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MEMORANDUM

To: District of Columbia Zoning Commission

cc: Fred Greene III, FLGA Real Estate Group
Jessica Bloomfield, Holland & Knight

From: Jami L. Milanovich, P.E.
Asawari Gharat

Date: January 9, 2018

Re: Transportation Assessment (ZC No.: 17-15)
802 - 810 Rhode Island Avenue NE
Washington, D.C. 20015

INTRODUCTION

FLGA Real Estate Group (“the Applicant”) has filed an application for a Map Amendment to rezone the property located along Rhode Island Avenue NE, on Square 3846, Lot 0085 from the PDR-2 district to the MU-6 district. The subject site is located in Ward 5 and is bounded by Rhode Island Avenue to south, Reed Street to east, 8th Place to the west, and Channing Place to north. The site currently is occupied with an existing building that houses the Greater Mount Calvary Holy Church, Calvary Christian Academy, and Calvary Healthcare. The site location map is shown on Figure 1.

To assess the traffic implications of the pending map amendment application, a trip generation analysis was undertaken to evaluate the trip generation potential for the site under the MU-6 zone compared to the trip generation under the current PDR-2 zone.

DEVELOPMENT SCENARIOS

Because a specific development is not being proposed, three different hypothetical development scenarios were considered for the trip generation analysis based on the maximum FAR permitted under the PDR-2 and MU-6 development parameters of the 2016 Zoning Regulations.



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Scenario 1

The development standards for Scenario 1 considered the site under the PDR-2 zone and were calculated using ZR16 'Subtitle J' criteria, which are summarized in Table 1.

Table 1 – Development Potential (Based on ZR16 Subtitle J §202.1)

Calculation for total building size (Restricted Uses)	
Max FAR (Restricted Use)	3
Lot Size	21,677 SF
Building Size	65,031 SF
Calculation for total building size (Permitted Uses)	
Max FAR (Permitted Use)	4.5
Lot Size	21,677 SF
Building Size	97,547 SF

Uses permitted as a matter-of-right, as per ZR16 Subtitle U §801.1, in the PDR zones include: animal sales, boarding and care (subject to a number of conditions); agricultural uses; art/design uses; various institutional uses, including educational, health care, and religious uses; eating and drinking establishments; retail uses; lodging; office uses; parking; parks and recreation; production, distribution and repair uses (with some exceptions); limited residential uses; transportation infrastructure; utilities; waste facilities; wholesale establishments; and storage facilities.

Uses permitted as a special exception, as per ZR16 Subtitle U §802.1, in the PDR zones include: certain animal sales, boarding and care uses not meeting the matter-of-right conditions; certain eating and drinking establishments not meeting the matter-of-right conditions; entertainment/performance arts uses (subject to a number of conditions); certain production, distribution and repair uses, utilities, and waste services not permitted as a matter-of-right (subject to a number of conditions).

Residential use is not permitted in the PDR-2 zone.



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Scenario 2

The development standards for Scenario 2 considered the site under the MU-6 zone and considered maximizing the non-residential use. The total building size is calculated using ZR16 ‘Subtitle G’ criteria as shown in Table 2.

Table 2 – Development Potential (Based on ZR16 Subtitle G §402.1)

Calculation for total building size	
Max FAR*	7.2
Lot Size	21,677 SF
Building Size	156,074 SF
Calculation for non-residential component	
Max FAR	2
Lot Size	21,677 SF
Non-Residential	43,354 SF
Calculation for residential component	
Residential	112,720 SF
* Assumes IZ bonus density.	

The MU zones provide for mixed-use developments that include commercial, institutional and residential (multi-family) uses. The MU-6 zone permits medium to high density with a focus on residential and is intended to provide shopping and business needs and housing outside of the central core.

Scenario 3

The development standards for Scenario 3 considered the site under the MU-6 zone and considered maximizing the residential component. The total building size is calculated using ZR16 ‘Subtitle G’ criteria as shown in Table 3.

Table 3 – Development Potential (Based on ZR16 Subtitle G §402.1)

Calculation for total building size	
Max FAR*	7.2
Lot Size	21,677 SF
Building Size	156,074 SF
* Assumes IZ bonus density.	



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TRIP GENERATION

Overview

The number of AM and PM peak hour trips were calculated for the three hypothetical development scenarios using the square footages under PDR-2 and MU-6 zoning as shown in Table 1 to Table 3. Once the square footages were determined, several land uses were tested to determine the most conservative trip generation.

The total number of trips anticipated to be generated under each scenario was estimated based on ITE's Trip Generation Manual (9th Edition). The total number of trips generated under each scenario would be comprised of vehicular trips, pedestrian trips, bicycle trips, and transit trips. The percentage of site-generated trips that would use non-auto modes of transportation is dependent on the proximity of the site to transit stops, the walkability of the surrounding area, and the degree to which the use of alternate modes of transportation is encouraged, such as by implementation of a transportation demand management (TDM) program.

