Architect:
Kobi Karp Architecture and Interior Design, Inc.
571 NW 28th Street
Miami, Florida 33127 USA
Tel: +1(305) 573 1818
Fax: +1(305) 573 3766

KOBI KARP
Lic. # AR0012578

LEVEL -2 PARKING
FLOOR PLAN

Date:	0724/2024	Sheet No.	A3.00
Scale:	AS INDICATED		
Project #:	2412		



1 LEVEL -1 UPPER LEVEL PARKING PLAN
SCALE: 1/32" = 1'-0"

N

Rev.	Date	Rev.	Date

RM-3 RESIDENTIAL MULTIFAMILY HIGH INTENSITY
MIAMI BEACH, FLORIDA

1250 West Avenue
Miami Beach, Florida, 33139

Owner:
Name
Address
Address
Tel:
Email

Developer:
1250 West Owner LLC C/O JDS Development Group
120NE 27th St
Miami, FL 33137

Structural Engineering:
DeSimone
140 Broadway, 25th Floor
New York, NY 10005
T. 212.532.2211
F. 212.481.6108

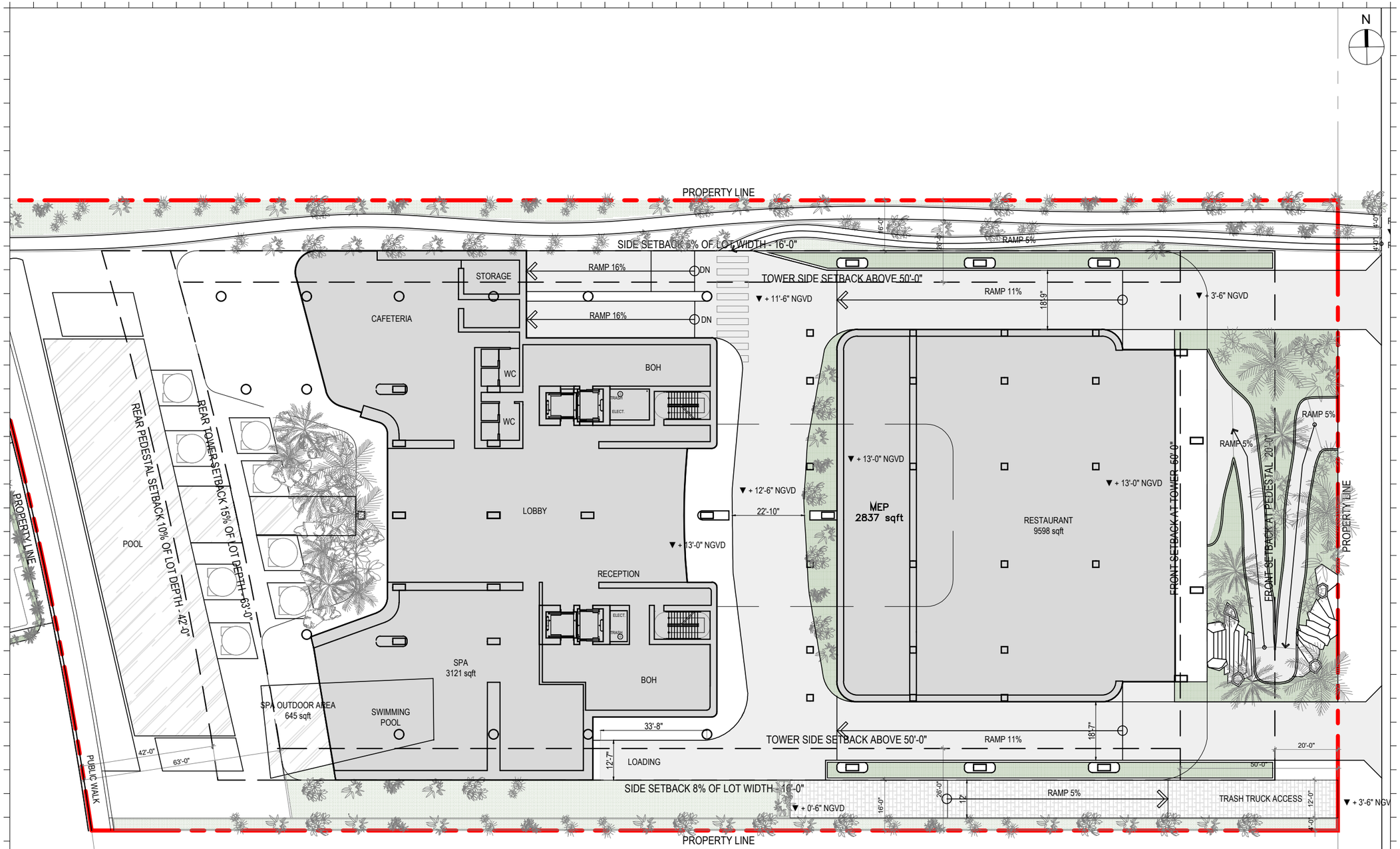
Mechanical Engineering:
MGE
116 West 32nd Street
New York, NY 10001
Tel: 212.643.9055

Architect:
Kobi Karp Architecture and Interior Design, Inc.
571 NW 28th Street
Miami, Florida 33127 USA
Tel: +1(305) 573 1818
Fax: +1(305) 573 3766

KOBI KARP
Lic. # AR0012578

LEVEL -1 PARKING
FLOOR PLAN

Date:	0724/2024	Sheet No.
Scale:	AS INDICATED	A3.01
Project #:	2412	



1 LEVEL 1 - RESIDENTIAL LOBBY PLAN
SCALE: 1/32" = 1'-0"

Rev.	Date	Rev.	Date

RM-3 RESIDENTIAL MULTIFAMILY HIGH INTENSITY
MIAMI BEACH, FLORIDA

1250 West Avenue
Miami Beach, Florida, 33139

Owner:
Name
Address
Address
Tel:
Email

Developer:
1250 West Owner LLC C/O JDS Development Group
120NE 27th St
Miami, FL 33137

Structural Engineering:
DeSimone
140 Broadway, 25th Floor
New York, NY 10005
T. 212.532.2211
F. 212.481.6108

Mechanical Engineering:
MGE
116 West 32nd Street
New York, NY 10001
Tel: 212.643.9055

Architect:
Kobi Karp Architecture and Interior Design, Inc.
571 NW 28th Street
Miami, Florida 33127 USA
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Fax: +1(305) 573 3766

KOBI KARP
Lic. # AR0012578

RESIDENTIAL LOBBY
FLOOR PLAN

Date:	0724/2024	Sheet No.	A3.02
Scale:	AS INDICATED		
Project #:	2412		

Attachment B-B

Approved Methodology

Dabkowski, Adrian

From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>
Sent: Monday, July 15, 2024 9:04 AM
To: Michael W. Larkin; Nicholas J. Rodriguez-Caballero; Rodriguez, Otniel; Belush, Michael; Govardhan Muthyalagari
Cc: Choueiry, Ghassan; Dabkowski, Adrian; Garavito, Alejandro; Angueira, Shallene; Selanikio, Raquel
Subject: Re: TRN24-0016 - 1250 West Avenue - Proposed Legislation

Categories: External

Good morning Michael,

Hope you had a great weekend. Apologies, please disregard the mention of FDOT and curb cut modifications. Got it mixed up with the other projects on Alton.

Thank you

Best

MIAMIBEACH

Grant Webster, *Transportation Planner*
TRANSPORTATION & MOBILITY DEPARTMENT
1700 Convention Center Drive, Miami Beach, FL 33139
Tel: 305-673-7000 Ext. 26839 www.miamibeachfl.gov
E-mail: HarrisonWebster@MiamiBeachFL.gov

From: Michael W. Larkin <MLarkin@brzoninglaw.com>
Sent: Sunday, July 14, 2024 3:49 PM
To: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>; Nicholas J. Rodriguez-Caballero <nrodriguez@brzoninglaw.com>; Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Belush, Michael <MichaelBelush@miamibeachfl.gov>; Govardhan Muthyalagari <gmuthyalagari@hntb.com>
Cc: Choueiry, Ghassan <GhassanChoueiry@miamibeachfl.gov>; 'Dabkowski, Adrian' <Adrian.Dabkowski@Kimley-horn.com>; Garavito, Alejandro <AlejandroGaravito@miamibeachfl.gov>; Angueira, Shallene <ShalleneAngueira@miamibeachfl.gov>; Selanikio, Raquel <raquel.selanikio@kimley-horn.com>
Subject: RE: TRN24-0016 - 1250 West Avenue - Proposed Legislation

Thank you Grant, I understand better now what happened, yes, we will prepare the final TIS.

I have one question relating to the request about the Alton Road curb cut modifications, since this project fronts on West Avenue, what is the reference to Alton Road, we are happy to comply, just let me know.

