

Appendix C411

Annotated Spreadsheets Showing the Derivation of Trip Generation

## **APPENDIX MATERIAL**

- This document essentially walks through how the tables for trip generation in the DGEIS were derived. The walk through is pointing to the AM trips; however, the process also applies to PM and Saturday.
- There are some places where rounding from the spread sheet may show a one or two vehicle difference from one sheet to the next.

Table 14: Existing Trip Generation

	Hotel 617 rooms	Office 1,636 KSF	Coliseum 435 KSF	Subtotal
<b>AM Peak</b>				
In	236	1,544	83	1,863
Out	151	211	20	382
Total	387	1,755	103	2,245
<b>PM Peak</b>				
In	191	325	1,087	1,603
Out	170	1,586	114	1,870
Total	361	1,911	1,201	3,473
<b>Saturday Midday</b>				
In	239	185	80	504
Out	188	157	63	408
Total	427	342	143	912

\* Coliseum daily trip generation was not counted. Only the peak hours were counted.

See Table TG-1 which is based on ITE Rates or empirical data collected by VHB for this project.

The New coliseum trip generation is the sum of the Conv Center and Coliseum columns in this Table and are also shown in TG-1 in one column. See TG-2 for derivations

Table 15: Full Development Trip Generation

	Apartment 57 units	Condos 2,190 units	Senior Housing 59 units	Hotel 917 rooms	Cinema 65KSF	Office 2,636 KSF	Retail 435 KSF	Health Club 50 KSF	Practice Facilities	Convention Space**	Coliseum *** 20,000 seats	Subtotal
<b>AM Peak</b>												
In	6	104	2	386	n/a	2,261	231	25	25	35	83	3,158
Out	25	506	3	247	n/a	308	147	35	25	9	20	1,325
Total	31	610	5	633	n/a	2,569	378	60	50	44	103	4,483
<b>PM Peak</b>												
In	32	506	4	285	200	515	793	103	160	465	1,087	4,150
Out	17	249	3	253	113	2,516	859	99	160	49	114	4,432
Total	49	755	7	538	313	3,031	1,652	202	320	514	1,201	8,582
<b>Saturday Midday</b>												
In	21	366	9	355	239	276	1,170	65	160	34	80	2,775
Out	21	312	9	279	80	235	1,080	65	160	27	63	2,330
Total	42	678	18	634	319	511	2,250	130	320	61	143	5,105

See Table TG-1 which is based on ITE Rates or empirical data collected by VHB for this project.

Table 16: Net-New Trip Generation Summary (Unadjusted Vehicles)

	Total Future Trip Generation	Less Existing Trip Generation	Less Ring 1	Total Net-New Vehicle Trips
<b>AM Peak</b>				
In	3,158	-1,863	-314	981
Out	<u>1,325</u>	<u>-382</u>	<u>-314</u>	<u>629</u>
Total	4,483	-2,245	-628	1,610
<b>PM Peak</b>				
In	4,150	-1,603	-611	1,936
Out	<u>4,432</u>	<u>-1,870</u>	<u>-611</u>	<u>1,951</u>
Total	8,582	-3,473	-1,222	3,887
<b>Saturday Midday</b>				
In	2,775	-504	-552	1,719
Out	<u>2,330</u>	<u>-408</u>	<u>-552</u>	<u>1,370</u>
Total	5,105	-912	-1,104	3,089

See Table 15

See Table 14.

See Table TG-1 #A.

= (4,483 - 2,245 - 628)

Table 17: Local and Regional Net-New Trips (Unadjusted Vehicles)

	Local Ring 2	Regional	Total Net-New Vehicle Trips
<b>AM Peak</b>			
In	44	937	981
Out	<u>44</u>	<u>585</u>	<u>629</u>
Total	88	1,522	1,610
<b>PM Peak</b>			
In	357	1,573	1,930
Out	<u>357</u>	<u>1,594</u>	<u>1,951</u>
Total	714	3,167	3,887
<b>Saturday Midday</b>			
In	354	1,365	1,719
Out	<u>354</u>	<u>1,016</u>	<u>1,370</u>
Total	708	2,381	3,089

Difference of 1,610 minus 88

Table TG-1 Site pass-by+ sharing with other retail

From Table 16

Table 18: Vehicular Mode Split Summary

	National Average	Localized Average
Residential	95%	86%
Office	95%	95%
Retail*	95%	95%

Source: 2000 US Census Data

\*Retail national and localized mode split averages were not available from 2000 US Census Data and were, therefore, assumed to be similar to office mode splits.