According to US Census data, approximately 54 percent of residents in the vicinity of the site currently take public transportation, walk, or bike to work. Another five percent carpool. Therefore, it is anticipated that the non-auto mode split for any residential use at the site would be 55 percent.

The non-auto mode split for retail uses was estimated to be 60 percent based on the assumption that any retail would be neighborhood-serving in nature, the walkability of the site, and the abundance of transportation options near the site.

For office uses, the non-auto mode split was based on 2005 WMATA Ridership equations and was assumed to be 45 percent.

The non-auto trips will be comprised of transit, pedestrian, and bicycle trips. The estimates for the specific modes were based on data contained in US Census data and the 2005 WMATA Ridership Survey.

The retail trips also will be comprised of both new trips and pass-by trips. A pass-by trip is a trip in which the retail or service destination is the secondary part of a primary trip, such as a work-to-shopping-to-home trip. An example of a pass-by trip would be one in which a driver stops at the retail or service uses on his/her way home from work. The following pass-by trip percentages were assumed based on data contained in the Institute of Transportation Engineers Trip Generation Manual, Volume 1:



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- General Retail – 0% AM; 34% PM
- Quality Restaurant - 0% AM; 40% PM
- High Turnover Sit-Down Restaurant - 0% AM; 40% PM
- Fast Food Restaurant - 49% AM; 50% PM
- Grocery Store – 0% AM; 36% PM

Scenario 1

To estimate the number of trips generated by the PDR-2 zoning (Scenario 1), the following land uses were evaluated:

- Scenario 1A – Office (LUC 710) and Retail (LUC 820);
- Scenario 1B – Grocery Store (LUC 850);
- Scenario 1C – Retail (LUC 820); and
- Scenario 1D – Office (LUC 710), Retail (LUC 820), and Fast Food without Drive-through.

Since each of the land uses listed above fall within the “restricted uses” category for FAR (as identified in 'Subtitle J' of ZR16), the trips were generated for a building size of 65,031 SF using the standard ITE rates/equations. Non-restricted uses were considered; however, because they have significantly lower trip generation rates than uses in the “restricted” category, their resultant trip generation would be lower, even with a higher square footage.

Scenario 1D generated the highest number of vehicular trips: **155** new AM peak hour vehicle trips and **149** new PM peak hour vehicle trips. The results of the trip generation for Scenario 1D are provided below in Table 4. Trip generation details for each option under Scenario 1 are provided in Attachment A.



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Table 4
Site Trip Generation Summary for PUD-2 – Scenario 1D

Land Use		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
52,031 SF of occupied Office (LUC 710)	Total Trips	99	14	113	23	114	137
	Non-auto Trips	45	6	51	10	51	62
	<i>Transit</i>	33	5	38	8	38	46
	<i>Bicycle</i>	5	1	6	1	6	7
	<i>Pedestrian</i>	7	1	8	2	8	10
	New Vehicle Trips	54	8	62	13	63	75
7,000 SF of occupied Retail LUC (820)	Total Trips	19	12	31	48	53	101
	Non-auto Trips	11	7	19	29	32	61
	<i>Transit</i>	8	5	13	20	22	42
	<i>Bicycle</i>	1	-	1	3	4	7
	<i>Pedestrian</i>	2	1	3	5	6	11
	Pass-By Trips	0	0	0	7	7	14
	New Vehicle Trips	8	5	12	12	14	26
6,000 SF of occupied Fast Food without Drive Thru LUC (933)	Total Trips	158	105	263	80	77	157
	<i>Non-auto Trips</i>	63	42	105	32	31	63
	<i>Transit</i>	48	32	80	24	24	48
	<i>Bicycle</i>	6	4	10	3	3	6
	<i>Pedestrian</i>	9	6	15	5	5	9
	Pass-By Trips	47	31	78	24	23	47
	New Vehicle Trips	48	32	80	24	23	47
Total Proposed Development	Total Trips	276	131	407	151	244	395
	<i>Non-auto Trips</i>	119	55	175	71	114	185
	<i>Transit</i>	89	42	130	52	84	136
	<i>Bicycle</i>	12	5	18	7	13	20
	<i>Pedestrian</i>	18	8	27	12	19	30
	Pass-By Trips	47	31	78	31	30	61
	New Vehicle Trips	110	45	155	49	100	149



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Scenario 2

To estimate the number of trips generated under MU-6 zone when the non-residential use is maximized, the following land uses were evaluated:

- Scenario 2A – Apartment (LUC 220), Office (LUC 710), and Retail (LUC 820);
- Scenario 2B – Apartment (LUC 220), and Retail (LUC 820);
- Scenario 2C – Apartment (LUC 220), Office (LUC 710), Retail (LUC 820), and High Turnover Sit Down Restaurant (LUC 932);
- Scenario 2D – Apartment (LUC 220), Office (LUC 710), Retail (LUC 820), and Fast Food without Drive Thru (LUC 933); and
- Scenario 2E – Office (LUC 710), Retail (LUC 820), and Quality Restaurant (LUC 931).