BERCOW RADELL FERNANDEZ LARKIN + TAPANES
ZONING, LAND USE AND ENVIRONMENTAL LAW

Michael W. Larkin
Bercow Radell Fernandez Larkin + Tapanes
200 S. Biscayne Boulevard, Suite 300, Miami, FL 33131
MLarkin@brzoninglaw.com | www.brzoninglaw.com
O: (305) 377 6231 | F: (305) 377 6222 | M: (305) 505 0526
vCard Biography

From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>
Sent: Friday, July 12, 2024 5:02 PM
To: Michael W. Larkin <MLarkin@brzoninglaw.com>; Nicholas J. Rodriguez-Caballero <nrodriguez@brzoninglaw.com>; Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Belush, Michael <MichaelBelush@miamibeachfl.gov>; Govardhan Muthyalagari <gmuthyalagari@hntb.com>
Cc: Choueiry, Ghassan <GhassanChoueiry@miamibeachfl.gov>; 'Dabkowski, Adrian' <Adrian.Dabkowski@Kimley-horn.com>; Garavito, Alejandro <AlejandroGaravito@miamibeachfl.gov>; Angueira, Shallene <ShalleneAngueira@miamibeachfl.gov>; Selanikio, Raquel <raquel.selanikio@kimley-horn.com>
Subject: Re: TRN24-0016 - 1250 West Avenue - Proposed Legislation

Good afternoon Adrian and Michael,

Apologies, I believe there was a misunderstanding on the City side when reviewing this Methodology in EnerGov. Yes, for legislative applications we will focus on a parcel's ability to absorb additional traffic. In EnerGov there is no way to differ between a regular and legislative application which I believe caused this.

I will issue a Pass in EnerGov. In the meantime, you can begin preparing the final TIS. Per our discussion at the methodology meeting, please include that you will be meeting with FDOT for proposed Alton Road curb cut modifications, you will come back with a formal application later, and discuss where trash and loading will take place as those two operations are relevant even for legislative applications (no on-street operations for either will be approved).

Thank you and have a great weekend!

Best

MIAMIBEACH
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TRANSPORTATION & MOBILITY DEPARTMENT
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E-mail: HarrisonWebster@MiamiBeachFL.gov

We are committed to providing excellent public service and safety to all who live, work and play in our vibrant, tropical, historic community.

Please do not print this e-mail unnecessarily

Kimley»Horn

MEMORANDUM

To: Grant Webster
City of Miami Beach

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

Date: June 13, 2024

Subject: 1250 West Avenue Redevelopment
Traffic Assessment Methodology

The purpose of this memorandum is to summarize the traffic assessment methodology for the proposed redevelopment located at 1250 West Avenue in Miami Beach, Florida. Currently, the site is occupied by a residential tower consisting of 239-high rise multifamily residential units. The proposed redevelopment consists of a mixed-use tower with 100-high rise multifamily residential units and a 180-seat fine dining restaurant. Parking is provided on-site. Residents will be able to self-park or valet and resident guests and restaurant patrons will valet. A location map and conceptual site plan is provided 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*, 11th Edition and ITE's *Trip Generation Handbook*, 3rd Edition for both the existing development and proposed redevelopment plans. 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 931 Fine Dining Restaurant.

A multimodal (public transit, bicycle, and pedestrian) factor based on US Census *Means of Transportation to Work* data was reviewed for the census tract in the vicinity of the redevelopment. A multimodal factor of 6.4 percent (6.4%) was applied to the trip generation calculations to account for the urban environment in which the project site is located. It is expected that some residents, guests, patrons, and employees will choose to walk, bike, or use public transit to and from the redevelopment. Transit route information will be documented in the report. Detailed trip generation calculations and US Census *Means of Transportation to Work* data are included in Attachment B.

Internal capture is expected between the 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 4.8 percent (4.8%) is expected for the proposed redevelopment during the A.M. peak hour and 15.1 percent (15.1%) during the P.M. peak hour.

The proposed redevelopment is expected to result in a reduction of 26 net new vehicle trips during the weekday A.M. peak hour and a reduction of 19 net new vehicle trips during the weekday P.M. peak hour. Trip generation calculations are included as Attachment B.

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.

GARAGE ENTRY GATE OPERATIONS ANALYSIS

A 95th percentile entry gate analysis will be prepared for parking garage entry points if entry gates are provided. The entry gate queuing analysis will be prepared for the weekday A.M. and P.M. peak hours. Entry gate queuing analysis will be conducted consistent with the procedures outlined in ITE's *Transportation and Land Development*, 1988. The purpose of this analysis is to determine any future queue storage deficiencies at the entry gates and provide preliminary recommendations for mitigating these deficiencies.

VALET OPERATIONS ANALYSIS

A valet operations queuing analysis will be prepared for the vehicle drop-off/pick-up area to assess expected vehicle queues.

Trip generation estimates will be utilized to provide for the highest demand scenario either A.M. or P.M. peak hour. 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 maneuverability analysis for the site access and loading vehicle access will be performed utilizing Transoft Solutions' *AutoTURN* software. Deficiencies related to maneuverability, traffic flow, and vehicular conflicts will be documented in a technical memorandum.

A narrative for the loading operations will also be provided as part of the maneuverability analysis.

DOCUMENTATION

The results of the traffic assessment will be summarized in a technical letter. The letter will include graphics and tabulations necessary to summarize the assumptions and analysis. An electronic copy of the letter will be provided as part of the submittal package.

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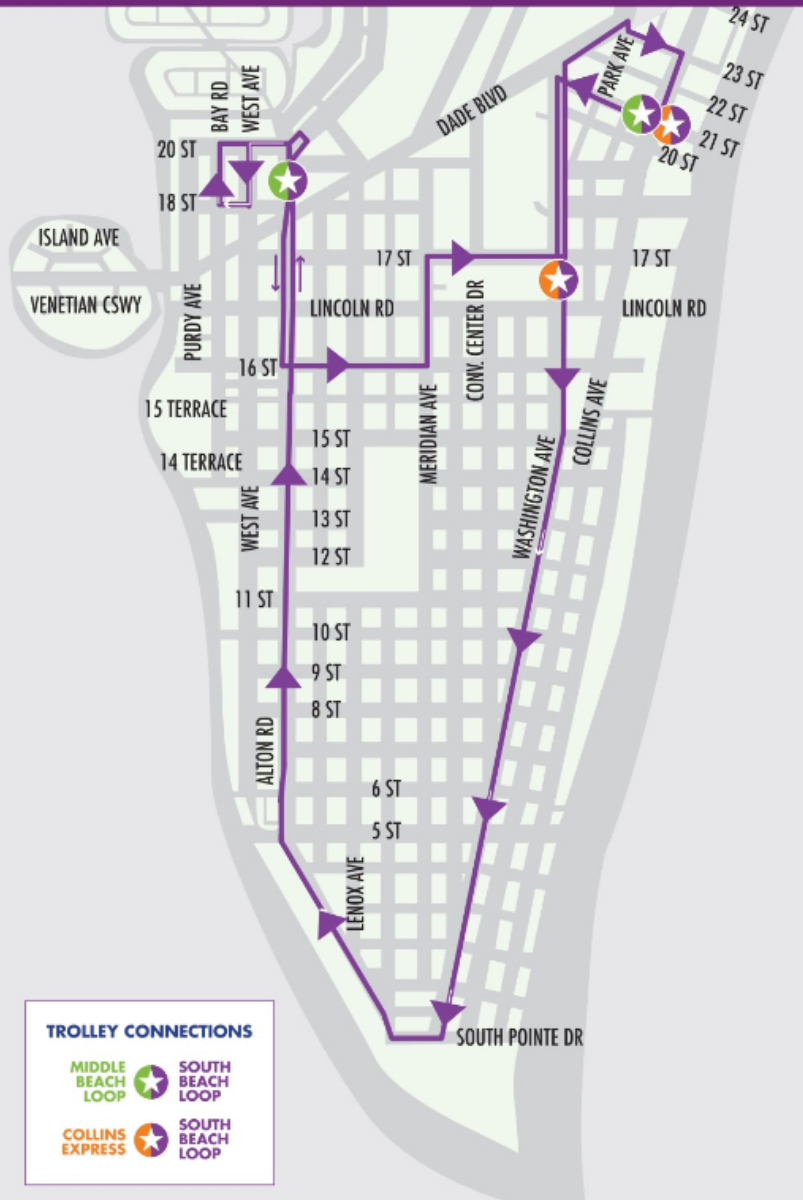
Attachments were removed to avoid duplicate information.