Table 19: Net-New Adjusted Trip Generation Summary

	Ring 2	Regional	Total Net-New Vehicle Trips
<b>AM Peak</b>			
In	42	<del>930</del> 925	972
Out	<u>42</u>	<u>539</u>	<u>581</u>
Total	84	<del>1,469</del> 1,464	1,553
<b>PM Peak</b>			
In	348	1,556	1,904
Out	<u>348</u>	<u>1,588</u>	<u>1,936</u>
Total	696	3,144	3,840
<b>Saturday Midday</b>			
In	347	1,362	1,709
Out	<u>347</u>	<u>1,001</u>	<u>1,348</u>
Total	694	2,363	3,057

Table 17 after adjust trips  
Tables in Table  
Using the localized  
average mode split

See TG-3; TG-4; TG-5  
for reductions from using  
localized transit data.  
Also corrected typos in  
original tables for DGEIS

Table 20: 2014 Net-New Phase 1 Adjusted Trip Generation Summary

	Ring 2	Regional	Net-New Total
<b>AM Peak</b>			
In	60	282	342
Out	<u>60</u>	<u>389</u>	<u>449</u>
Total	120	671	791
<b>PM Peak</b>			
In	304	1,338	1,642
Out	<u>304</u>	<u>718</u>	<u>1,022</u>
Total	608	2,056	2,664
<b>Saturday Midday</b>			
In	313	1,075	1,388
Out	<u>313</u>	<u>773</u>	<u>1,086</u>
Total	626	1,848	2,474

Table 20 is Table 19 developed for the Phase 1  
trip generation. Table 20 was developed using  
the same methodology but for the 2014  
development program as explained in the DGEIS

Table 27: Vehicular Mode Split Summary

	Existing Local Mode Split <sup>1</sup>	Future Mode Split <sup>2</sup>
Residential	86%	81%
Office	95%	93%
Retail	95%	93%

<sup>1</sup> Based on 2000 US Census Data

<sup>2</sup> Assumes that the proposed Trolley and Express Shuttle transit services are in place. Based on 2000 US Census Data around the Mineola Train Station.

Table 28: Full Build with Mitigation Vehicle Trip Generation Summary

	Ring 2	Regional	Net-New Vehicle Trips
<b>Weekday Morning</b>			
In	40	<del>906</del> 900*	946
Out	40	<del>511</del> 510*	551
Total	80	<del>1,417</del> 1,410*	1,497
<b>Weekday Evening</b>			
In	338	1,515	1,853
Out	<u>338</u>	<u>1,553</u>	<u>1,891</u>
Total	676	3,068	3,744
<b>Saturday Midday</b>			
In	337	1,309	1,646
Out	<u>337</u>	<u>974</u>	<u>1,311</u>
Total	674	2,283	2,957

With the proposed transit program in the DGEIS; trolley between nearby uses and the Lighthouse as well as the Express shuttle to Mineola LIRR Station and reasonable assumed increase in transit ridership in future VHB adjusted mode split as shown in Table 27. NYMTC's recent studies may show these numbers to be fairly conservative for future mode split in Nassau County

Based on Table 27 in the DGEIS further adjustments were made to the results in Table 19 to reflect a slight reduction in Vehicle trips due to the proposed transit plan for the Lighthouse". See Table TG-3 and TG-4 for derivation of these numbers

**COPY:**  
TABLE 19: Net New Adjusted Trip Generation Summary

	Ring2	Regional	Total Net-New Vehicle Trips
<b>AM Peak</b>			
In	42	930 925	972
Out	<u>42</u>	<u>539</u>	<u>581</u>
Total	84	1,469 1,464	1,553
<b>PM Peak</b>			
In	348	1,556	1,904
Out	<u>348</u>	<u>1,588</u>	<u>1,936</u>
Total	696	3,144	3,840
<b>Saturday Midday</b>			
In	347	1,362	1,709
Out	<u>347</u>	<u>1,001</u>	<u>1,348</u>
Total	694	2,363	3,057