The trips were generated for a building size of 156,074 SF, where the residential component size is 112,720 SF and non-residential size is 43,354 SF using the standard ITE rates/equations. Scenario 2D generated the highest number of vehicle trips: **159** new AM peak hour vehicle trips and **183** new PM peak hour vehicle trips. The trip generation for Scenario 2D is summarized in Table 5. Trip generation details for each option under Scenario 2 are provided in Attachment B.



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Table 5
Site Trip Generation Summary for MU-6 – Scenario 2D

Land Use		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
113 DU of occupied Apartments (LUC 220)	Total Trips	12	47	59	52	28	80
	<i>Non-auto Trips</i>	7	26	32	29	15	44
	<i>Transit</i>	5	19	24	21	11	32
	<i>Bicycle</i>	1	2	3	3	1	4
	<i>Pedestrian</i>	1	5	6	5	3	8
	New Vehicle Trips	5	21	27	23	13	36
13,509 SF of occupied Retail (LUC 820)	Total Trips	29	17	46	75	82	157
	<i>Non-auto Trips</i>	17	10	28	45	49	94
	<i>Transit</i>	12	7	19	32	34	66
	<i>Bicycle</i>	2	1	3	5	6	11
	<i>Pedestrian</i>	3	2	5	8	9	17
	Pass-by Trips	0	0	0	10	11	21
	New Vehicle Trips	12	7	18	20	22	42
23,845 SF of occupied Office (LUC 710)	Total Trips	54	7	61	18	87	105
	<i>Non-auto Trips</i>	24	3	27	8	39	47
	<i>Transit</i>	18	3	21	6	29	35
	<i>Bicycle</i>	3	-	3	1	4	5
	<i>Pedestrian</i>	4	-	4	1	6	7
	New Vehicle Trips	30	4	34	10	48	58
6,000 SF of occupied Fast Food without Drive Through (LUC 933)	Total Trips	158	105	263	80	77	157
	<i>Non-auto Trips</i>	63	42	105	32	31	63
	<i>Transit</i>	48	32	79	24	24	48
	<i>Bicycle</i>	6	4	11	3	3	6
	<i>Pedestrian</i>	9	6	16	5	5	9
	Pass-by Trips	47	31	78	24	23	47
	New Vehicle Trips	48	32	80	24	23	47
Total Proposed Development	Total Trips	253	176	429	225	274	499
	<i>Non-auto Trips</i>	111	81	192	114	134	248
	<i>Transit</i>	83	61	143	83	98	181
	<i>Bicycle</i>	12	7	20	12	14	26
	<i>Pedestrian</i>	17	13	31	19	23	41
	Pass-by Trips	47	31	78	34	34	68
	New Vehicle Trips	95	64	159	77	106	183



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Scenario 3

The trips generated under the MU-6 zone when the residential component is maximized (i.e. no non-residential uses) is shown in Table 6. As in Scenario 2, a building size of 156,074 SF was used. An average unit size of 1,000 SF¹ was assumed to convert the square footage into number of units. Accordingly, the trip generation was calculated based on 156 dwelling units using the standard ITE rates/equations.

As shown in Table 6, Scenario 3 generated **36** AM peak hour vehicle trips and **56** PM peak hour vehicle trips.

Table 6
Site Trip Generation Summary for MU-6 – Scenario 3

Land Use		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Proposed Development							
156 DU of occupied Apartments (LUC 220)	Total Trips	16	64	80	67	36	103
	<i>Non-auto Trips</i>	9	35	44	37	20	57
	<i>Transit</i>	6	26	32	27	14	41
	<i>Bicycle</i>	1	3	4	3	2	5
	<i>Pedestrian</i>	2	6	8	7	4	11
	Vehicle Trips	7	29	36	30	16	46

CONCLUSIONS

A comparison of the maximum trip generation potential under each of the three scenarios is shown in Table 7.

¹ 1,000 SF per unit was assumed to account for all the common areas in the building (e.g. vertical circulation, corridors, residential lobby, storage).



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Table 7
Vehicle Trip Generation Summary PDR-2 vs. MU-6

Scenario	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
#1 (PDR-2)	110	45	155	49	100	149
#2 (MU-6; max non-residential)	95	64	159	77	106	183
#3 (MU-6; max residential)	7	29	36	30	16	46

As shown in Table 7, Scenario #3, which maximized the residential use under the MU-6 zone, would generate significantly fewer vehicle trips than either of the other scenarios. Scenario #2, which maximized the non-residential use under the MU-6 zone, would generate just 2.5 percent more vehicle trips during the AM peak hour than the PDR-2 scenario and 23 percent more during the PM peak hour.