Attachment C-C

Transit Route Information

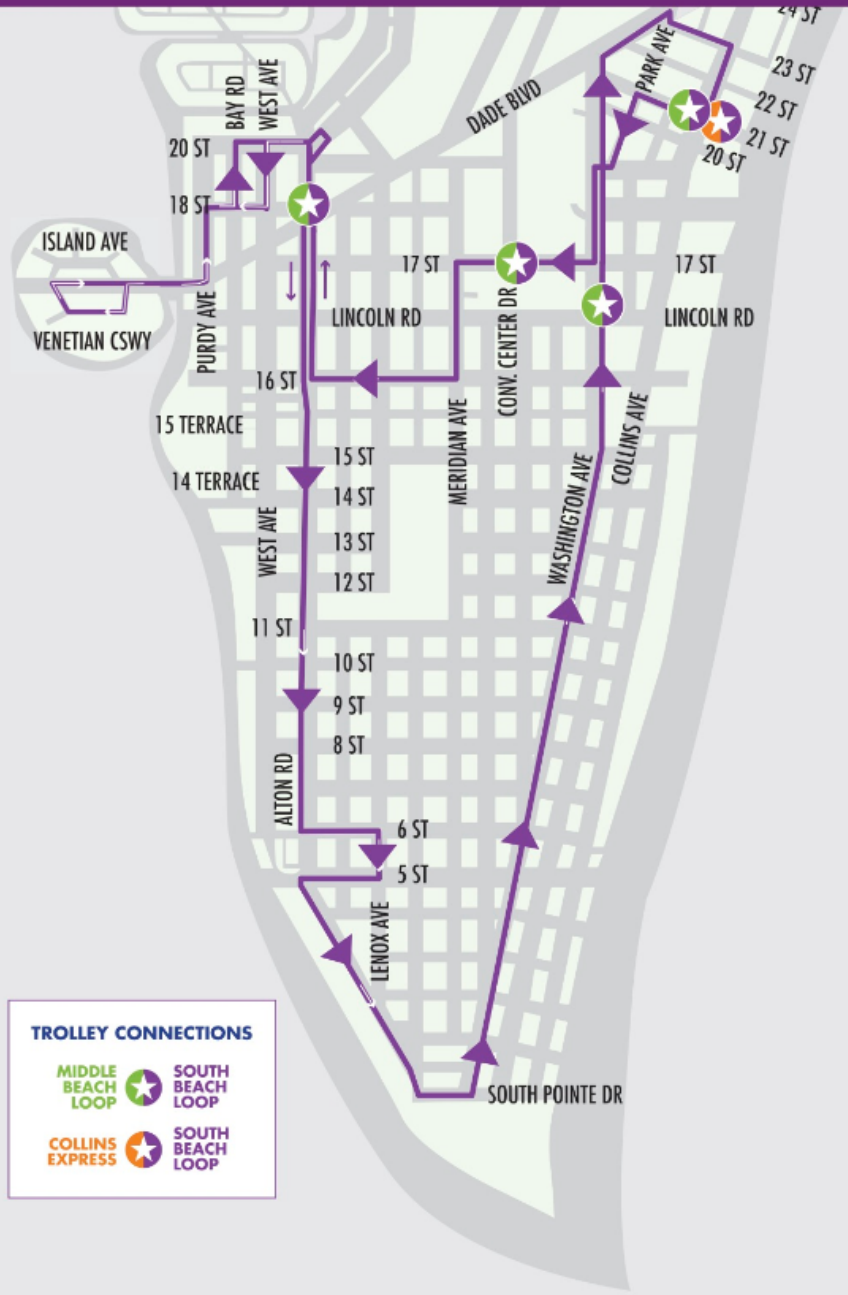
SOUTH BEACH LOOP - A
Clockwise



TROLLEY CONNECTIONS

- MIDDLE BEACH LOOP ↔ SOUTH BEACH LOOP
- COLLINS EXPRESS ↔ SOUTH BEACH LOOP

SOUTH BEACH LOOP - B
Counter Clockwise



TROLLEY CONNECTIONS

- MIDDLE BEACH LOOP ↔ SOUTH BEACH LOOP
- COLLINS EXPRESS ↔ SOUTH BEACH LOOP

SERVICE FREQUENCIES
FRECUENCIAS DE SERVICIO / FREKANS SÈVIS YO

	FROM DESDE / DE	TO HASTA / A	EVERY CADA / CHAK
WEEKDAY DIAS LABORABLES LASEMÈN	4:00 a.m.	6:00 p.m.	30 min
	6:00 p.m.	10:00 p.m.	15 min
	10:00 p.m.	12:00 a.m.	30 min
SATURDAY SÁBADO SAMDI	5:00 a.m.	7:00 a.m.	30 min
	7:00 a.m.	10:00 p.m.	15 min
	10:00 p.m.	12:00 a.m.	30 min
SUNDAY DOMINGO DIMANCH	5:00 a.m.	6:00 a.m.	60 min
	6:00 a.m.	8:00 a.m.	30 min
	8:00 a.m.	8:00 p.m.	20 min
	8:00 a.m.	12:00 a.m.	60 min

Frequencies are approximate and may vary depending on traffic and road conditions.
Las frecuencias son aproximadas, pues dependen del tráfico y otras condiciones de las vías.
Asosye yo apwoksimatif epi yo ka varye selon kondisyon sikilasyon sou wout yo.

Language Assistance: Miami-Dade Transit (MDT) is committed to providing information about its transit services to passengers with limited English as part of its non-discrimination program. MDT publishes route information in Spanish and Haitian Creole and offers assistance in both languages at our Call Center at 3-1-1 or 305- 468-5900. For more information, call MDT's Office of Civil Rights & Labor Relations at 786-469-5486.

Miami-Dade County provides equal access and equal opportunity in employment and does not discriminate on the basis of disability in its programs or services. Auxiliary aids and services for communication are available with five days' advance notice. For material in alternate format (audiotape, Braille or computer disk), a signlanguage interpreter or other accommodations, please contact: Miami-Dade Transit, Office of Civil Rights and Labor Relations, 701 NW 1st Court, Suite 1700, Miami, FL 33136. Attention: ADA Coordinator. Telephone: 786-469-5225, Fax: 786-469-5589. E-mail: DTPW-ADA@miamidade.gov.

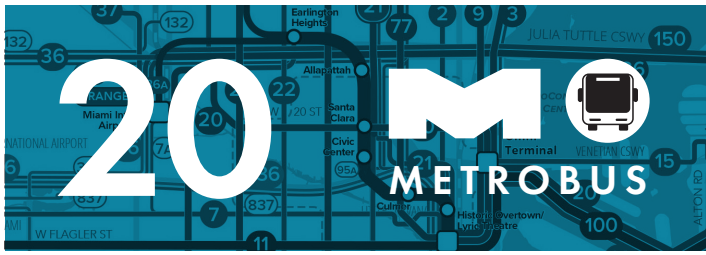
Español: El Departamento de Transporte Público de Miami-Dade (MDT, su sigla en inglés) está dedicado a proveer información sobre sus servicios a los pasajeros que no hablan inglés. MDT publica información sobre sus rutas de autobús en español y creole haitiano y ofrece asistencia en ambos idiomas en nuestro Centro de Llamadas en el 3-1-1 o 305-468-5900. Para más informacion, llame la Oficina de Derechos Humanos y Relaciones Laborales de MDT al 786-469-5486.

El Condado de Miami-Dade ofrece igualdad de acceso y de oportunidades en el empleo y no practica la discriminación por discapacidad, en sus programas o servicios. Los dispositivos y servicios de ayuda auditiva para la comunicación están disponibles previa solicitud, con cinco días de anticipación. Para obtener materiales en formato alternativo (cinta de audio, Braille o disco de computadora), para solicitar un intérprete del lenguaje de las señas u otros servicios similares sírvase llamar a: Transporte de Miami-Dade, Oficina de Derechos Civiles y Relaciones Laborales, 701 NW 1st Court, Suite 1700, Miami, FL 33136. Atención: ADA Coordinator. Teléfono: 786-469-5225, Fax: 786-469-5589. Correo electrónico: DTPW-ADA@miamidade.gov.

Kreyòl Ayisyen: Miami-Dade Transit (MDT) angaje li a bay pasaje ak konesans limite an Anglè yo tout enfòmasyon sou sèvis transpò piblik nan lang pa yo. MDT pibliye enfòmasyon sou trajè otobis yo an Espanyòl ak an Kreyòl Ayisyen epi li bay asistans nan toude lang yo nan Sant Repons nou an 3-1-1 oswa 305-468-5900. Pou plis enfòmasyon, rele Biwo Dwa Sivik ak Relasyon Travay MDT la nan 786-469-5486.

