



December 20, 2022

Mr. Michael Comras
The Comras Company of Florida, Inc.
1261 20th Street
Miami Beach, FL 33139

**Re: 5th and Lenox Avenue
Trip Generation Equivalency Analysis
Miami Beach, FL**

Dear Mr. Comras:

Kimley-Horn and Associates, Inc. has performed a trip generation equivalency analysis for the proposed development located at 1045 5th Street in Miami Beach, Florida. The site was previously approved for 66,100 square feet of retail use as part of the approved *5th Street and Lenox Avenue Retail Development Traffic Impact Analysis*, July 2016. The owner of the fully constructed project wants to ensure no impacts from leasing to uses that are permitted in CPS-2 zoning district, in addition to retail. The City of Miami Beach has requested that a trip generation analysis be prepared for additional potential land uses. Therefore, we have performed a trip generation equivalency analysis to allow for flexibility between the proposed land uses. The trip generation equivalency analysis were prepared in order to calculate exchange rates between likely land uses, and used an initial development program of 56,100 square feet of retail use, 5,000 square feet of general office, and 5,000 square feet of medical office. The trip calculations were prepared for the weekday P.M. peak hour trip generation consistent with the approved traffic study.

TRIP GENERATION CALCULATIONS

Trip generation for the approved and proposed land uses was performed using Institute of Transportation Engineers' (ITE's) *Trip Generation Manual*, 11th Edition. The trip generation for the previously approved development program was determined using ITE Land Use Code LUC 821 (Shopping Plaza [40-150k]). The trip generation for the proposed land uses was determined using ITE LUC 821 (Shopping Plaza [40-150k]), LUC 710 (General Office Building), and LUC 720 (Medical-Dental Office Building).

The 10.0 percent (10.0%) multimodal reduction factor used in the previously approved *5th Street and Lenox Avenue Retail Development Traffic Impact Analysis*, July 2016 was used in the trip generation calculations.

Internal capture calculations were updated based on the proposed development program and based on trips between the proposed development and the existing 5th & Alton retail development located along the west side of Lenox Avenue consistent with the previously approved traffic study. Internal capture trips will be made by walking and will not result in additional vehicle trips on the roadway network.

Pass-by capture trip rates were determined based on average rates provided in the ITE's *Trip Generation Handbook*, 3rd Edition. The P.M. peak hour pass-by rate for LUC 821 (Shopping Plaza [40-150k]) is 40 percent (40%).

As Table 1 indicates, the previously approved 66,100 square feet of retail development program is expected to generate 149 net new P.M. peak hour trips. Based on this sample 56,100 square feet of retail use, 5,000 square feet of general office, and 5,000 square feet of medical office development program the site is expected to generate 133 net new P.M. peak hour trips. Therefore, the proposed development program is expected to generate 16 fewer trips compared the previously approved development program during the P.M. peak hour. Detailed trip generation calculations are included in Attachment A.

Table 1: Net New Trip Generation Summary			
Development Plan	P.M. Peak Hour Trip Generation		
	In	Out	Total
Previously Approved Development Program	73	76	149
Sample Proposed Development Program	63	70	133
Net Change	-10	-6	-16

EQUIVALENCY MATRIX

Exchange rates between the existing and proposed land uses were developed to allow flexibility in the development program without exceeding the maximum trip generation of 149 net new P.M. peak hour trips identified as part of Table 1. The exchange rates were calculated by comparing the proposed development program to the potential trip generation for each land use. The calculated exchange rates can be utilized to convert the various land uses between one another. Table 2 provides the exchange rates for the proposed land uses. Detailed equivalency matrix calculations are included in Attachment B.

Table 2: Trip Generation Equivalency Matrix				
Land Use	To:	Retail (ksf)	General Office (ksf)	Medical Office (ksf)
From:	Net External PM Peak Hour Equivalency Rates	2.157	1.000	1.400
Retail (ksf)	2.157	1.000	2.157	1.541
General Office (ksf)	1.000	0.464	1.000	0.714
Medical Office (ksf)	1.400	0.649	1.400	1.000

In conclusion, the potential land uses are able to be exchanged according to the rates developed between uses as they are expected to generate the same amount or fewer trips as the previously approved development program during the P.M. peak hour.

