(33)

ATTACHMENT 4

VILLAGE PLAZA THEATERS

TRAFFIC IMPACT STUDY AMENDMENT

THE TOWN OF CHAPEL HILL, NORTH CAROLINA

Prepared for:

The Town of Chapel Hill

Prepared by:

HNTB North Carolina, PC

343 East Six Forks Road

Suite 200

Raleigh, NC 27609

May, 2004

HNTB

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NORTH CAROLINA PROFESSIONAL SEAL 026910 ENGINEER CRAIG R SCHEFFLER

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I. EXISTING CONDITIONS

A. Project Overview

In February 2002, a traffic impact analysis (TIA) was conducted by RS&H Architects-Engineers-Planners Inc. for the redevelopment of the Village Plaza Theaters in the Village Plaza Shopping Center. The proposed cinema was to be expanded from 5 to 10 screens on the original theater location along S. Elliott Road between Franklin Street and US 15-501 in Chapel Hill, NC. **Figure 1** shows the general site location of the theater development, which was demolished. The study conducted by RS&H analyzed the theater's effects on traffic at the intersections of Franklin Street & Elliott Road, US 15-501 Bypass & Elliott Road, and Elliott Road & two shopping center driveways (adjacent to the development).

The 2002 study recommended that one of the site access driveways be widened for two exiting turning lanes. However, this driveway, known as Driveway "D", is not entirely located on the Applicant's property. Pursuant to the inability in reaching an agreement with the adjacent property owner to make off-site improvements at Driveway "D", the project has not been completed. Subsequent to this inability to achieve agreement, Eastern Federal Corporation (owner of the cinema site) sought to amend the site's Special Use Permit to have this driveway widening removed as a requirement of the Permit. Part of the application to amend the permit is this traffic study by HNTB, which reanalyzes the proposed development and broadens the scope to include six access driveways along Elliott Road. This report will analyze the proposed theater's affects on all six existing driveways for the full build-out scenario in 2007, the no-build scenario for 2007, as well as 2004 existing year traffic conditions.

The existing Village Plaza shopping center has direct access to Elliott Road via three driveways along its east/north frontage. There are three additional driveways studied that provide internal connections to the cinemas and shopping center. Elliott Road connects to both Franklin Street and US 15-501, both serving as major access points to the Town of Chapel Hill and Triangle Region. **Figure 2** displays the preliminary site plan of the proposed Village Plaza Theater site and nearby roadways.

B. Site Location and Study Area

As previously mentioned, this report analyzes and presents the transportation impacts that the Village Plaza Theater site will have on the following intersections in the project study area (from southeast to northwest):

- Elliott Road and Driveway "A" – Across from Burger King
- Elliott Road and Driveway "B"
- Elliott Road and Driveway "C"
- Elliott Road and Driveway "D" – Red, Hot & Blue Restaurant frontage
- Elliott Road and Driveway "E" – Red, Hot & Blue Restaurant frontage
- Elliott Road and Driveway "F" – Whole Foods Supermarket frontage

It was determined in conversations with Town staff that no changes to the RS&H evaluation of the intersections of Franklin Street / Elliott Road and US 15-501 Bypass / Elliott Road are necessary for this analysis. Due to this fact, these intersections were not studied in this amendment. For the aforementioned analyses, please refer to the February 2002 document completed by RS&H.

The impacts of the proposed site at the six driveways will be evaluated during the peak hour of the 6:00 p.m. – 10:00 p.m. period on Friday and Saturday. Standard AM, noon, and PM peak hours were not used for this analysis, due to the unique peaking characteristics of theater-related traffic. Though the theater will be in operation during the standard peak hours, the site traffic produced will not be as significant as it would be during the peak showing times between 6:00 p.m. and 10:00 p.m. on weekends. Friday and Saturday evening theater-related activity was projected to be significant, and thus was included for analysis. The following study is based on background traffic for the existing year, 2004 and the estimated design year of 2007, and the estimated site-generated traffic produced by the theater. There are no approved future developments in the study area that will generate any additional background traffic. The original RS&H study included three area developments as background traffic, however, it is assumed that these developments have been completed and that traffic from these developments is inclusive to the existing counts. An (updated) area-wide future traffic growth percentage of two percent was applied to the existing volumes, based on information provided by the NCDOT Traffic Survey Unit.

C. Site Description

The Village Plaza Theaters site is currently vacant. The Village Plaza Shopping Center is occupied by various commercial businesses and stands adjacent to proposed site. The previous cinema was demolished in 2002. That development consisted of five movie screens with 1,332 total seats and 24,780 square feet of space. Parking for the old theater development still remains essentially intact and driveway connections with Elliott Road and an internal connection to commercial property to the north are still in use.