Konte Miami-Dade bay aksè ak opòtinite egal ego nan anplwa epi li pa fè diskriminasyon baze sou enfi mite nan pwogram li yo ak sèvis li yo. Aparèy ak sèvis kominikasyon pou moun ki pa tande/wè byen yo disponib ak yon preyavi senk jou. Pou jwenn dokiman nan lòt fòma (tep odyo, Bray oswa disk konpit), sèvis yon entèprèt ki pale lang siy oswa lòt akomodasyon, tanpri kontakte: Miami-Dade Transit, Biwo Dwa Civil ak Relasyon Travay, 701 NW 1st Court, Suite 1700, Miami, FL 33136. Atansyon: ADA Coordinator. Telefòn: 786-469-5225, Faks: 786-469-5589. Imel: DTPW-ADA@miamidade.gov.

miamidade.gov/transportation
Information • Información • Enfòmasyon
311 (305.468.5900) TTY/Florida Relay: **711**
@GoMiamiDade **GO Miami-Dade Transit**
Download on the App Store | GET IT ON Google Play



MARCH 2024 MARZO 2024 | MAS 2024

- Local service seven days a week.
- Travels from South Beach to Miami International Airport Metrorail Station along Alton Rd, MacArthur Cswy, NW 20 St, and NW 36 St.
- Stops include the Adrienne Arsht Center Metromover Station / Omni Metrobus Terminal.

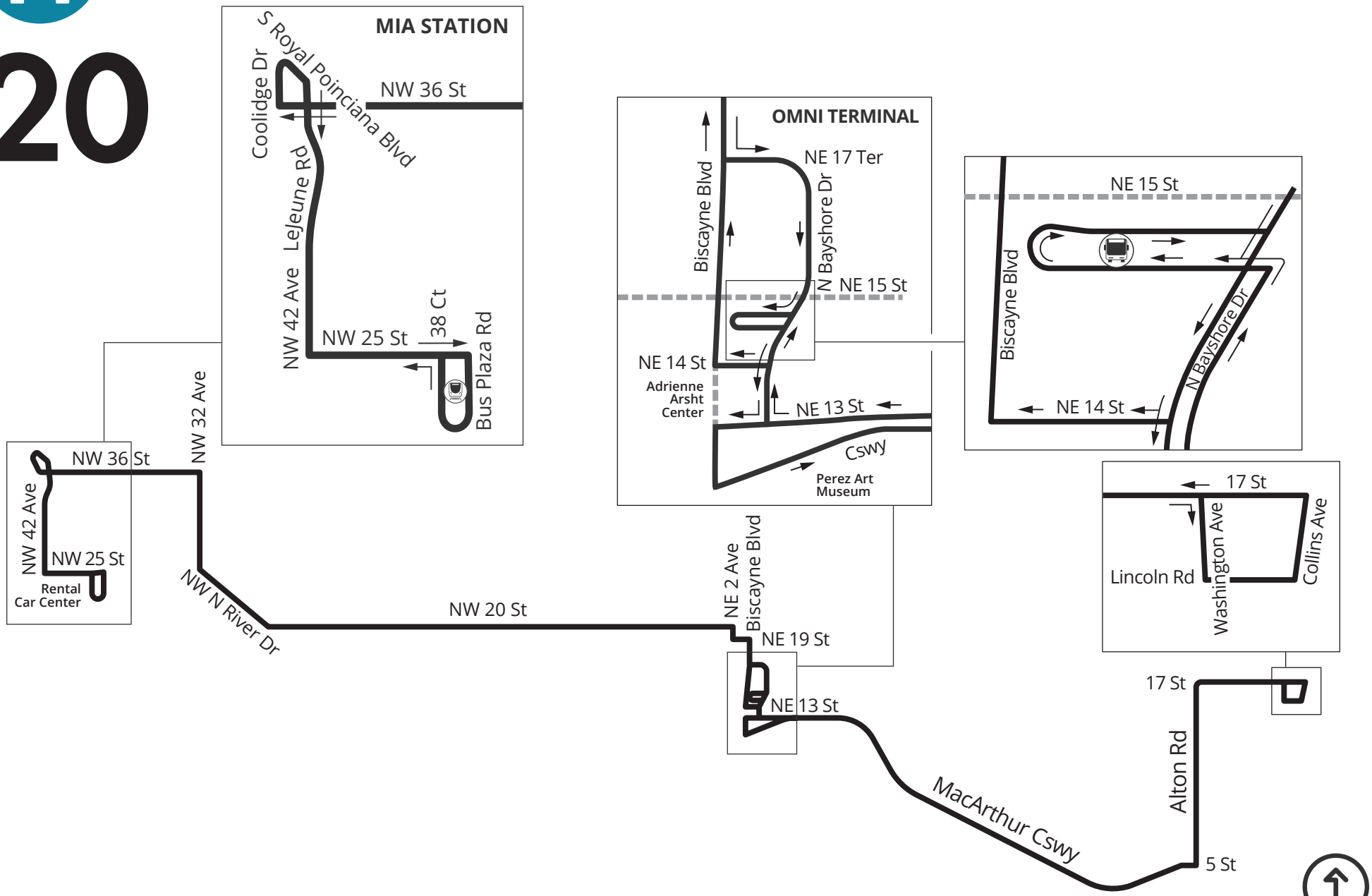
- Servicio local los siete días de la semana.
- Va desde South Beach hasta la estación del Metrorail del Aeropuerto Internacional de Miami, pasando por Alton Road, MacArthur Cswy., NW 20 St y NW 36 St.
- Con parada en la terminal Omni del Metrobús/estación Adrienne Arsht Center del Metromover.

- Sèvis lokal sèt jou sou sèt.
- Vwayaje soti nan South Beach pou rive nan Estasyon Metrorail Ayewopò Entènasyonal Miami an sou Alton Rd, MacArthur Cswy, NW 20 St, ak NW 36 St.
- Arè yo gen ladan Estasyon Metromover Adrienne Arsht Center / Omni Metrobus Terminal.

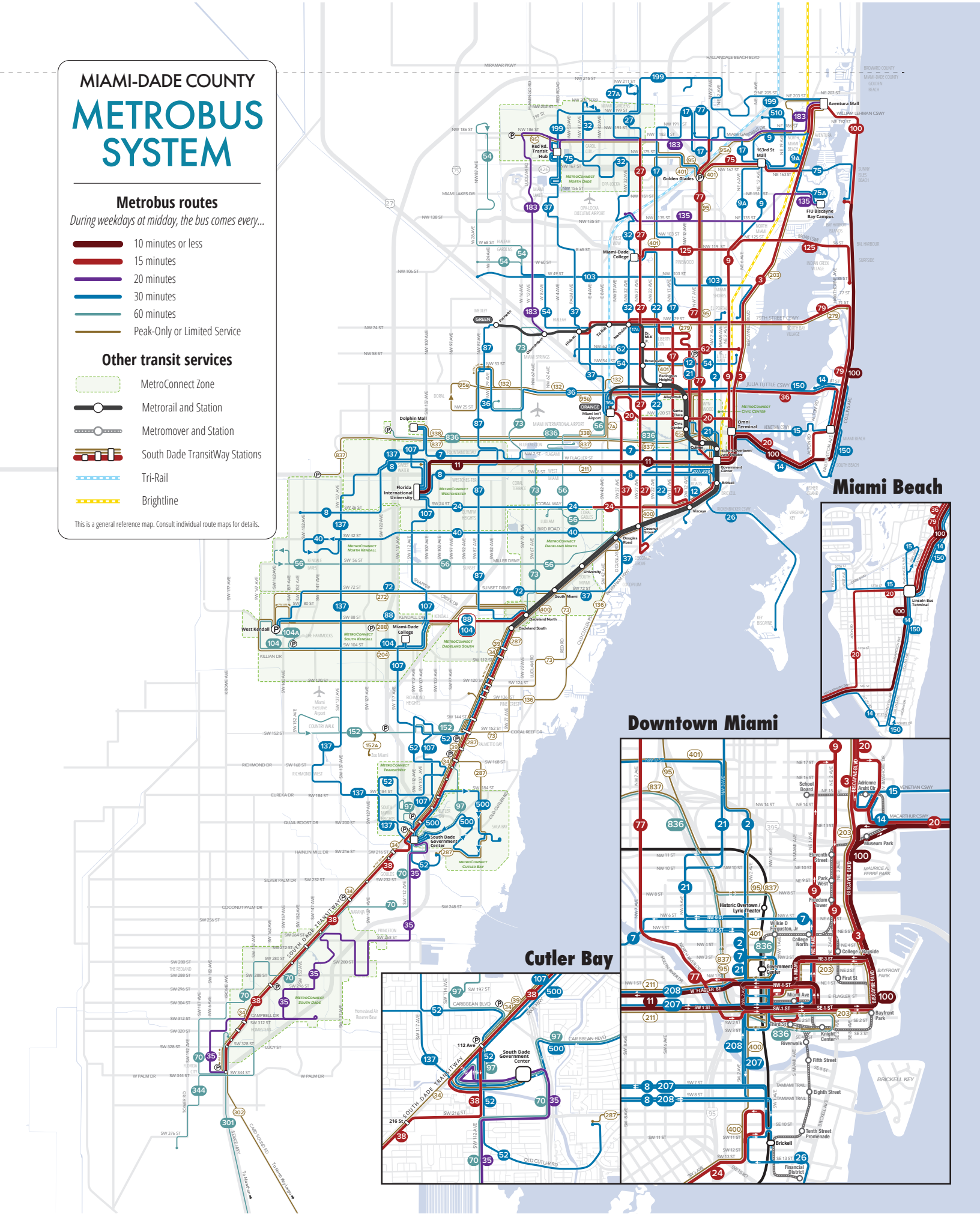
MORE INFORMATION
MÁS INFORMACIÓN | PLIS ENFÒMASYON