In 2015, Wells + Associates conducted traffic counts at the intersection of Rhode Island Avenue and Reed Street, which is the signalized intersection immediately adjacent to the subject property. Based on these traffic counts, the current volume of traffic traveling through the intersection is approximately 3,100 vehicles per hour during both the AM and PM peak hours. The additional traffic generated by Scenarios #1 (PDR-2) and #2 (MU-6 with non-residential component maximized) would account for less than five percent of the traffic at the intersection. Scenario #3 (MU-6 with the residential component maximized) would account for just one percent of the total traffic at the intersection.

In conclusion, Scenario #3, which maximizes the residential component under the MU-6 zone, would likely have substantially fewer traffic impacts than could be realized under the current zoning given its significantly lower vehicle trip generation.

Scenario #2, which maximizes the non-residential component under the MU-6 zone, is expected to have similar traffic impacts as under the current zoning during the AM peak hour. Under Scenario #2, the PM peak hour vehicle trip generation is expected to be moderately higher.

We trust that this memorandum provides you with adequate information regarding the transportation issues related to the proposed Zoning Map amendment application. Should you require any additional information, please do not hesitate to contact us at jlmilanovich@wellsandassociates.com, agharat@wellsandassociates.com, or (703) 917-6620 with any questions.

FIGURES

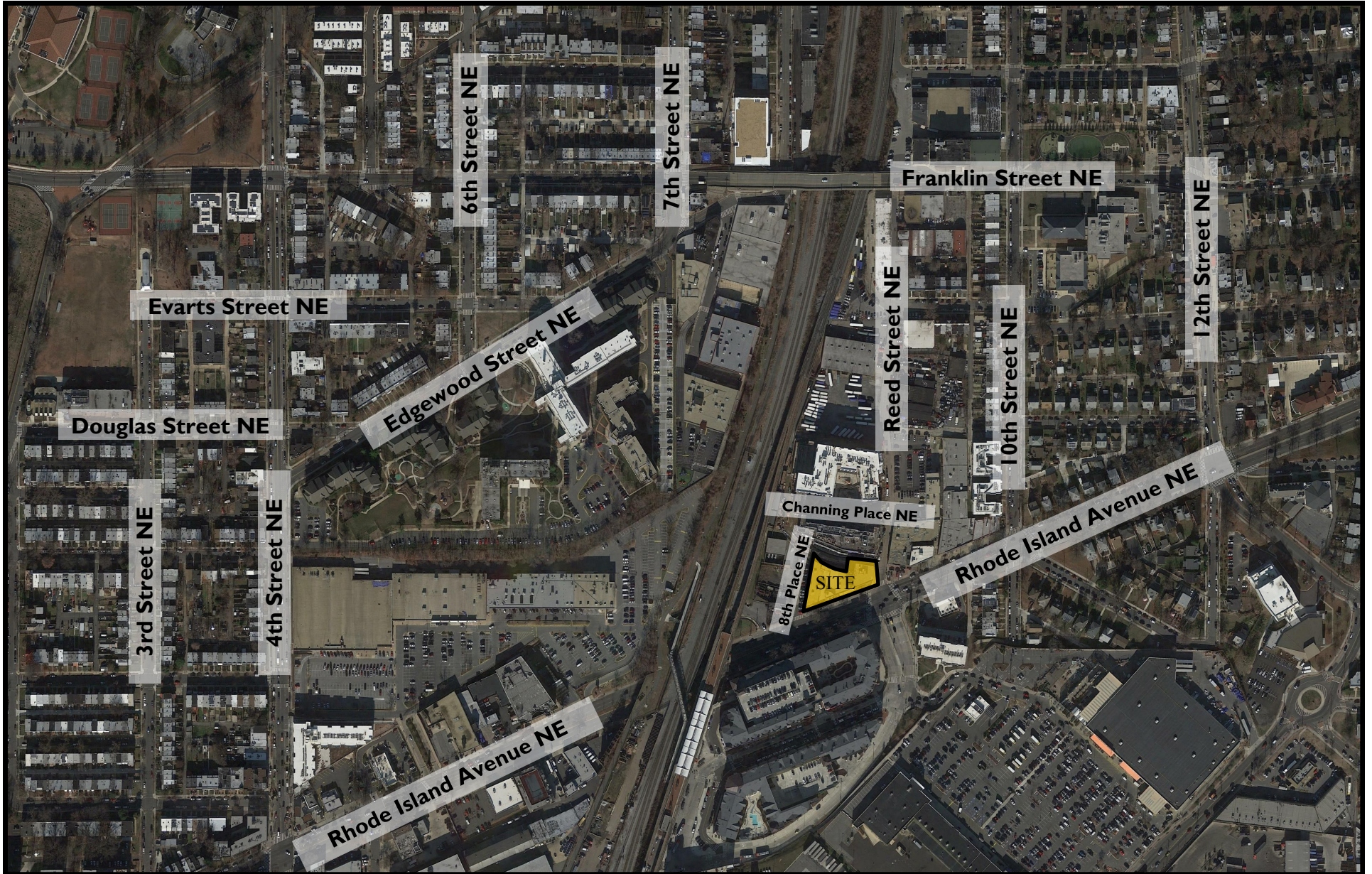


Figure 1
Site Location



NORTH

802-810 Rhode Island Ave NE
Washington, DC



ATTACHMENT A
SCENARIO 1 – TRIP GENERATION

PROJECT: 802-810 Rhode Island Avenue NE
W+A JOB NO: 7424
DATE: 1/8/2018
LOCATION: Washington,DC

Scenario 1 (Total SF = 65,031 SF)

Table 1 - Trip Generation (Scenario 1A)

Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday ADI
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Retail	820	13,006	SF							
Total Trips ¹				28	17	45	73	80	153	1804
TDM Reduction ²		60%		17	10	27	44	48	92	1,082
Transit		42%		12	7	19	31	34	65	758
Bike		7%		2	1	3	5	5	10	126
Pedestrian		11%		3	2	5	8	9	17	198
Vehicle Trips (External - TDM Reduction)				11	7	18	29	32	61	722
Pass-by Trips		0%	34%	-	-	-	10	11	21	123
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				11	7	18	19	21	40	599
Office	710	52,025	SF							
Total Trips ¹				99	14	113	23	114	137	799
TDM Reduction ²		45%		45	6	51	10	51	61	360