- Corrected values from DGEIS Table

**Table TG-1**

Development Type ITE Land Use Code Size	EXISTING USES				FULL DEVELOPMENT									
	Hotel 310 617 rooms	Office 710 1,636 KSF	Coliseum n/a 435 KSF	Subtotal	Apartment 220 57 units	Condo 230 2,190 units	Active Adult 252 59 units	Hotel 310 917 rooms	Cinema 445 65 KSF	Health Club 492 50 KSF	Office 710 2,636 KSF	Retail 820 435 KSF		Practice Fac. n/a 4 Rinks
<b>Weekday Daily</b>	5,104	11,476	n/a	16,580	493	8,848	205	7,789	n/a	1,647	16,569	17,659	n/a	n/a
<b>Weekday Morning</b>														
<b>IN</b>	236	1,544	83	1,863	6	104	2	386	n/a	25	2,261	231	25	118
<b>OUT</b>	151	211	20	381	25	506	3	247	n/a	35	308	147	25	29
<b>Total</b>	386	1,755	103	2,244	32	610	5	634	n/a	61	2,570	378	50	147
<b>Weekday Evening</b>														
<b>IN</b>	191	325	1,087	1,603	32	506	4	285	200	103	515	793	160	1,552
<b>OUT</b>	170	1,586	114	1,870	17	249	3	253	113	99	2,516	859	160	163
<b>Total</b>	361	1,911	1,201	3,473	49	755	6	538	313	203	3,031	1,652	320	1,715
<b>Saturday Daily</b>	5,503	3,520	n/a	9,112	191	8,356	148	8,479	n/a	1,044	5,660	23,329	n/a	n/a
<b>Saturday Midday</b>														
<b>IN</b>	239	192	80	511	9	355	9	355	239	65	283	1,170	160	114
<b>OUT</b>	88	164	63	414	9	279	9	279	80	65	241	1,080	160	90
<b>Total</b>	327	356	143	925	18	678	18	634	318	130	523	2,251	320	204

Table 14

Table 15

Table 14

See Table TG6

Actually Ring 2 trips is the addition of this column with "Site Pass By" Column

Actually Ring 1

Table 15

Development Type ITE Land Use Code Size	Retail External Trips	CREDITS			Subtotal	Regional Draw
		Site Pass-by	Internal/ Shared Site Trips	Site Other w/ Other Retail Sharing		
<b>Weekday Daily</b>	12,515	4,252	2,909	17,672	18,957	
<b>Weekday Morning</b>						
<b>IN</b>		11	33	358	939	
<b>OUT</b>		11	33	358	587	
<b>Total</b>	65	22	66	716	1,526	
<b>Weekday Evening</b>						
<b>IN</b>		235	68	68	1,579	
<b>OUT</b>		235	68	68	1,593	
<b>Total</b>	1,383	470	136	936	3,173	
<b>Saturday Daily</b>	17,815	4,632	1,779	17,526	20,568	
<b>Saturday Midday</b>						
<b>IN</b>		262	92	907	1,364	
<b>OUT</b>		262	92	907	1,015	
<b>Total</b>	2,016	524	184	1,813	2,380	

Table TG6

22 is 34% of 64 pass-by

Comes from TG2 or (121+314+192)

This column is hard coded into the spread sheet based on TG-7 & TG-8 using the ITE methodology for sharing of trips that would occur between the Lighthouse and Roosevelt Field and the Source.

= new trips minus pass by minus internal shared trips minus retail trips shared between the large retail Field and Lighthouse

This portion of Table TG-1 is a spreadsheet that is linked to several other spreadsheets that calculates the trips by use from ITE rates or hardwired rates from VHB empirical data

This column is the only place we calculate pass by trips; pass by trips are only calculated for external retail trips which are calculated in Table TG6

This portion of Table TG-1 is a spreadsheet that is linked to several other spreadsheets that calculates the credits that are applied. The credits come from shared trips and pass by trips.