DRIVE LESS. LIVE MORE.™
MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

20


MIA STATION
S Royal Poinciana Blvd
Coolidge Dr
NW 36 St
LeJeune Rd
NW 42 Ave
NW 25 St
38 Ct
Bus Plaza Rd
OMNI TERMINAL
Biscayne Blvd
NE 17 Ter
N Bayshore Dr
NE 15 St
NE 14 St
Adrienne Arsht Center
NE 13 St
Cswy
Perez Art Museum
NE 15 St
Biscayne Blvd
N Bayshore Dr
NE 14 St
NW 36 St
NW 32 Ave
NW 42 Ave
NW 25 St
Rental Car Center
NW N River Dr
NW 20 St
NE 2 Ave
Biscayne Blvd
NE 19 St
NE 13 St
17 St
Lincoln Rd
Washington Ave
Collins Ave
17 St
Alton Rd
MacArthur Cswy
5 St
NORTH

11/2023


MIAMI-DADE COUNTY
METROBUS SYSTEM
Metrobus routes
During weekdays at midday, the bus comes every...
10 minutes or less
15 minutes
20 minutes
30 minutes
60 minutes
Peak-Only or Limited Service
Other transit services
MetroConnect Zone
Metrorail and Station
Metromover and Station
South Dade TransitWay Stations
Tri-Rail
Brightline
This is a general reference map. Consult individual route maps for details.
Miami Beach
Downtown Miami
Cutler Bay

Attachment D-D

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		
							Percent																			
		Land Use	ITE Edition	ITE Code	Scale	ITE Units	In	Out	In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
GROUP 1	1	Multifamily Housing (High-Rise)	11	222	239	du	26%	74%	18	53	71	6.4%	5	17	49	66	0.0%	0	17	49	66	0.0%	0	17	49	66
	2																									
	3																									
	4																									
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code		Rate or Equation				**Total:**	18	53	71	6.4%	5	17	49	66	0.0%	0	17	49	66	0.0%	0	17	49	66
		222		Y=0.22*(X)+18.85																						

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		
							Percent																			
		Land Use	ITE Edition	ITE Code	Scale	ITE Units	In	Out	In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
GROUP 2	1	Multifamily Housing (High-Rise)	11	222	100	du	26%	74%	11	30	41	6.4%	3	10	28	38	2.6%	1	10	27	37	0.0%	0	10	27	37
	2	Fine Dining Restaurant	11	931	180	seat	69%	31%	3	1	4	6.4%	0	3	1	4	25.0%	1	2	1	3	0.0%	0	2	1	3
	3																									
	4																									
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code		Rate or Equation				**Total:**	14	31	45	6.4%	3	13	29	42	4.8%	2	12	28	40	0.0%	0	12	28	40
		222		Y=0.22*(X)+18.85																						
		931		Y=0.02(X)																						

	IN	OUT	TOTAL
NET NEW TRIPS	**-5**	**-21**	**-26**

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		
							Percent																			
		Land Use	ITE Edition	ITE Code	Scale	ITE Units	In	Out	In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
GROUP 1	1	Multifamily Housing (High-Rise)	11	222	239	du	62%	38%	53	32	85	6.4%	5	50	30	80	0.0%	0	50	30	80	0.0%	0	50	30	80
	2																									
	3																									
	4																									
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code		Rate or Equation				**Total:**	53	32	85	6.4%	5	50	30	80	0.0%	0	50	30	80	0.0%	0	50	30	80
		222		Y=0.26*(X)+23.12																						

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		
							Percent																			
		Land Use	ITE Edition	ITE Code	Scale	ITE Units	In	Out	In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
GROUP 2	1	Multifamily Housing (High-Rise)	11	222	100	du	62%	38%	30	19	49	6.4%	3	28	18	46	15.2%	7	25	14	39	0.0%	0	25	14	39
	2	Fine Dining Restaurant	11	931	180	seat	67%	33%	33	17	50	6.4%	3	31	16	47	14.9%	7	27	13	40	44.0%	18	15	7	22
	3																									
	4																									
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									
	14																									
	15																									
		ITE Land Use Code		Rate or Equation				**Total:**	63	36	99	6.4%	6	59	34	93	15.1%	14	52	27	79	22.8%	18	40	21	61
		222		Y=0.26*(X)+23.12																						
		931		Y=0.28(X)																						

	IN	OUT	TOTAL
NET NEW TRIPS	**-10**	**-9**	**-19**

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

SUMMARY (PROPOSED)

GROSS TRIP GENERATION

	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
INPUT	Office	0	0	0	0
	Retail	0	0	0	0
	Restaurant	3	1	31	16
	Cinema/Entertainment	0	0	0	0
	Residential	10	28	28	18
	Hotel	0	0	0	0
		13	29	59	34

INTERNAL TRIPS

	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
OUTPUT	Office	0	0	0	0
	Retail	0	0	0	0
	Restaurant	1	0	4	3
	Cinema/Entertainment	0	0	0	0
	Residential	0	1	3	4
	Hotel	0	0	0	0
		1	1	7	7

OUTPUT	***Total % Reduction***	***4.8%***	***15.1%***
	Office		
	Retail		
	Restaurant	25.0%	14.9%
	Cinema/Entertainment		
	Residential	2.6%	15.2%
	Hotel		

EXTERNAL TRIPS

	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
OUTPUT	Office	0	0	0	0
	Retail	0	0	0	0
	Restaurant	2	1	27	13
	Cinema/Entertainment	0	0	0	0
	Residential	10	27	25	14
	Hotel	0	0	0	0
		12	28	52	27

PROPOSED WEEKDAY AM PEAK HOUR NET NEW EXTERNAL VALET TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					EXTERNAL VEHICLE TRIPS			AM NET NEW VALET TRIPS			
Land Use	ITE Edition	ITE Code	Scale	ITE Units	In	Out	Total	% Valet	In	Out	Total
Multifamily Housing (High-Rise)	11	222	100	du	10	27	37	70.3%	7	19	26
Fine Dining Restaurant	11	931	180	seat	2	1	3	70.3%	1	1	2
				Total	**12**	**28**	**40**		**8**	**20**	**28**

PROPOSED WEEKDAY PM PEAK HOUR NET NEW EXTERNAL VALET TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					EXTERNAL VEHICLE TRIPS			PM NET NEW VALET TRIPS			
Land Use	ITE Edition	ITE Code	Scale	ITE Units	In	Out	Total	% Valet	In	Out	Total
Multifamily Housing (High-Rise)	11	222	100	du	25	14	39	70.3%	17	10	27
Fine Dining Restaurant	11	931	180	seat	27	13	40	70.3%	19	9	28
				Total	**52**	**27**	**79**		**36**	**19**	**55**

Means of Transportation to Work

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.

(6+17+63)/(1,341) = 6.4%

Label	Census Tract 43.01; Miami-Dade County; Florida	
	Estimate	Margin of Error
Total:	1,341	±248
Car, truck, or van:	761	±178
Drove alone	734	±181
Carpooled:	27	±25
In 2-person carpool	10	±15
In 3-person carpool	10	±18
In 4-person carpool	0	±15
In 5- or 6-person carpool	0	±15
In 7-or-more-person carpool	7	±11
Public transportation (excluding taxicab):	6	±10
Bus	6	±10
Subway or elevated rail	0	±15
Long-distance train or commuter rail	0	±15
Light rail, streetcar or trolley (carro público in Puerto Rico)	0	±15
Ferryboat	0	±15
Taxicab	14	±21
Motorcycle	21	±19
Bicycle	17	±20
Walked	63	±55
Other means	71	±83
Worked from home	388	±192

Table Notes

Means of Transportation to Work

Survey/Program: American Community Survey
Universe: Workers 16 years and over
Year: 2022
Estimates: 5-Year
Table ID: B08301

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, the decennial census is the official source population totals for April 1st of each decennial year. In between censuses, the Census Bureau's Population Estimates Program 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.

Information about the American Community Survey (ACS) can be found on the ACS website. Supporting documentation including code lists, subject definitions, data accuracy, and statistical testing, and a full list of ACS tables and table shells (without estimates) can be found on the Technical Documentation section of the ACS website.