Transit		33%		33	4	37	8	37	45	264
Bike		5%		5	1	6	1	6	7	40
Pedestrian		7%		7	1	8	1	8	9	56
Vehicle Trips (External - TDM Reduction)				54	8	62	13	63	76	439
Total Trips										
Total Trips				127	31	158	96	194	290	2603
TDM Reduction				62	16	78	54	99	153	1,442
Transit				45	11	56	39	71	110	1,022
Bike				7	2	9	6	11	17	166
Pedestrian				10	3	13	9	17	26	254
Vehicles Trips (External-TDM Reduction)				65	15	80	42	95	137	1,161
Pass-by Trips				-	-	-	10	11	21	123
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				65	15	80	32	84	116	1,038

Notes:

¹ Trips generated using Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition.

² Non-Auto Mode Splits based on distance to Metro, WMATA Ridership Data, and Census Data.

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Scenario 1 (Total SF = 65,031 SF)

Table 2 - Trip Generation (Scenario 1B)

Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday ADT
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Grocery Store	850	65,031	SF							
Total Trips ¹				137	84	221	289	277	566	5,745
<i>TDM Reduction</i> ²		60%		82	50	132	173	166	339	3,447
<i>Transit</i>		42%		58	35	93	121	116	237	2,413
<i>Bike</i>		7%		9	6	15	20	20	40	402
<i>Pedestrian</i>		11%		15	9	24	32	30	62	632
Vehicle Trips (External - TDM Reduction)				55	34	89	116	111	227	2,298
<i>Pass-by Trips</i>		0%	36%	-	-	-	42	40	82	414
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				55	34	89	74	71	145	1,884

Notes:

¹ Trips generated using Institute of Transportation Engineers (ITE) *Trip Generation*, 9th Edition.

² Non-Auto Mode Splits based on distance to Metro, WMATA Ridership Data, and Census Data.

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Scenario 1 (Total SF = 65,031 SF)

Table 3 - Trip Generation (Scenario 1C)

Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday ADT
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Retail	820	65,031	SF							
Total Trips ¹				74	46	120	216	233	449	5134
<i>TDM Reduction</i> ²		60%		44	28	72	130	140	270	3,080
<i>Transit</i>		42%		31	20	51	91	98	189	2,156
<i>Bike</i>		7%		5	3	8	15	16	31	359
<i>Pedestrian</i>		11%		8	5	13	24	26	50	565
Vehicle Trips (External - TDM Reduction)				30	18	48	86	93	179	2,054
<i>Pass-by Trips</i>		0%	34%	-	-	-	29	32	61	349
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				30	18	48	57	61	118	1,705

Notes:
¹ Trips generated using Institute of Transportation Engineers (ITE) *Trip Generation*, 9th Edition.
² Non-Auto Mode Splits based on distance to Metro, WMATA Ridership Data, and Census Data.