The original Special Use Permit for the Village Plaza Theaters redevelopment includes stipulations that there be a maximum of 10 movie theater screens and 1,600 seats. 490 total parking spaces must also be provided for the proposed 35,460 square foot theater. A detailed site description for the Village Plaza Shopping Center and other changes related to this redevelopment proposal was provided on page 4 of the February 2002 TIA conducted by RS&H.

D. Existing and Proposed Uses in Vicinity of Site

The land uses and development in the study area is virtually unchanged since the 2002 analysis. The original TIA document has a detailed description of specific land use types and sizes along Elliott Road. In general, the proposed site is part of the larger Village Plaza Shopping Center that contains smaller commercial parcels including an

ABC store, video store, restaurants and a health club. Office buildings, restaurants, larger retail parcels and banking facilities line Elliott Road. Driveway access to these facilities is provided on both sides of the road.

E. Existing and Committed Surface Transportation Network

Roadways

Elliott Road is the only public maintained surface street included in the study area for this analysis. Elliott Road serves as a collector street for traffic accessing commercial developments along its length between Franklin Street and US 15-501. These two facilities provide primary access for external trips into and out of the study area and function as major multi-lane arterial streets. Elliott Road contains 12 foot wide travel lanes and a continuous central left-turn lane that is striped into individual left-turn bays for the access driveways. On-street parking is not permitted, but several bus stops are located along the facility between Franklin Street and US 15-501. **Figure 3** shows the existing lane configuration, traffic control, and speed limits for Elliott Road and its connection to the six existing study area driveway intersections.

Driveway Intersections

The six driveway intersections with Elliott Road are currently unsignalized with each experiencing the stop-controlled condition. The RS&H study only examined the effects of the site generated traffic on Driveway "C" and Driveway "D", assuming that all site-related traffic would use these driveways. This amendment will focus on the potential effects on driveways "A" through "F".

The intersection of Elliott Road and Driveway "A" is a four-legged, stop controlled intersection. The eastbound and westbound Elliott Road approaches each contain an exclusive left-turn lane and a shared through/right-turning lane. The northbound and southbound stop controlled driveways each contain a shared left/through/right lane. The northbound approach to this intersection is the driveway from an existing Burger King parking lot.

The intersections of Elliott Road with Driveways "B", "C", "D", and "E" are all unsignalized "T" intersections. Each includes a shared through/right-turn lane for north and westbound Elliott Road and exclusive through and left-turning lanes for south and eastbound Elliott Road. Driveways "C", "D" and "E" contain shared left/right-turn lanes where Driveway "B" contains exclusive southbound left and right-turning lanes.

The intersection of Elliott Road and Driveway "F" is a four-legged, stop controlled intersection. The northbound and southbound Elliott Road approaches each contain an exclusive left-turn lane and a shared through/right-turning lane. The eastbound stop controlled driveway contains a shared left/through/right lane where the westbound stop controlled approach contains a shared through/left-turn lane and an exclusive right-turn lane. The eastbound approach to this intersection is the driveway from an existing First Citizens Bank parking lot.

Bicycle Routes and Sidewalks

The RS&H study documents one planned bicycle path along Booker Creek to be located behind the proposed theater. A description of this bike path is found on page 32 of their February 2002 TIA. Area sidewalks are described in detail in the RS&H report on pages 31-32. No additional sidewalks are shown in the site plan for this project.

Transit Routes

Current Chapel Hill Transit Routes D and F serve the project study area along Elliott Road with weekday bus service. Route D service runs on 20 minute headways and Route F headways vary between 20-35 minutes, depending on time of day. D Route service extends to approximately 10:00 p.m. on weeknights. Weekend service is provided by the DM and FG Routes. Buses on these routes run from approximately 8:00 a.m. to 6:00 p.m. on Saturdays. Both have one hour headways.

The Triangle Transit Authority also provides bus service to the study area. TTA buses serve regional trips between Chapel Hill, Durham and RTP and run along Franklin Street, just to the north of the study area.

As in the original study, this analysis does not account for a transit trip reduction factor. The proximity and frequency of transit service would likely account for a portion of site trips, although bus service is more infrequent during the peak weekend evening periods.