Note 1 - In addition to sharing between uses internal to the site, it is estimated that a certain percentage of traffic associated with the Lighthouse at Long Island development will also interact with nearby sites. The area surrounding the proposed project has a large concentration of retail uses - Roosevelt Field (approximately 2.2 million square feet of retail uses) and The Mall at the Source (approximately 736,000 square feet of retail uses). As these retail centers already attract a large number of regional trips to the area, it is reasonable to assume the whole area acts as a regional magnet of retail activity with additional trips generated between the individual sites within the area but not with additional new trips on the regional roadways. These trips are envisioned to be contained within Ring 2 as described in the Methodology section of this memorandum. An example of a trip that will be contained within Ring 2 is an employee working at the Lighthouse at Long Island site that makes a retail trip to Roosevelt Field on its weekday evening commute home.

**Table TG-2**

HOTEL & RESIDENTIAL								As of Right	OFFICE					RETAIL					A	B	C	
Apartment	Condo	Active Adult	Hotel		RING 1 Internal	RING 2 Sharing w/ Rsvlt. & Src.	REGIONAL	Office	Office	RING 1 Internal	RING 2 Sharing w/ Rsvlt. & Src.	REGIONAL	Cinema	Retail	RING 1 Internal	RING 2	Pass-by	REGIONAL	Health Club	Practice Fac.	Convention	REGIONAL
220 057 Rooms	230 2,190 Rooms	252 059 Rooms	310 917 Rooms	Subtotal	Trips			710 1,636 KSF	710 2,636 KSF	Trips			445 065 KSF	820 435 KSF	Trips				050 KSF	4 Rinks	186 KSF	REGIONAL
493	8,848	205	7,789	17,335	3,921	2,327	5,983	11,476	16,569	1,444	582	3,067	n/a	17,659	5,143	4,255		8,260	1,647	n/a	n/a	1,647
6	104	2	386	499	91	23	149	1,544	2,261	39	10	668	n/a	231	184	11		36	25	25	35	86
25	506	3	247	781	102	23	506	211	308	82	10	6	n/a	147	130	11		6	35	25	9	69
32	610	5	634	1,280	193	46	654	1,755	2,570	121	20	675	n/a	378	314	22		42	61	50	44	155
32	506	4	285	827	295	91	250	325	515	67	31	93	200	793	249	235		509	103	160	465	728
17	249	3	253	522	204	91	57	1,586	2,516	74	31	824	112	859	333	235		404	99	160	49	308
49	755	6	538	1,349	499	182	307	1,911	3,031	141	62	917	313	1,652	582	470		913	203	320	514	1,036
191	8,356	148	8,479	17,174	4,758	1,601	5,223	3,520	5,660	843	178	1,119	n/a	23,329	5,514	4,632		13,183	1,044	n/a	n/a	1,044
21	366	9	355	751	222	78	212	192	283	95	14	-18	239	1,170	235	262		911	65	160	34	259
21	312	9	279	621	193	78	162	164	241	43	14	21	80	1,080	317	262		581	65	160	27	252
43	678	18	634	1,372	415	156	374	356	523	137	28	2	318	2,251	552	524		1,492	130	320	61	511

Internal/Shared Site Trips See TG6

Based on ITE Trip Generation

Based on empirical data provided by subconsultant to LDG specializing in these facilities.

Based on empirically derived data for the coliseum during a playoff hockey game. The rate was then applied to the additional sq footage be added to the coliseum not already accounted for in some other table

**Table TG-3**

	UNADJUSTED RESIDENTIAL			Adjusted Residential for Build Assignment			Adjusted Residential for Mitigation Condition		
	RING 1 Internal Trips	RING 2 Sharing w/ Rsvlt. & Src.	REGIONAL	RING 1 Internal Trips	RING 2 Sharing w/ Rsvlt. & Src.	REGIONAL	RING 1 Internal Trips	RING 2 Sharing w/ Rsvlt. & Src.	REGIONAL
<b>Weekday Daily</b>	3,921	2,327	5,983	3,549	2,107	5,416	3,343	1,984	5,101
<b>Weekday Morning</b>									
<b>IN</b>	91	23	149	83	21	135	78	20	127
<b>OUT</b>	102	23	506	92	21	458	87	20	431
<b>Total</b>	193	46	654	175	42	592	165	39	558
<b>4Weekday Evening</b>									
<b>IN</b>	295	91	250	267	82	226	252	78	213
<b>OUT</b>	204	91	57	185	82	52	174	78	49
<b>Total</b>	499	182	307	452	165	278	425	155	262
<b>Saturday Daily</b>	4,758	1,601	5,223	4,307	1,449	4,728	4,056	1,365	4,453
<b>Saturday Midday</b>									
<b>IN</b>	222	78	212	201	71	192	189	67	181
<b>OUT</b>	193	78	162	175	71	147	164	67	138
<b>Total</b>	415	156	374	376	141	339	354	133	319