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.

Source: U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represent 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 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.

Several means of transportation to work categories were updated in 2019. For more information, see: Change to Means of Transportation.

The 2018-2022 American Community Survey (ACS) data generally reflect the March 2020 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 diff 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 2020 Census data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

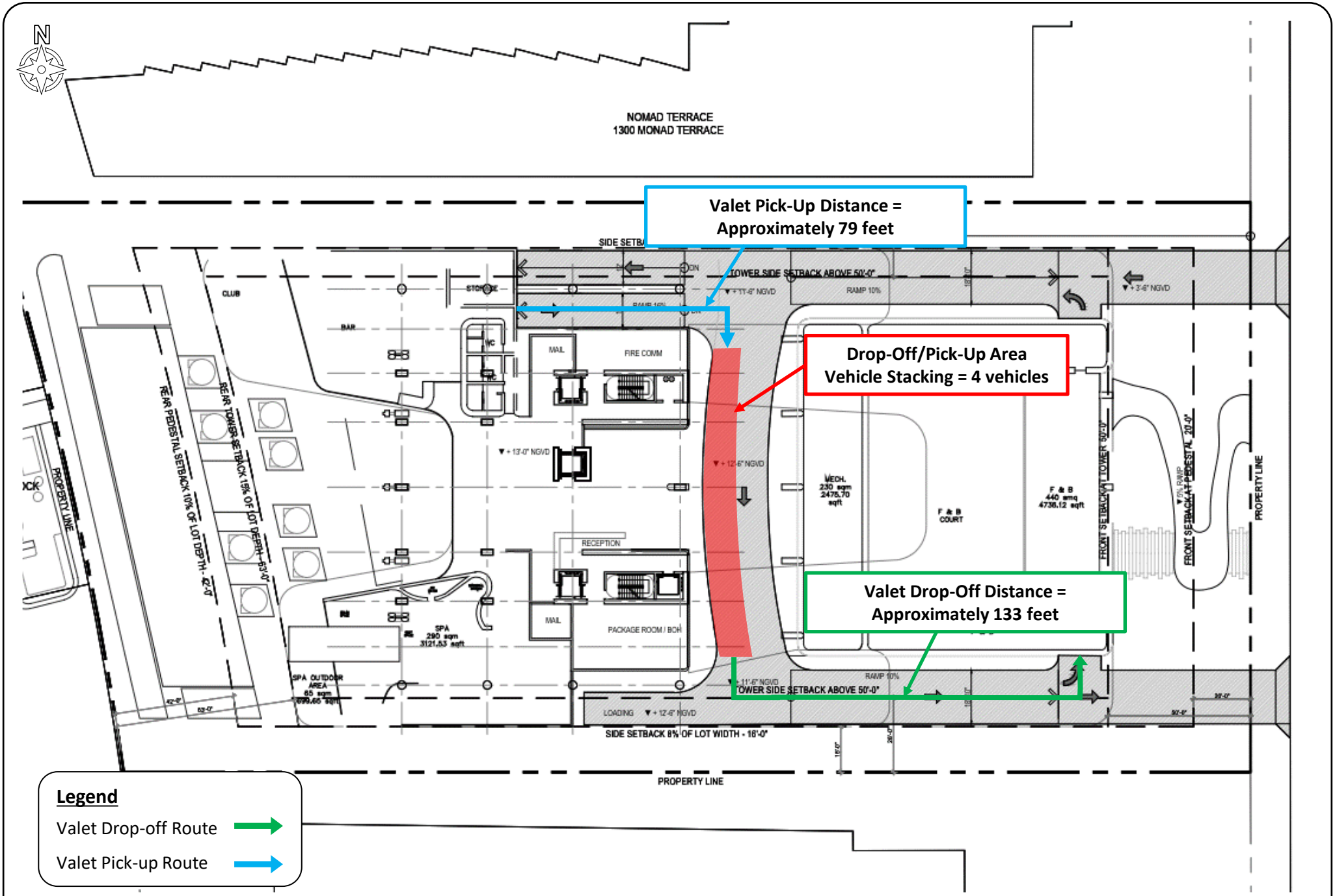
Explanation of Symbols:
-
The estimate could not be computed because there were an insufficient number of sample observations. For a ratio of medians estimate, one or both of th median estimates falls in the lowest interval or highest interval of an open-ended distribution. For a 5-year median estimate, the margin of error associate with a median was larger than the median itself.
N
The estimate or margin of error cannot be displayed because there were an insufficient number of sample cases in the selected geographic area.
(X)
The estimate or margin of error is not applicable or not available.
median-
The median falls in the lowest interval of an open-ended distribution (for example "2,500-")
median+
The median falls in the highest interval of an open-ended distribution (for example "250,000+").
**
The margin of error could not be computed because there were an insufficient number of sample observations.
***
The margin of error could not be computed because the median falls in the lowest interval or highest interval of an open-ended distribution.
*****

A margin of error is not appropriate because the corresponding estimate is controlled to an independent population or housing estimate. Effectively, the corresponding estimate has no sampling error and the margin of error may be treated as zero.