PROJECT: 802-810 Rhode Island Avenue NE
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LOCATION: Washington,DC

Scenario 1 (Total SF = 65,031 SF)

Table 4 - Trip Generation (Scenario 1D)

Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday ADT
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Office	710	52,031	SF							
Total Trips ¹				99	14	113	23	114	137	799
TDM Reduction ²		45%		45	6	51	10	51	61	360
Transit		33%		33	4	37	8	38	46	264
Bike		5%		5	1	6	1	5	6	40
Pedestrian		7%		7	1	8	1	8	9	56
Vehicle Trips (External - TDM Reduction)				54	8	62	13	63	76	439
Retail	820	7,000	SF							
Total Trips ¹				19	12	31	48	53	101	1206
TDM Reduction ²		60%		11	7	18	28	32	60	724
Transit		42%		8	5	13	20	22	42	507
Bike		7%		1	1	2	3	4	7	84
Pedestrian		11%		2	1	3	5	6	11	133
Vehicle Trips (External - TDM Reduction)				8	5	13	20	21	41	482
Pass-by Trips		0%	34%	-	-	-	7	7	14	82
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				8	5	13	13	14	27	400
Fast Food without Drive Through	933	6,000	SF							
Total Trips ¹				158	105	263	80	77	157	4,296
TDM Reduction ²		40%		63	42	105	32	31	63	1,718
Transit		30%		48	32	80	24	24	48	1,289
Bike		4%		6	4	10	3	3	6	172
Pedestrian		6%		9	6	15	5	4	9	257
Vehicle Trips (External - TDM Reduction)				95	63	158	48	46	94	2,578
Pass-by Trips		49%	50%	47	31	78	24	23	47	645
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				48	32	81	24	23	47	1,934
Total Trips										
Total Trips				276	131	407	151	244	395	6301
TDM Reduction				119	55	174	70	114	184	2,802
Transit				89	41	130	52	84	136	2,060
Bike				12	6	18	7	12	19	296
Pedestrian				18	8	26	11	18	29	446
Vehicles Trips (External-TDM Reduction)				157	76	233	81	130	211	3,499
Pass-by Trips				47	31	78	31	30	61	726
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				110	45	156	50	100	150	2,773

Notes:

¹ Trips generated using Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition.

² Non-Auto Mode Splits based on distance to Metro, WMATA Ridership Data, and Census Data.

ATTACHMENT B
SCENARIO 2 – TRIP GENERATION

PROJECT: 802-810 Rhode Island Avenue NE
W+A JOB NO: 7424
DATE: 1/8/2018
LOCATION: Washington,DC

Scenario 2 (Total SF = 156,074 SF)

Table 1 - Trip Generation (Scenario 2A)										
Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday ADT
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Apartments ¹	220	113	DU							
Total Trips ²				12	47	59	52	28	80	807
TDM Reduction ³		55%		6	26	32	29	15	44	444
Transit		40%		5	19	24	21	11	32	323
Bike		5%		-	2	2	3	1	4	40
Pedestrian		10%		1	5	6	5	3	8	81
Vehicle Trips (External - TDM Reduction)				6	21	27	23	13	36	363
Retail	820	19,509	SF							
Total Trips ²				36	22	58	96	104	200	2347
TDM Reduction ³		60%		22	13	35	58	62	120	1,408
Transit		42%		15	9	24	40	44	84	986
Bike		7%		3	2	5	7	7	14	164
Pedestrian		11%		4	2	6	11	11	22	258
Vehicle Trips (External - TDM Reduction)				14	9	23	38	42	80	939
Pass-by Trips		0%	34%	-	-	-	13	14	27	160
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				14	9	23	25	28	53	779
Office	710	23,845	SF							
Total Trips ²				54	7	61	18	87	105	442
TDM Reduction ³		45%		24	3	27	8	39	47	199
Transit		33%		18	2	20	6	29	35	146
Bike		5%		2	-	2	1	4	5	22
Pedestrian		7%		4	1	5	1	6	7	31
Vehicle Trips (External - TDM Reduction)				30	4	34	10	48	58	243
Total Trips										
Total Trips				102	76	178	166	219	385	3596
TDM Reduction				52	42	94	95	116	211	2,051
Transit				38	30	68	67	84	151	1,455
Bike				5	4	9	11	12	23	226
Pedestrian				9	8	17	17	20	37	370
Vehicles Trips (External-TDM Reduction)				50	34	84	71	103	174	1,545
Pass-by Trips				-	-	-	13	14	27	160
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				50	34	84	58	89	147	1,385

Notes:
¹ Assumed 1,000 SF per unit.
² Trips generated using Institute of Transportation Engineers (ITE) *Trip Generation*, 9th Edition.
³ Non-Auto Mode Splits based on distance to Metro, WMATA Ridership Data, and Census Data.

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Scenario 2 (Total SF = 156,074 SF)

Table 2 - Trip Generation (Scenario 2B)										
Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday ADT
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Apartments ¹	220	113	DU							
Total Trips ²				12	47	59	52	28	80	807
TDM Reduction ³		55%		7	26	33	29	15	44	444
Transit		40%		5	19	24	21	11	32	323
Bike		5%		1	2	3	3	1	4	40
Pedestrian		10%		1	5	6	5	3	8	81
Vehicle Trips (External - TDM Reduction)				5	21	26	23	13	36	363
Retail	820	43,354	SF							
Total Trips ²				58	36	94	164	178	342	3945
TDM Reduction ³		60%		34	22	56	98	107	205	2,367
Transit		42%		24	15	39	69	75	144	1,657
Bike		7%		4	3	7	11	12	23	276
Pedestrian		11%		6	4	10	18	20	38	434
Vehicle Trips (External - TDM Reduction)				24	14	38	66	71	137	1,578
Pass-by Trips		0%	34%	-	-	-	22	24	47	268
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				24	14	38	44	47	90	1,310
Total Trips										
Total Trips				70	83	153	216	206	422	4752
TDM Reduction				41	48	89	127	122	249	2,811
Transit				29	34	63	90	86	176	1,980
Bike				5	5	10	14	13	27	316
Pedestrian				7	9	16	23	23	46	515
Vehicles Trips (External-TDM Reduction)				29	35	64	89	84	173	1,941
Pass-by Trips				-	-	-	22	24	47	268
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				29	35	64	67	60	126	1,673

Notes:
¹ Assumed 1,000 SF per unit.
² Trips generated using Institute of Transportation Engineers (ITE) *Trip Generation*, 9th Edition.
³ Non-Auto Mode Splits based on distance to Metro, WMATA Ridership Data, and Census Data.

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Scenario 2 (Total SF = 156,074 SF)

Table 3 - Trip Generation (Scenario 2C)										
Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday ADT
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Apartments ¹	220	113	DU							
Total Trips ²				12	47	59	52	28	80	807
TDM Reduction ³		55%		7	26	33	29	15	44	444
Transit		40%		5	19	24	21	11	32	323
Bike		5%		1	2	3	3	1	4	40
Pedestrian		10%		1	5	6	5	3	8	81
Vehicle Trips (External - TDM Reduction)				5	21	26	23	13	36	363
Office	710	23,845	SF							
Total Trips ²				54	7	61	18	87	105	442
TDM Reduction ³		45%		24	3	27	8	39	47	199
Transit		33%		18	3	21	6	29	35	146
Bike		5%		2	-	2	1	4	5	22
Pedestrian		7%		4	-	4	1	6	7	31
Vehicle Trips (External - TDM Reduction)				30	4	34	10	48	58	243
Retail	820	10,509	SF							
Total Trips ²				24	15	39	63	69	132	1570
TDM Reduction ³		60%		14	9	23	38	41	79	942
Transit		42%		10	6	16	26	29	55	659
Bike		7%		2	1	3	5	4	9	110
Pedestrian		11%		2	2	4	7	8	15	173
Vehicle Trips (External - TDM Reduction)				10	6	16	25	28	53	628
Pass-by Trips		0%	34%	-	-	-	9	10	18	107
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				10	6	16	17	18	35	521
High Turnover Sit Down Restaurant	932	9,000	SF							
Total Trips ²				53	44	97	53	36	89	1,144
TDM Reduction ³		40%		21	18	39	21	14	36	458
Transit		30%		16	13	29	16	11	27	343
Bike		4%		2	2	4	2	1	4	46
Pedestrian		6%		3	3	6	3	2	5	69
Vehicle Trips (External - TDM Reduction)				32	26	58	32	22	53	686
Pass-by Trips		0%	40%	-	-	-	13	9	22	137
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				32	26	58	19	13	31	549
Total Trips										
Total Trips				143	113	256	186	220	406	3963
TDM Reduction				66	56	122	96	109	206	2,043
Transit				49	41	90	69	80	149	1,471
Bike				7	5	12	11	10	22	218
Pedestrian				10	10	20	16	19	35	354
Vehicles Trips (External-TDM Reduction)				77	57	134	90	111	200	1,920
Pass-by Trips				-	-	-	21	18	40	244
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				77	57	134	69	93	160	1,676

Notes:

¹ Assumed 1,000 SF per unit.