**BOX A:**  
Trips get reduced slightly to adjust for "localized" average mode split VHB calculated for Nassau County. See Table 18

Table 19 Based on TG-3 and TG-4 with math shown below:  
Ring 2 = 42+20+22 or 84  
Regional = 675+592+42+155 or 1464

	Office for Build Assignment			Adjusted Office for Mitigation Condition		
	RING 1 Internal Trips	RING 2 Sharing w/ Rsvlt.&Src.	REGIONAL	RING 1 Internal Trips	RING 2 Sharing w/ Rsvlt.&Src.	REGIONAL
<b>Weekday Daily</b>	1,444	582	3,067	1,414	570	3,002
<b>Weekday Morning</b>						
<b>IN</b>	39	10	668	38	10	654
<b>OUT</b>	82	10	6	80	10	6
<b>Total</b>	121	20	675	118	20	660
<b>Weekday Evening</b>						
<b>IN</b>	67	31	93	65	30	91
<b>OUT</b>	74	31	824	73	30	807
<b>Total</b>	141	62	917	138	61	898
<b>Saturday Daily</b>	843	178	1,119	826	174	1,095
<b>Saturday Midday</b>						
<b>IN</b>	95	14	-18	93	14	-18
<b>OUT</b>	43	14	21	42	14	20
<b>Total</b>	137	28	2	135	27	2

Table 28 Calculations:  
Ring 2 = 39+20+21 or 80  
Regional = 558+660+41+151 or 1410

**Table TG-4**

	Retail for Build Assignment			Adjusted Retail for Mitigation Condition		
	RING 1 Internal Trips	RING 2 Pass-by	REGIONAL	RING 1 Internal Trips	RING 2 Pass-by	REGIONAL
Weekday Daily	5,143	4,255	8,260	5,035	4,166	8,086
Weekday Morning						
IN	184	11	36	180	11	35
OUT	<u>130</u>	<u>11</u>	<u>6</u>	<u>128</u>	<u>11</u>	<u>6</u>
Total	314	22	42	307	21	41
Weekday Evening						
IN	249	235	509	244	230	498
OUT	<u>333</u>	<u>235</u>	<u>404</u>	<u>326</u>	<u>230</u>	<u>395</u>
Total	582	470	913	570	460	893
Saturday Daily	5,514	4,632	13,183	5,398	4,534	12,906
Saturday Midday						
IN	235	262	911	230	257	892
OUT	<u>317</u>	<u>262</u>	<u>581</u>	<u>310</u>	<u>257</u>	<u>568</u>
Total	552	524	1,492	541	513	1,461