F. Existing Traffic Conditions

Figure 4 shows the existing Friday and Saturday evening (6:00 p.m. to 10:00 p.m.) peak hour traffic volumes for the study area intersections. The counts used to determine these volumes were conducted by Pontius-Montesi Traffic Services for the following intersections during the respective times:

Table 1 – Traffic Count Information

Traffic Count Location	Period Counted	Time of Day	Date of Count
Elliott Road and Driveway "A" – Burger King	Friday Peak Saturday Peak	6:00 – 10:00 PM 6:00 – 10:00 PM	3/5/04 2/28/04
Elliott Road and Driveway "B"	Friday Peak Saturday Peak	6:00 – 10:00 PM 6:00 – 10:00 PM	3/5/04 2/28/04
Elliott Road and Driveway "E" – Red, Hot & Blue	Friday Peak Saturday Peak	6:00 – 10:00 PM 6:00 – 10:00 PM	3/5/04 2/28/04
Elliott Road and Driveway "F" – First Citizens	Friday Peak Saturday Peak	6:00 – 10:00 PM 6:00 – 10:00 PM	3/5/04 2/28/04

Traffic volumes for the intersections of Elliott Road / Driveway "C" and Driveway "D" were conducted February 13th and 14th, 2004 by Post, Buckley, Schuh & Jernigan (PBS&J) for Friday peak hour traffic on Elliot Drive (4:45 to 5:45 p.m.), Saturday midday peak on Elliott Road (12:45 to 1:45 p.m.) and the Saturday theater-related peak (6:00-7:00 p.m.). The Saturday theater-related peak values were used in this analysis. A check of PBS&J traffic count volumes upstream and downstream of driveways "C" and "D" indicated good correlation between the counts, which were conducted on different days. It was originally intended to update counts taken from the 2002 RS&H study, but later determined that no actual driveway counts existed at these locations.

Friday theater-peak period traffic was estimated by producing a ratio of upstream and downstream traffic flows from HNTB Friday and Saturday evening counts and applying that factor to the actual PBS&J Saturday count volumes. Again, a check of upstream and downstream flows indicated an acceptable balance between actual field-collected data and these synthetic volumes.

Traffic flow on Elliott Road was noted to be light during the Friday and Saturday evening peak hours with the heaviest traffic flows found closer to the US 15-501 end of Elliott Road and during the early part of the counting period 6:00 – 7:00 pm. Traffic flows to and from the shopping driveways were found to be light with no field observed queuing problems. It was also noted that less than 25 trucks/heavy vehicles were counted for the entire eight hour count period.

II. 2007 BUILD-OUT YEAR CONDITIONS

A.) Future Traffic Without Proposed Development

Based on information on average daily traffic collected by the NCDOT Traffic Survey Unit a yearly ambient traffic growth rate of two percent per year was used for the short-term 2007 design year capacity analyses. This rate is based on previous and anticipated growth trends for this area in Chapel Hill and incorporates ADT traffic growth on US 15-501, Franklin Street, and Elliott Road. These roads each had small (or even slightly negative) growth rates and were synthesized into the two percent overall study area average rate.

B.) Background Traffic

Background traffic methodologies and trip generation/distribution/assignment were taken directly from the original Village Plaza Theaters TIA. Town staff advised that any sites included as background development traffic in 2002 also be included in this study, alluding to the fact that these projects were not complete in 2002 and are still not complete and fully operational as of March, 2004. The three background traffic generators in the 2002 study are listed below:

- Franklin Grove Townhomes
- Chapel Hill Centre II
- University Mall Expansion

Traffic volume data from the 2002 study was analyzed to identify study area intersections containing background traffic. In general, few background trips are made on Elliott Road and none will impact the six site driveway entrances. Background traffic and ambient traffic growth are combined to formulate the design year 2007 No-Build traffic volume estimates in **Figure 7**.

C.) Proposed Project Traffic

i. Trip Generation

The projected trips generated by the proposed theater were based on the *ITE Trip Generation Manual* (Institute of Transportation Engineers, 7th Edition, 2003). Two separate trip generating Land Use Codes from the ITE Trip Generation Manual were accounted for in this analysis – Movie Theater with Matinee (L.U. Code 444) and Multi-Plex Cinema (L.U. Code 445). For the purposes of this study, it was assumed that the original theater operations more closely corresponded to ITE's description of a Movie Theater with Matinee. This land use type was common for older theater complexes with less than ten screens and featuring more seats per screen than modern multi-plexes. In contrast, the proposed redevelopment of Village Theaters will feature some attributes that more closely correspond to the Multi-plex land use type. According to the ITE Manual's definition, Multi-plexes typically feature over 10 screens and a smaller of seats per screen and are of more recent vintage. The data available for the Village Plaza redevelopment indicates that it would be a mix of both theater types and, as such, used an average of both generation rates for three independent variables to determine site generated vehicle trips.

Three independent variables for generating trips – number of seats, number of screens, and gross square footage were used to provide a conservative, accurate estimate of generated trip potential. Limited data for Land Use Codes 444 and 445 necessitated the use of three factors to allow more data to be incorporated in the overall estimates. Trip generation results also use the average rate methodology found in the ITE Manual for each variable to calculate the number of trips.

According to the Special Use Permit of January 27, 2003, the development is limited to 1,600 seats for 10 screens with approximately 35,000 square feet of space. These numbers were used to develop trip estimates for both ITE Land Use Code 444 (Movie Theater with Matinee) and 445 (Multi-Plex). These estimates were then averaged together to arrive at a final trip estimate. After analyzing the numbers of trips produced, it was noted that this average produced a reasonable range of generated trips for each peak period.

Table 2 shows the estimated number of trips generated by the Village Plaza Theater during the Friday and Saturday evening peak hours of the adjacent streets. Detailed breakdowns of trip generation estimates for each of the three independent variables are found in ***Appendix B***. A truck percentage of two percent was estimated for all site-generated traffic.

Table 2 shows that the Village Plaza Theater, when fully developed, will generate approximately 715 new vehicular site trips Friday Evening Peak, 780 in the Saturday Evening Peak. These trip estimates do not account for a trip reduction due to transit, pedestrians or bicycles, in concurrence with the original traffic study.

ii.) Adjustments to Trip Generation Rates

a.) Pass-by Trips

Pass-by trips were not accounted for in this study because no documentation exists in the ITE Trip Generation Manual or ITE Trip Generation Handbook for these land use types. Due to the nature of and location of the proposed facility, most site-related trips will be made solely for the purpose of travel to and from the theater. Few trips to and from the Village Plaza Theater are anticipated to be made in a pass-by manner.

b.) Internal Capture

In order to produce a conservative estimate on the number of trips and to remain consistent with the RS&H study, it was assumed that all trips to and from the theater would be from external sites. The amount of trips estimated was not adjusted by internal capture.

c.) Modal Split

In order to produce a conservative estimate on the number of trips and to remain consistent with the RS&H study, it was assumed that all trips to and from the theater would be from personal, and not public, vehicles. The amount of trips estimated was not adjusted due to area-wide transit.

d.) Trip Generation Budget

Because the site will be built in a single phase, no trip generation budgeting for future expansion was considered in this study.

Table 2
Weekend Vehicle Trip Generation Summary
Proposed Village Plaza Theater

ITE Land Use Codes 444 (Movie Theater with Matinee) & 445 (Multi-Plex)

Friday Evening Peak Trip Summary

Scenario	ITE Land Use Code	Land Use Name	Total Trips	% IN	% OUT	Trips IN	Trips OUT
2007 Build out	445	Multi-Plex	576	56	44	323	253
	444	Movie Theater w/ Matinee	851	56	44	477	374
	Average	New Village Theaters	714	56	44	400	314

Saturday Evening Peak Trip Summary

Scenario	ITE Land Use Code	Land Use Name	Total Trips	% IN	% OUT	Trips IN	Trips OUT
2007 Build out	445	Multi-Plex	588	52	48	306	282
	444	Movie Theater w/ Matinee	971	56	44	544	427
	Average	New Village Theaters	780	56	44	437	343

iii.) Trip Distribution

Trip distribution for site-related traffic was based on two factors. First, peak hour traffic patterns were noted to determine the directional traffic characteristics of traffic to and from Franklin Street and US 15-501. Turning movement Saturday peak hour traffic count data from the 2002 study provided the basis for routing external trips to and from Elliott Road.

Driveway locations and proximity to available parking determined the route of trips to and from the Village Plaza Theater site. Driveways "B" and "C", closer to the main cinema entrance located in the southwest corner of the redevelopment, received a heavier percentage of site-related traffic. Driveways further away received increasingly smaller percentages. In addition, it was assumed that all traffic from Franklin Street would use Driveways "C", "D", and "E" and all traffic from US 15-501 would use Driveways "A", "B", and "C". No traffic is predicted to go past proximate driveway entrances, though this possibility does exist. In addition, no theater traffic is expected to use Driveway "F", simply due to its distance from the theatre entrance and the difficulty in vehicular movement (multiple speed humps, narrow parking lanes, overall poor circulation) in the vicinity of Whole Foods.

HNTB calculated a directional split of approximately 50% of site traffic accessing the theater from the north from Franklin Street and approximately 50% of the site traffic accessing the theater from the south from US 15-501, based on 2002 traffic count data collected for the RS&H study. It was assumed that 70% of the total site trips would use Driveway "C" (most proximal to adjacent site parking and front theater entrance) and 20% of the total site trips would use Driveway "B". The remaining 10% would be distributed among Driveways "A", "D", and "E".

Figure 5 presents the projected trip distribution traffic percentages for the proposed site in 2007.

iv.) