



## Memorandum

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Date: June 3, 2015

Project #: 38496.00

From: Andrew Topp, PE, PTOE

Re: 300 East Main Traffic Study  
Carrboro, NC

This memorandum provides an update to the trip generation totals calculated in the phasing analysis update completed by M/A/B (11/16/07) for the 300 East Main Street development in Carrboro, North Carolina. The development is located on the 300 block of East Main Street, west of Roberson Street and south of Main Street. New property was recently acquired by Main Street Properties, and is to be added to the current plan as a Hilton Garden Inn (approximately 149 rooms) with access provided through the approved development. This memorandum includes the updated trip generation with adjustments made to the site trips based on completed construction and inclusion of the new hotel.

### Introduction

The phasing analysis update completed by M/A/B (11/16/07), includes the following full build-out land use totals for this development.

- General Office (108,950 gsf)
- Retail (Shopping Center) (40,150 gsf)
- Specialty Retail Center (37,100 gsf)
- Hotel (87,500 gsf)
- High Turnover Restaurant (38,550 gsf)
- Arts Center/ Gallery (60,000 gsf)
- Nightclub (15,350 gsf)

Buildings A, C, and D as outlined in the CUP of the planned development have been completed. Some of the uses have been built with less square footage than originally anticipated or have had slight changes in the expected development plan. Specifically, the general retail, specialty retail, and restaurant portions are smaller than expected and the office is slightly larger than expected. The updated land-use totals for this development are shown below and include the new 149 room hotel as well as 19 additional rooms constructed as part of the original hotel.

- General Office (109,200 gsf)
- Retail (Shopping Center) (32,705 gsf)
- Specialty Retail Center (28,761 gsf)
- Hotel (291 rooms)
- High Turnover Restaurant (37,642 gsf)
- Arts Center/ Gallery (60,000 gsf)
- Nightclub (15,350 gsf)

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## Trip Generation

Using the land use totals from the 2007 update, the proposed development was originally envisioned to consist of 387,600 total square feet. Table 1 shows the breakdown, by building, of the land-use totals described in the 2007 phasing analysis update, Table 2 shows the net square footage added, Table 3 summarizes the trips generated by the proposed development with no reductions, and Table 4 summarizes the trips generated with reductions for the 2007 build-out scenario.

**Table 1: Land-Use Breakdown (2007)**

Land Use	Phase 1 (2008)	Full Buildout (2011)				
	Building A	Building B	Building C	Building E	Building F	Total
General Office	22,400 gsf	56,200 gsf	-	-	30,350 gsf	108,950 gsf
Retail (Shopping Center)	6,700 gsf	11,300 gsf	10,000 gsf	-	12,150 gsf	40,150 gsf
Specialty Retail Center	3,700 gsf	11,250 gsf	10,000 gsf	-	12,150 gsf	37,100 gsf
Hotel		-	87,500 gsf	-	-	87,500 gsf
High Turnover Restaurant	16,000 gsf	22,550 gsf	-	-	-	38,550 gsf
ArtsCenter/Gallery	-	-	-	60,000 gsf	-	60,000 gsf
Nightclub	-	-	-	-	15,350 gsf	15,350 gsf
<b>Total</b>	<b>48,800 gsf</b>	<b>101,300 gsf</b>	<b>107,500 gsf</b>	<b>60,000 gsf</b>	<b>70,000 gsf</b>	<b>387,600 gsf</b>

**Table 2: Net Square Footage Added (2007)**

Use	Proposed Land Uses	Existing Land Uses	Net New Land Uses	Existing Land Use Description
Office	108,950 gsf	625 gsf	108,325 gsf	Jim Spencer Architects
Retail (Shopping Center)	40,150 gsf	11,387 gsf	28,763 gsf	TJ's, Visart Video, Websters, etc.
Retail (Specialty)	37,100 gsf	15,094 gsf	22,006 gsf	Performance Bike, Hair Salon
Hotel/Residential	87,500 gsf	2,500 gsf	85,000 gsf	2 single family houses
Restaurant	38,550 gsf	3,703 gsf	34,847 gsf	Amantes, Bandido's
ArtsCenter/Gallery	60,000 gsf	19,373 gsf	40,627 gsf	ArtsCenter
Nightclub	15,350 gsf	6,720 gsf	8,630 gsf	Cat's Cradle
<b>Totals:</b>	<b>387,600 gsf</b>	<b>59,402 gsf</b>	<b>328,198 gsf</b>	

**Table 3: Buildout (2011) Trip Generation (by land use)**

ITE Land Use Code	Use	Gsf/Units	ITE MANUAL RATES						
			ADT	A.M. Enter	A.M. Exit	A.M. Total	P.M. Enter	P.M. Exit	P.M. Total
710	General Office	108,325 gsf	1,419	176	24	200	34	166	200
820	Retail (Shopping Center)	28,763 gsf	3,021	45	29	74	132	143	275
814	Specialty Retail Center	22,006 gsf	975	16	10	26	45	51	96
310	Hotel	123 rooms	728	32	21	53	38	34	72
832	High Turnover Restaurant	34,847 gsf	4,431	209	193	402	232	148	380
--	ArtsCenter/Gallery	40,627 gsf	750	0	0	0	40	30	70
--	Nightclub	8,630 gsf	250	0	0	0	10	3	13
<b>Totals:</b>		<b>328,198 gsf</b>	<b>11,574</b>	<b>478</b>	<b>277</b>	<b>755</b>	<b>531</b>	<b>575</b>	<b>1,106</b>

**Table 4: Buildout Trip Generation (with reductions)**

Trip Reductions / Totals	ADT	A.M. Peak			P.M. Peak		
		Enter	Exit	Total	Enter	Exit	Total
Total Trips Generated	11,574	478	277	755	531	575	1,106
Internal Capture Reduction	-526	0	0	0	-18	-18	-36
<b>Total External Trips</b>	<b>11,048</b>	<b>478</b>	<b>277</b>	<b>755</b>	<b>513</b>	<b>557</b>	<b>1,070</b>
Transit/TDM Capture Trips (15%)	-1657	-72	-42	-114	-77	-84	-161
<b>Total Vehicular Traffic</b>	<b>9,391</b>	<b>406</b>	<b>235</b>	<b>641</b>	<b>436</b>	<b>473</b>	<b>909</b>
Pass-by Trips (~35% of retail)	-	0	0	0	109	109	218
Non-Pass-by Vehicular Traffic	-	406	235	641	327	364	691

Using the updated land-use totals, the proposed development is expected to generate 11,155 total site trips. Table 5 shows the breakdown, by building, of the updated land-use totals, Table 6 shows the updated net square footage added, Table 7 summarizes the trips generated by the updated proposed development with no reductions, and Table 8 summarizes the trips generated with reductions for the updated build-out scenario.

**Table 5: Land-Use Breakdown (2015)**

Land Use	Phase 1 (Already Built)			Future Planned			
	Building A	Building C (Hotel)	Building D (Garage)	Building B	Building E	Building F	Building G (New Site)
General Office	22,650 gsf	-	-	56,200 gsf	-	30,350 gsf	-
Retail (Shopping Center)	3,260 gsf	5,995 gsf	-	11,300 gsf	-	12,150 gsf	-
Specialty Retail Center	4,350 gsf	1,011 gsf	-	11,250 gsf	-	12,150 gsf	-
Hotel	-	142 rooms	-	-	-	-	149 rooms
Restaurant	3,990 gsf	11,102 gsf	-	22,550 gsf	-	-	-
Arts Center/Gallery	-	-	-	-	60,000 gsf	-	-
Nightclub	-	-	-	-	-	15,350 gsf	-
<b>Total</b>	<b>34,250 gsf</b>	<b>108,108 gsf</b>	<b>-</b>	<b>101,300 gsf</b>	<b>60,000 gsf</b>	<b>70,000 gsf</b>	<b>149 rooms</b>

**Table 6: Updated Net Square Footage Added (2015)**

Use	Proposed Land Uses	Existing Land Uses	Net New Land Uses	Existing Land Use Description
Office	109,200 gsf	625 gsf	108,575 gsf	Jim Spencer Architects
Retail (Shopping Center)	32,705 gsf	11,387 gsf	21,318 gsf	TJ's, Visart Video, Websters, etc
Retail (Specialty)	28,761 gsf	15,094 gsf	13,667 gsf	Performance Bike, Hair Salon
Hotel/Residential	291 rooms		291 rooms	
Restaurant	37,642 gsf	3,703 gsf	33,939 gsf	Amantes, Bandido's
ArtsCenter/Gallery	60,000 gsf	19,373 gsf	40,627 gsf	ArtsCenter
Nightclub	15,350 gsf	6,720 gsf	8,630 gsf	Cat's Cradle