Part of calculation for adjusting trips... see Box A on page with Table TG-3

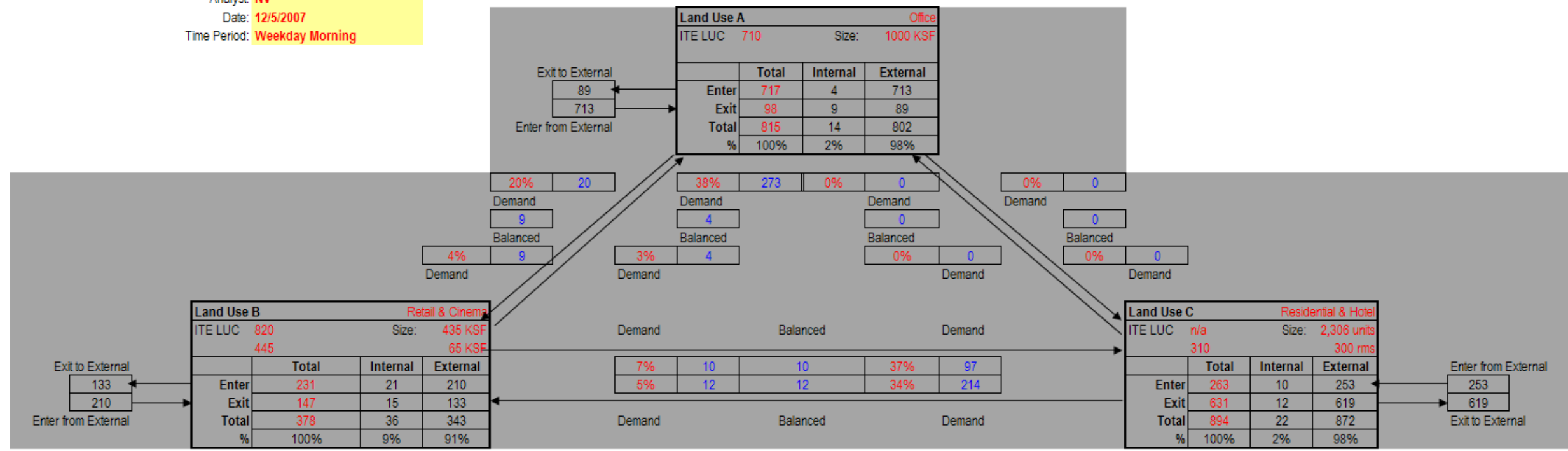
**Table TG-5**

	Other (Convention, Practice, & Health Club) for Build Assignment			Other (Convention, Practice, & Health Club) for Mitigation Condition		
	RING 1	RING 2	REGIONAL	RING 1	RING 2	REGIONAL
Weekday Daily	0	0	1,647	0	0	1,612
Weekday Morning						
IN	0	0	86	0	0	84
OUT	<u>0</u>	<u>0</u>	<u>69</u>	<u>0</u>	<u>0</u>	<u>67</u>
Total	0	0	155	0	0	151
Weekday Evening						
IN	0	0	728	0	0	713
OUT	<u>0</u>	<u>0</u>	<u>308</u>	<u>0</u>	<u>0</u>	<u>301</u>
Total	0	0	1,036	0	0	1,014
Saturday Daily	0	0	1,044	0	0	1,022
Saturday Midday						
IN	0	0	259	0	0	254
OUT	<u>0</u>	<u>0</u>	<u>252</u>	<u>0</u>	<u>0</u>	<u>247</u>
Total	0	0	511	0	0	500

### Table TG-6

values in      require user entry; all other values are static or calculated

Job Name: The Lighthouse at Long Island  
 Job Number: 27264  
 Analyst: NV  
 Date: 12/5/2007  
 Time Period: Weekday Morning



RING 1 trips

Original Calculated Internal Trips					
	Land Use A	Land Use B	Land Use C	Total	
Enter	4	21	10	36	
Exit	9	15	12	36	
Total	14	36	22	71	
Single-Use Trip Gen. Est.	815	378	894	2087	Check (should be 30%)
					<span style="background-color: orange;">3.4%</span>

Prorated Internal Trip Calculation					
	Land Use A	Land Use B	Land Use C	Check	Total
Enter	39	183	91	313	313
Exit	81	130	102	313	313
Total	120	313	193	626	626
Single-Use Trip Gen. Est.	815	378	894	2087	2087
					Internal Capture Rate
					<span style="background-color: orange;">30.0%</span>

External Trips					
	Land Use A	Land Use B	Land Use C	Check	Total
Enter	678	48	172	898	898
Exit	16	17	529	563	563
Total	695	65	701	1461	1461
Single-Use Trip Gen. Est.	815	378	894	2087	2087
					Check
					<span style="background-color: orange;">70.0%</span>

A

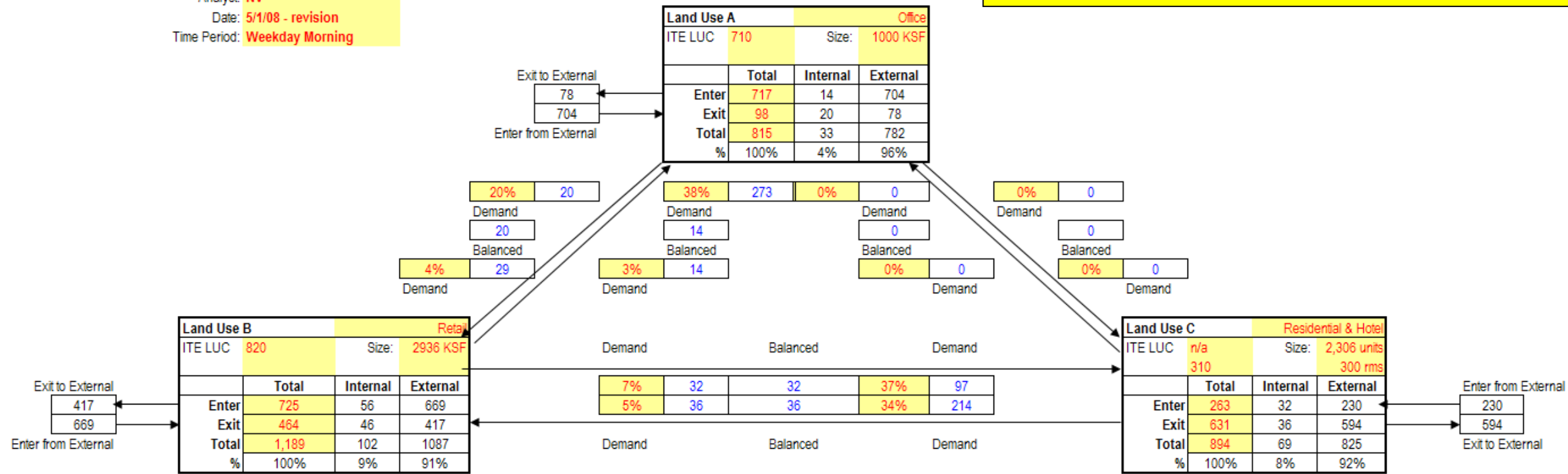
65 is the number of External retail trips subject to pass by reduction in Table TG-1

**Table TG-7**

values in      require user entry; all other values are static or calculated

Job Name: **The Lighthouse at Long Island**  
 Job Number: **27264**  
 Analyst: **NV**  
 Date: **5/1/08 - revision**  
 Time Period: **Weekday Morning**

This sheet (TG-7) shows that in the AM there could be 34+102+69 = 205 shared trips. Table TG-8 showed 72(36+14+22) shared trips. The difference is 133 and a half of this is rounded to 66 which is where this number in TableTG-1 comes from in the column labeled "site other w/ other retail sharing".



	Land Use A	Land Use B	Land Use C	Total	
Enter	704	669	230	1603	
Exit	78	417	594	1090	
Total	782	1087	825	2693	
Single-Use Trip Gen. Est.	815.2595	1189.017	893.53153	2897.808	Internal Capture Rate
					7.1%

Tables TG-7 and TG-8 were used to calculate the portion of the RING 2 trips that are related to sharing between uses external to the site. It is estimated that a certain percentage of traffic associated with the Lighthouse at Long Island development will also interact with nearby sites. The area surrounding the proposed project has a large concentration of retail uses – Roosevelt Field (approximately 2.2 million square feet of retail uses) and The Mall at the Source (approximately 736,000 square feet of retail uses). This is a total of over 2.9 million sq feet. As these retail centers already attract a large number of regional trips to the area, it is reasonable to assume the whole area acts as a regional magnet of retail activity with additional trips generated between the individual sites within the area but not with additional new trips on the regional roadways. These trips are envisioned to be contained within Ring 2 as described in the Methodology section of this memorandum. An example of a trip that will be contained within Ring 2 is an employee working at the Lighthouse at Long Island site that makes a retail trip to Roosevelt Field on its weekday evening commute home. TG-7 uses the ITE Triangle method to calculate the sharing component with Lighthouse if the retail portion in Lighthouse was 2,936,000 sq ft. TG-8 calculates the sharing for 435,000 sq feet of retail (as proposed in the developer’s plans). VHB took the difference between the two tables here and divided by 2 to calculate the number of shared trips that could be reasonably estimated. These trips represented one component of Ring 2 trips. The second component of Ring 2 trips was calculated in TG-1 for pass-by trips.

**Table TG-8**

values in   require user entry; all other values are static or calculated

Job Name: **The Lighthouse at Long Island**  
 Job Number: **27264**  
 Analyst: **NV**  
 Date: **5/1/08 - revision**  
 Time Period: **Weekday Morning**