Attachment E-E

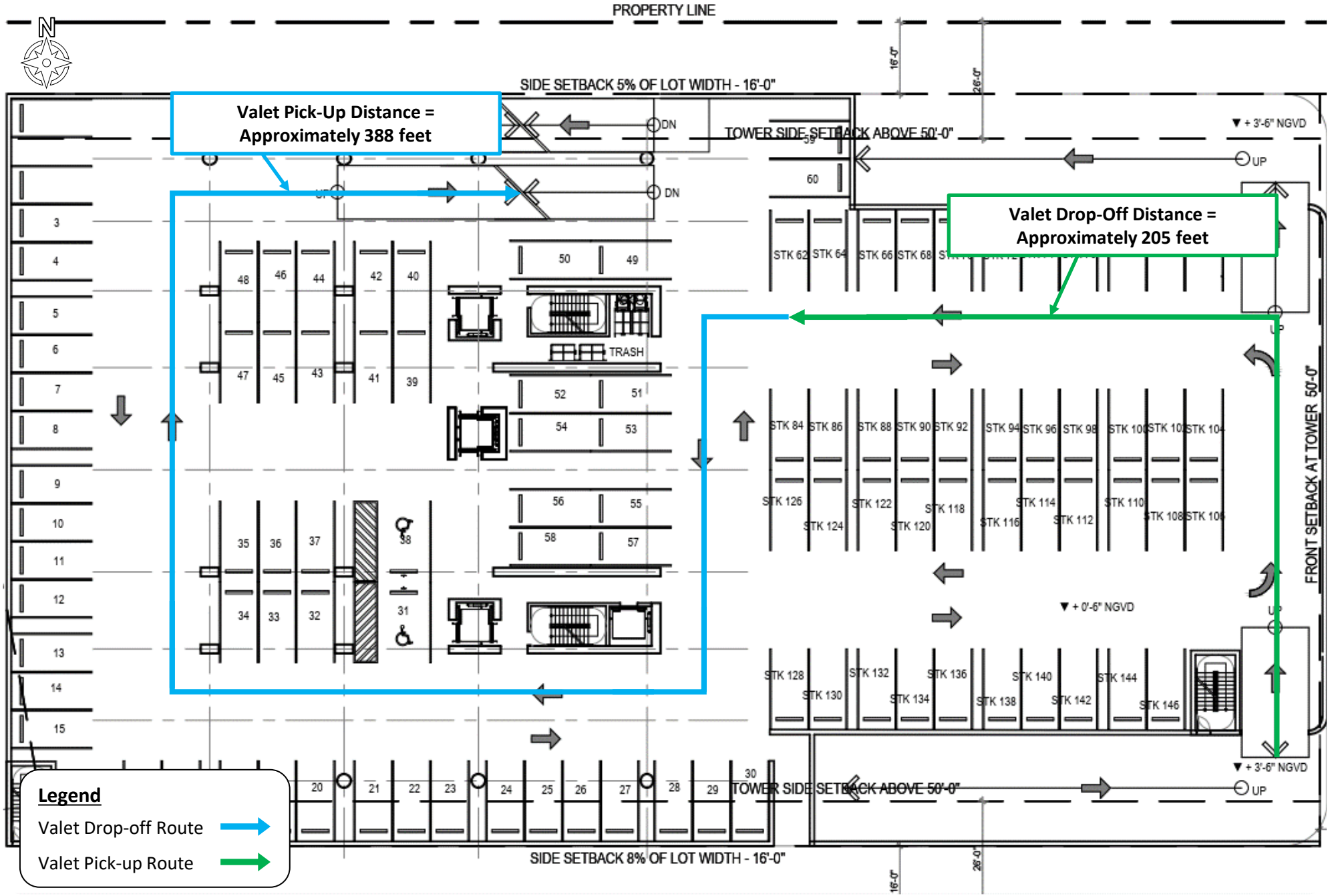
Valet Analysis

Valet Route Map



Kimley»Horn

Conceptual Valet Routing Map
1250 West Avenue Redevelopment
Miami Beach, Florida

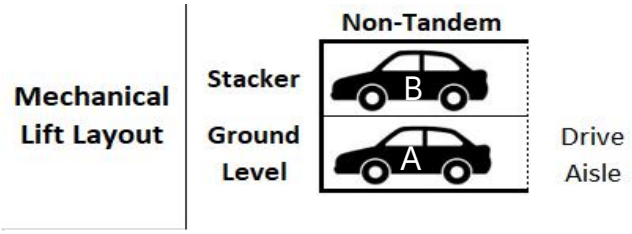


Kimley»Horn

Conceptual Valet Routing Map
1250 West Avenue Redevelopment
Miami Beach, Florida

Mechanical-Lift Processing Scenarios

Vehicle Processing Scenarios



Vehicle A (non-tandem) - Drop-Off

1.	Attendant drives onto stacker	20
		20 sec

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

1.	Attendant maneuvers onto stacker	20
5.	Attendant exits vehicle	10
6.	Attendant raises stacker	30
		60 sec

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

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

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

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

Vehicle A (non-tandem) - Pick-up

1.	Attendant drives off stacker	20
		20 sec

Vehicle B (non-tandem): No Vehicle A, Stacker Lowered- Pick-up

1.	Attendant drives off stacker	20
		20 sec

Vehicle B (non-tandem): No Vehicle A, Stacker Raised - Pick-up

1.	Attendant lowers stacker	30
2.	Attendant enters vehicle	10
3.	Attendant drives off stacker	20
		60 sec

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

2.	Attendant enters Vehicle A	10

Vehicle Processing Scenarios

3.	Attendant moves Vehicle A to drive aisle	20	
4.	Attendant exits Vehicle A	10	
8.	Attendant lowers stacker	30	
6.	Attendant enters Vehicle B and drives off stacker	30	
1.	Attendant exits Vehicle B	10	
9.	Attendant re-enters Vehicle A and drives onto stacker	30	
		140	sec

Average Drop-off Processing Time	96	sec
Average Pick-up Processing Time	60	sec

Valet Processing Time

Valet Drop-off/Pick-Up Calculated Travel Time - Restaurant Valet Drop-off/Pick-up

Parking Garage Calculated Travel Time

VALET DROP-OFF

VEHICLE TRAVEL TIME

Travel Times (Assume 15 mph speed)

To Valet Garage (In vehicle)

Distance		Travel Time	
0.06	miles	0.3	minutes

Controlled Delay	0.5	Minutes
Stacker Delay	1.6	Minutes
Total Time	3.1	Minutes

VALET ATTENDANT TRAVEL TIME

Travel Times (Assume 5 ft/s speed)

Return from Valet Garage (Walk/Run) to Ground Level

Distance		Travel Time	
0.042	miles	0.7	minutes

Parking Garage Calculated Travel Time

VALET PICK-UP

VALET ATTENDANT TRAVEL TIME

Travel Times (Assume 5 ft/s speed)

To Valet Garage (Walk/Run) from Ground Level

Distance		Travel Time	
0.042	miles	0.7	minutes

Controlled Delay	0.5	Minutes
Stacker Delay	1.0	Minutes
Total Time	2.6	Minutes

VEHICLE TRAVEL TIME

Travel Times (Assume 15 mph speed)

Return from Valet Garage (In Vehicle) to Valet Area

Distance		Travel Time	
0.09	miles	0.4	minutes

Valet Analysis

A.M. Valet Analysis

Arrival Rate

IN	OUT	
8	20	veh/hr

Service Rate

IN	OUT	
3.10	2.60	mins/veh

Control Delay = min

Service Time = 2.74 mins/veh

Number of Valet Attendants (N) =	3	
Level of Confidence =	0.95	
Storage Provided On-Site =	4	vehicles
Total Entering and Exiting Vehicles(q) =	28	veh/hr
Service Capacity per N (60 mins/Service Rate) (Q) =	21.88	veh/hr/pos
Average Service Rate (t) =	2.74	mins/veh
rho (t/Q) =	0.427	

Expected (avg.) number of vehicles in the system	E(m)=	0.12	
Expected (avg.) number of vehicles waiting in queue	E(n)=	1.40	
Mean time in the queue	E(w)=	0.26	mins
Mean time in system	E(t)=	3.00	mins

Proportion of customers who wait (P) (E(w) > 0)=	16.44%	
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 0.4 vehicles

P.M. Valet Analysis

Arrival Rate

IN	OUT	
36	19	veh/hr

Service Rate

IN	OUT	
3.10	2.60	mins/veh

Control Delay = min

Service Time = 2.93 mins/veh

Number of Valet Attendants (N) =	5	
Level of Confidence =	0.95	
Storage Provided On-Site =	4	vehicles
Total Entering and Exiting Vehicles(q) =	55	veh/hr
Service Capacity per N (60 mins/Service Rate) (Q) =	20.50	veh/hr/pos
Average Service Rate (t) =	2.93	mins/veh
rho (t/Q) =	0.537	

Expected (avg.) number of vehicles in the system	E(m)=	0.19	
Expected (avg.) number of vehicles waiting in queue	E(n)=	2.87	
Mean time in the queue	E(w)=	0.21	mins
Mean time in system	E(t)=	3.14	mins

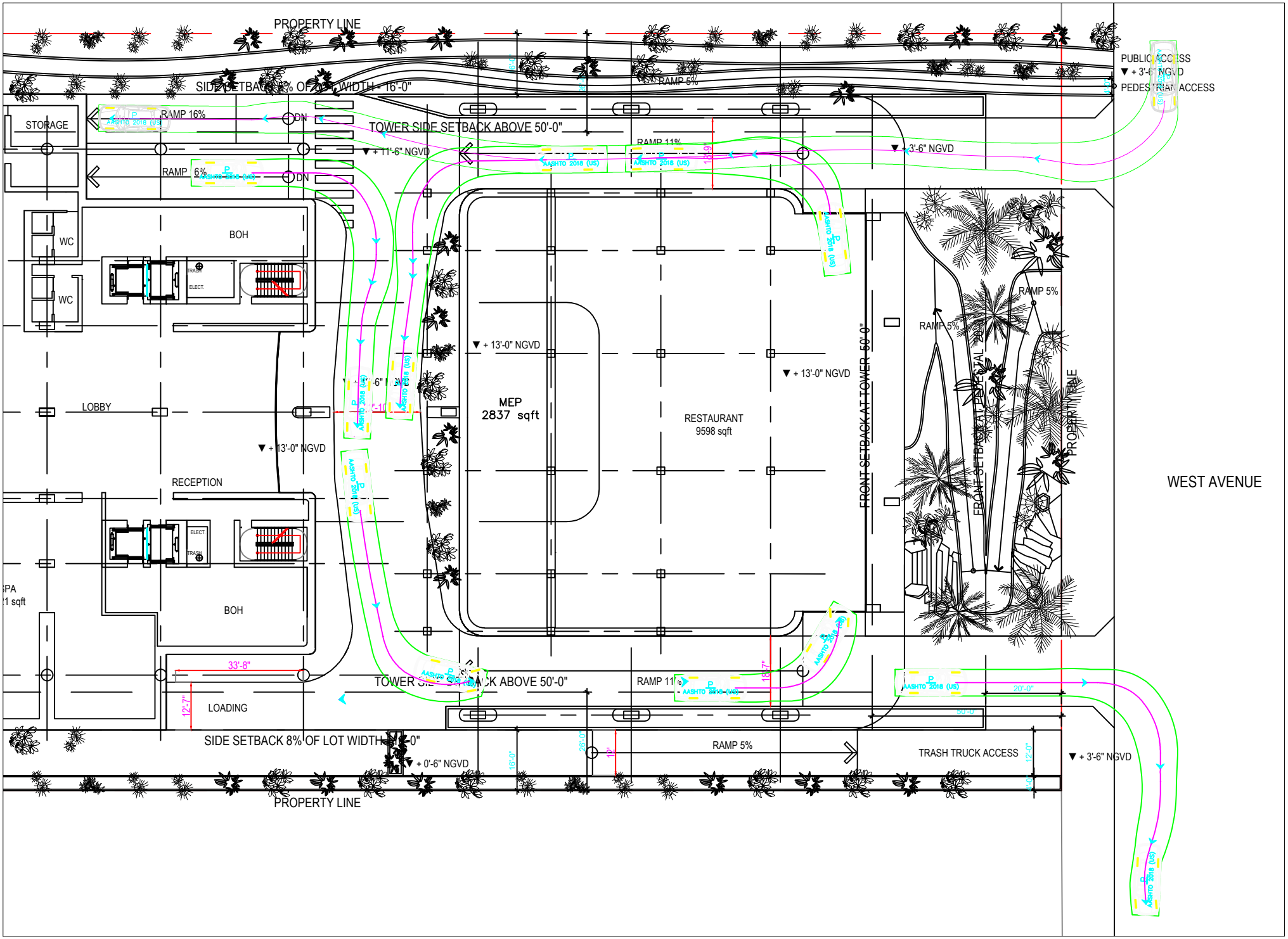
Proportion of customers who wait (P) (E(w) > 0)=	16.50%	
Probability of a queue exceeding a length (M) P(x > M)=	5.00%	