**Table 7: Updated Build-out Trip Generation (by land-use)**

ITE Land Use Code	Use	Gsf/Units	ITE MANUAL RATES						
			ADT	A.M. Enter	A.M. Exit	A.M. Total	P.M. Enter	P.M. Exit	P.M. Total
710	General Office	108,325 gsf	1,395	180	24	204	34	166	200
820	Retail (Shopping Center)	21,318 gsf	2,487	38	23	61	102	111	213
814	Specialty Retail Center	13,667 gsf	606	6	4	10	24	13	37
310	Hotel	291 rooms	1,858	91	63	154	89	86	175
832	High Turnover Restaurant	33,939 gsf	4,315	195	172	367	180	154	334
--	ArtsCenter/Gallery	40,627 gsf	750	0	0	0	40	30	70
--	Nightclub	8,630 gsf	250	0	0	0	10	3	13
<b>Totals:</b>			<b>11,661</b>	<b>510</b>	<b>286</b>	<b>796</b>	<b>479</b>	<b>563</b>	<b>1,042</b>

**Table 8: Updated Build-out Trip Generation (with reductions)**

Trip Reductions / Totals	ADT	A.M. Peak			P.M. Peak		
		Enter	Exit	Total	Enter	Exit	Total
Total Trips Generated	11,661	510	286	796	479	563	1,042
Internal Capture Reduction	-506	0	0	0	-14	-14	-28
<b>Total External Trips</b>	<b>11,155</b>	<b>510</b>	<b>286</b>	<b>796</b>	<b>465</b>	<b>549</b>	<b>1,014</b>
Transit/TDM Capture Trips (15%)	-1673	-77	-43	-119	-70	-82	-152
<b>Total Vehicular Traffic</b>	<b>9,482</b>	<b>433</b>	<b>243</b>	<b>677</b>	<b>395</b>	<b>467</b>	<b>862</b>
Pass-By Trips (ITE 820 - 34%, ITE 932 - 43%)	-	0	0	0	106	106	212
Non-Pass-by Vehicular Traffic	-	433	243	677	289	361	650

## Conclusion

Table 9 and Table 10, show the difference between the 2007 phasing analysis and 2015 updated totals for the net square footage added and build-out trip generation (with reductions). As shown in the tables, the site trips for the updated development plan (2015) are slightly lower than the site trips calculated in the 2007 phasing analysis update during the PM peak and are slightly higher in the AM peak. The impact of the 36 additional trips in the AM and reduction of 47 trips in the PM peak is expected to have a very minor impact on intersection operations.

Also, the original traffic impact study reported operational results for the AM peak hour and the PM peak hour. For all twelve intersections studied, there was a higher delay, and in many cases a lower level of service, during the PM peak hour when compared to the AM peak. Since the new land uses generate less overall traffic during the critical PM peak, the traffic impact of the new development plan is expected to be slightly less than the original plan.

**Table 9: Net Square Footage Added Comparison Table**

Use	2007 Land Uses	2015 Land Uses	Net New Land Uses
Office	108,325 gsf	108,575 gsf	250 gsf
Retail (Shopping Center)	28,763 gsf	21,318 gsf	-7,445 gsf
Retail (Specialty)	22,006 gsf	13,667 gsf	-8,339 gsf
Hotel/Residential	123 rooms	291 rooms	168 rooms
Restaurant	34,847 gsf	33,939 gsf	-908 gsf
ArtsCenter/Gallery	40,627 gsf	40,627 gsf	0 gsf
Nightclub	8,630 gsf	8,630 gsf	0 gsf

**Table 10: Build-out Trip Generation Comparison Table**

Trip Reductions / Totals	ADT	A.M. Peak			P.M. Peak		
		Enter	Exit	Total	Enter	Exit	Total
Total Trips Generated	87	32	9	41	-52	-12	-64
Internal Capture Reduction	20	0	0	0	4	4	8
<b>Total External Trips</b>	<b>107</b>	<b>32</b>	<b>9</b>	<b>41</b>	<b>-48</b>	<b>-8</b>	<b>-56</b>
Transit/TDM Capture Trips (15%)	-16	-5	-1	-5	7	2	9
<b>Total Vehicular Traffic</b>	<b>91</b>	<b>27</b>	<b>8</b>	<b>36</b>	<b>-41</b>	<b>-6</b>	<b>-47</b>
Pass-By Trips (ITE 820 - 34%, ITE 932 - 43%)	-	0	0	0	-3	-3	-6
Non-Pass-by Vehicular Traffic	-	27	8	36	-38	-3	-41