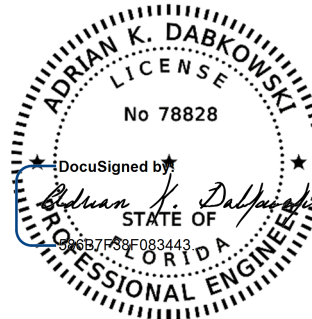
Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.



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

Attachments



This item has been digitally signed and sealed by Adrian K. Dabkowski, P.E., PTOE, on 12/20/2022.

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

Attachment A

Trip Generation Calculations

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	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
						In	Out																		
GROUP 1	1 Shopping Plaza (40-150k)	11	821	66.1	ksf	49%	51%	168	175	343	10.0%	34	151	158	309	20.1%	62	121	126	247	40.0%	98	73	76	149
	2																								
	3																								
	4																								
	5																								
	6																								
	7																								
	8																								
	9																								
	10																								
	11																								
	12																								
	13																								
	14																								
	15																								
ITE Land Use Code		Rate or Equation				Total:		168	175	343	9.9%	34	151	158	309	20.1%	62	121	126	247	39.7%	98	73	76	149
821		Y=5.19(X)																							

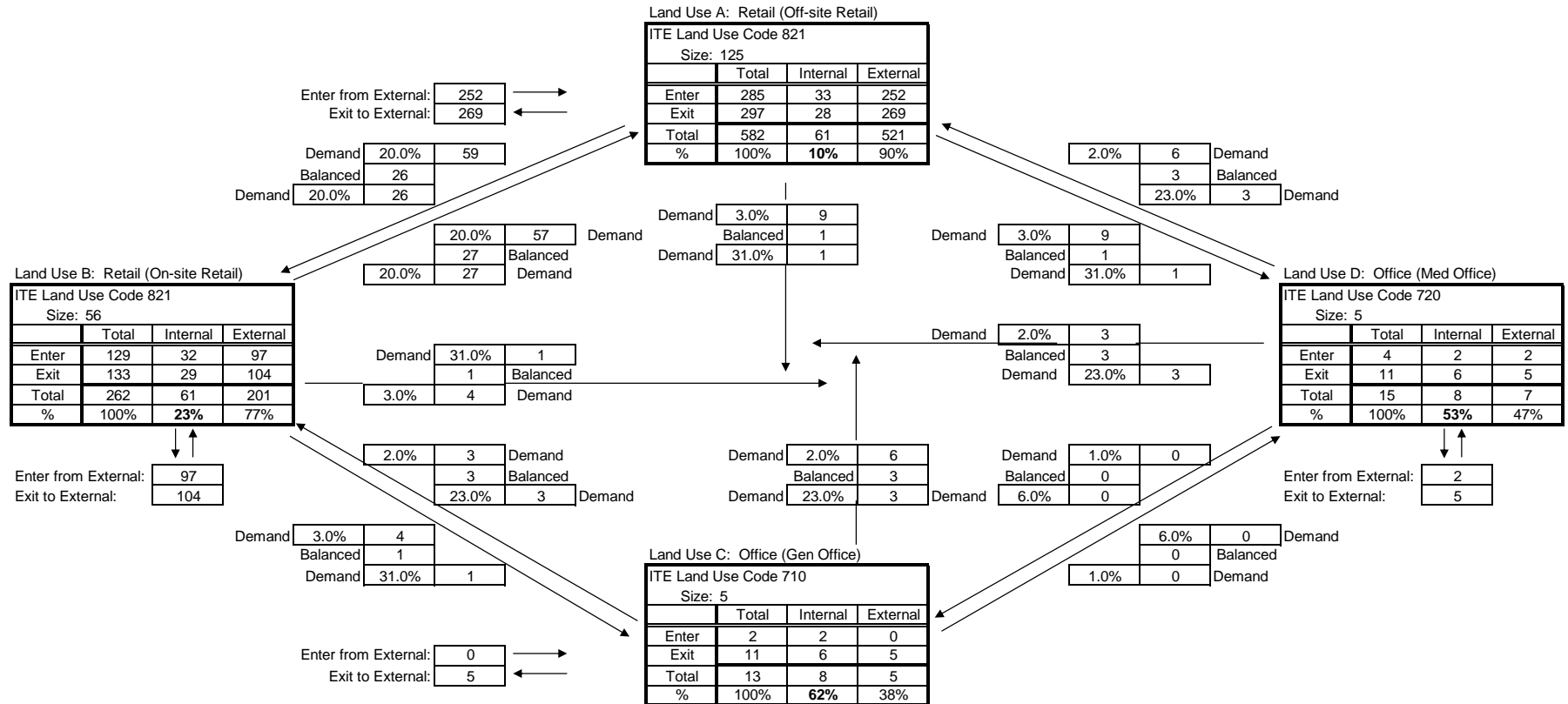
PROPOSED WEEKDAY PM PEAK HOUR TRIP GENERATION