Queue length which is exceeded 5.00% of the times is equal to 0.9 vehicles

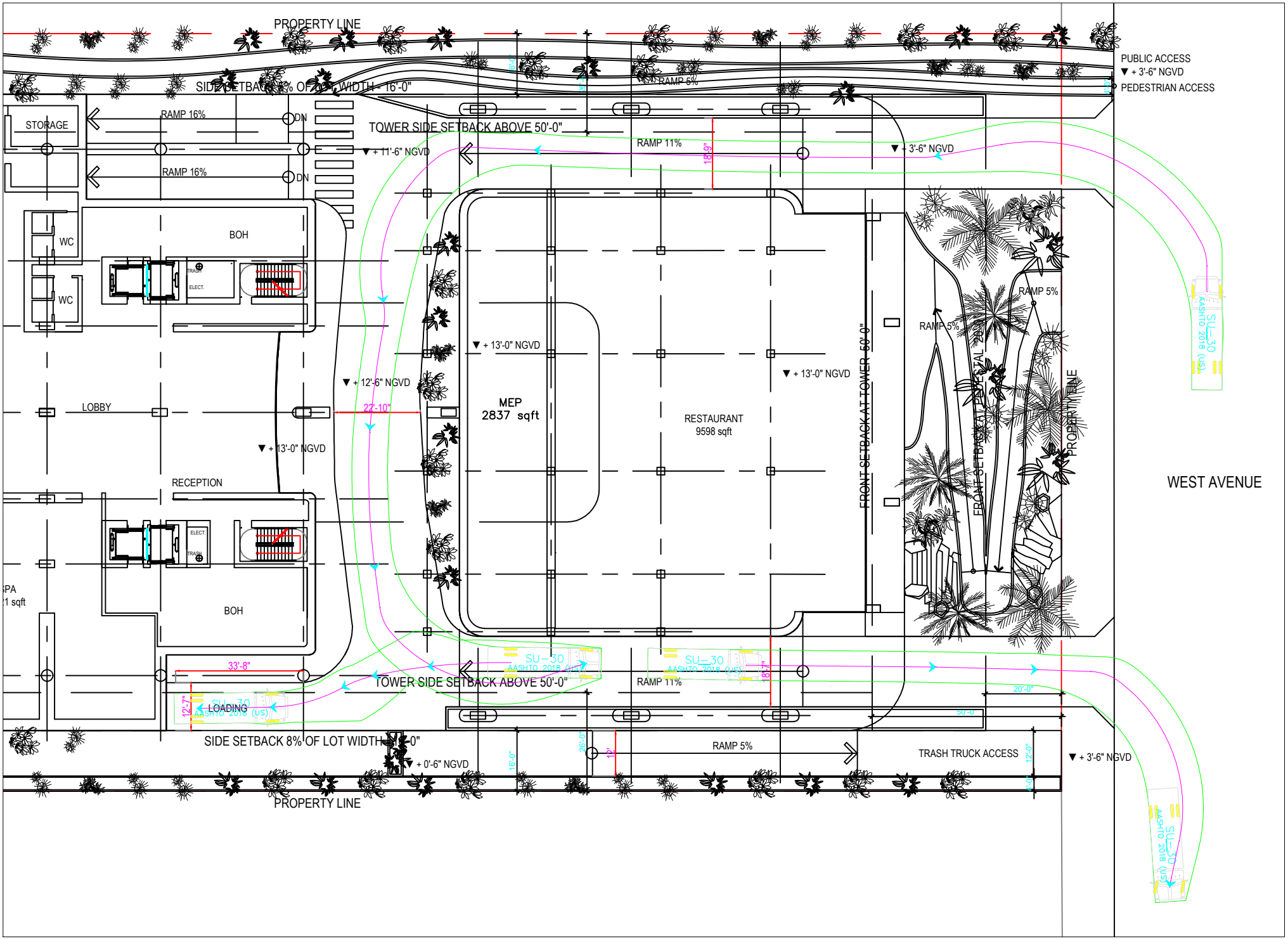
Attachment F-F

Maneuverability Analysis

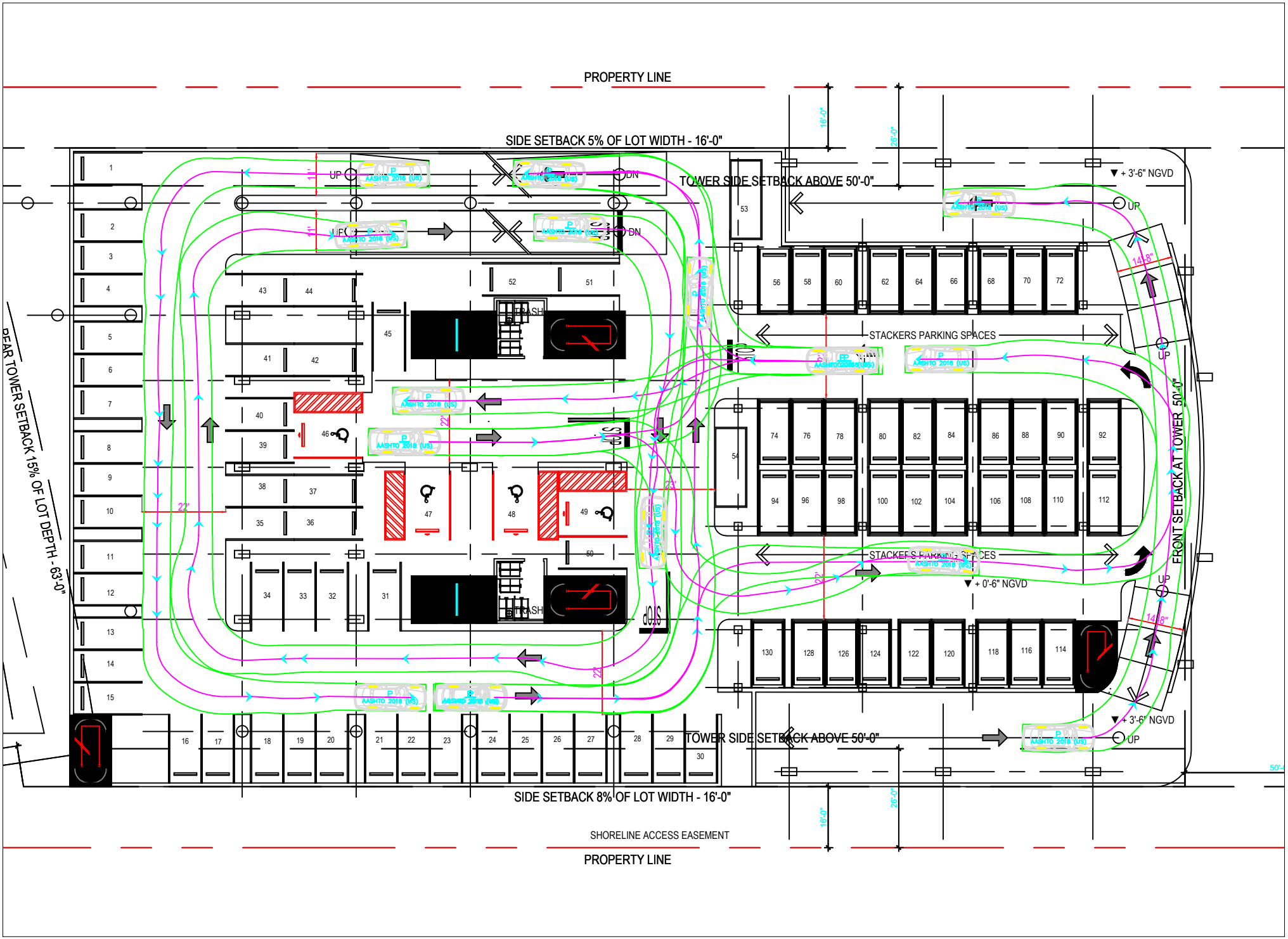
Ground Level -Passenger Vehicles



Ground Level - SU-30 Vehicles



Level -1 - Passenger Vehicles



Level -2 - Passenger Vehicles