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Scenario 2 (Total SF = 156,074 SF)

Table 4 - Trip Generation (Scenario 2D)										
Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday ADT
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Apartments ¹	220	113	DU							
Total Trips ²				12	47	59	52	28	80	807
TDM Reduction ³		55%		7	26	33	29	15	44	444
Transit		40%		5	19	24	21	11	32	323
Bike		5%		1	2	3	3	1	4	40
Pedestrian		10%		1	5	6	5	3	8	81
Vehicle Trips (External - TDM Reduction)				5	21	26	23	13	36	363
Office	710	23,845	SF							
Total Trips ²				54	7	61	18	87	105	442
TDM Reduction ³		45%		24	3	27	8	39	47	199
Transit		33%		18	3	21	6	29	35	146
Bike		5%		2	-	2	1	4	5	22
Pedestrian		7%		4	-	4	1	6	7	31
Vehicle Trips (External - TDM Reduction)				30	4	34	10	48	58	243
Retail	820	13,509	SF							
Total Trips ²				29	17	46	75	82	157	1849
TDM Reduction ³		60%		17	10	27	45	49	94	1,109
Transit		42%		12	7	19	32	34	66	777
Bike		7%		2	1	3	5	6	11	129
Pedestrian		11%		3	2	5	8	9	17	203
Vehicle Trips (External - TDM Reduction)				12	7	19	30	33	63	740
Pass-by Trips		0%	34%	-	-	-	10	11	21	126
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				12	7	19	20	22	42	614
Fast Food without Drive Through	933	6,000	SF							
Total Trips ²				158	105	263	80	77	157	4,296
TDM Reduction ³		40%		63	42	105	32	31	63	1,718
Transit		30%		48	32	80	24	23	47	1,288
Bike		4%		6	4	10	3	3	6	172
Pedestrian		6%		9	6	15	5	5	10	258
Vehicle Trips (External - TDM Reduction)				95	63	158	48	46	94	2,578
Pass-by Trips		49%	50%	47	31	78	24	23	47	645
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				48	32	81	24	23	47	1,934
Total Trips										
Total Trips				253	176	429	225	274	498.9	7394
TDM Reduction				111	81	192	114	134	248	3,470
Transit				83	61	144	83	97	180	2,534
Bike				11	7	18	12	14	26	363
Pedestrian				17	13	30	19	23	42	573
Vehicles Trips (External-TDM Reduction)				142	95	237	111	140	251	3,924
Pass-by Trips				47	31	78	34	34	68	770
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				95	64	160	77	106	183	3,154

Notes:

¹ Assumed 1,000 SF per unit.

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Scenario 2 (Total SF = 156,074 SF)

Table 5 - Trip Generation (Scenario 2E)

Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday ADT
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Apartments ¹	220	113	DU							
Total Trips ²				12	47	59	52	28	80	807
TDM Reduction ³		55%		7	26	33	29	15	44	444
Transit		40%		5	19	24	21	11	32	323
Bike		5%		1	2	3	3	1	4	40
Pedestrian		10%		1	5	6	5	3	8	81
Vehicle Trips (External - TDM Reduction)				5	21	26	23	13	36	363
Office	710	23,845	SF							
Total Trips ²				54	7	61	18	87	105	442
TDM Reduction ³		45%		24	3	27	8	39	47	199
Transit		33%		18	3	21	6	29	35	146
Bike		5%		2	-	2	1	4	5	22
Pedestrian		7%		4	-	4	1	6	7	31
Vehicle Trips (External - TDM Reduction)				30	4	34	10	48	58	243
Retail	820	10,509	SF							
Total Trips ²				24	15	39	63	69	132	1570
TDM Reduction ³		60%		14	9	23	38	41	79	942
Transit		42%		10	6	16	26	28	54	659
Bike		7%		1	1	2	5	5	10	110
Pedestrian		11%		3	2	5	7	8	15	173
Vehicle Trips (External - TDM Reduction)				10	6	16	25	28	53	628
Pass-by Trips		0%	34%	-	-	-	9	10	18	107
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				10	6	16	17	18	35	521
Quality Restaurant	931	9,000	SF							
Total Trips ²				4	3	7	45	22	67	810
TDM Reduction ³		40%		2	1	3	18	9	27	324
Transit		30%		2	1	3	14	7	20	243
Bike		4%		-	-	-	1	1	3	32
Pedestrian		6%		-	-	-	3	1	4	49
Vehicle Trips (External - TDM Reduction)				2	2	4	27	13	40	486
Pass-by Trips		0%	40%	-	-	-	11	5	16	97
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				2	2	4	16	8	24	388
Total Trips										
Total Trips				94	72	166	178	206	384	3629
TDM Reduction				47	39	86	93	104	197	1,909
Transit				35	29	64	67	75	141	1,371
Bike				4	3	7	10	11	22	204
Pedestrian				8	7	15	16	18	34	334
Vehicles Trips (External-TDM Reduction)				47	33	80	85	102	187	1,720
Pass-by Trips				-	-	-	19	15	34	204
New Vehicle Trips (Vehicle Trips - Pass-by Trips)				47	33	80	66	87	153	1,516

Notes:

¹ Assumed 1,000 SF per unit.

² Trips generated using Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition.

³ Non-Auto Mode Splits based on distance to Metro, WMATA Ridership Data, and Census Data.