	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	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
						In	Out																		
GROUP 2	1 Shopping Plaza (40-150k)	11	821	56.1	ksf	49%	51%	143	148	291	10.0%	29	129	133	262	23.3%	61	99	102	201	40.0%	80	60	61	121
	2 General Office Building	11	710	5.0	ksf	17%	83%	2	12	14	10.0%	1	2	11	13	61.5%	8	1	4	5	0.0%	0	1	4	5
	3 Medical-Dental Office Building	11	720	5.0	ksf	30%	70%	5	12	17	10.0%	2	4	11	15	53.3%	8	2	5	7	0.0%	0	2	5	7
	4																								
	5																								
	6																								
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	9																								
	10																								
	11																								
	12																								
	13																								
	14																								
	15																								
ITE Land Use Code		Rate or Equation				Total:		150	172	322	9.9%	32	135	155	290	4.1%	77	102	111	213	37.6%	80	63	70	133
821		Y=5.19(X)																							
710		LN(Y) = 0.83*LN(X)+1.29																							
720		Y=4.07*(X)+-3.17																							

	IN	OUT	TOTAL
NET NEW TRIPS	-10	-6	-16

ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET
 (Source: Chapter 7, ITE Trip Generation Handbook, June 2004)

Project Number: 043770000
Project Name: 5th and Lenox
Scenario: EqMa
Analysis Period: PM Peak



NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT					
Category	Land Use				Total
	A	B	C	D	
Enter	252	97	5	2	356
Exit	269	104	0	5	378
Total	521	201	5	7	734
Single Use Trip Gen Estimate	582	262	13	15	872
	10.5%	23.3%	61.5%	53.3%	
Overall Internal Capture =					15.83%

Attachment B

Trip Generation Equivalency Matrix

5th and Lenox

TABLE 1: Trip Generation Equivalency Matrix

	Net External PM Peak Hour	TO:	Retail	General Office	Medical Office
Land Use	Equivalency Rates ⁽¹⁾	Units	ksf	ksf	ksf
FROM:			2.157	1.000	1.400
Retail	2.157	ksf	1.000	2.157	1.541
General Office	1.000	ksf	0.464	1.000	0.714
Medical Office	1.400	ksf	0.649	1.400	1.000

Note: (1) Based on P.M. peak hour trip generation equivalency rate developed in Table 2.

Example Equivalency Calculations	
Retail to General Office	The exchange rate between retail and general office is 1 ksf of retail for every 2.157 ksf of general office, where 1,000 sf of retail is equal to 2,157 sf of general office and 10,000 sf of retail is equal to 21,570 sf of general office.
Retail to Medical Office	The exchange rate between retail and medical office is 1 ksf of retail for every 1.541 ksf of medical office, where 1,000 sf of retail is equal to 1,541 sf of medical office and 10,000 sf of retail is equal to 15,410 sf of medical office.
General Office to Medical Office	The exchange rate between general office and medical office is 1 ksf of general office for every 0.714 ksf of medical office, where 1,000 sf of general office is equal to 714 sf of medical office and 10,000 sf of general office is equal to 7,140 sf of medical office.

TABLE 2: P.M. Peak Hour Trip Generation for Proposed Development Program

	ITE	ITE		ITE	Net	Equivalency
Land Use	Edition	Code	Scale	Units	New Trips ⁽¹⁾	Rate
Retail	11	821	56.1	ksf	121	2.157 trips/ksf
General Office	11	710	5	ksf	5	1.000 trips/ksf
Medical Office	11	720	5	ksf	7	1.400 trips/ksf

Note: (1) Based on net new P.M. peak hour trip generation contained in the November 30, 2021 Trip Generation Comparison Analysis.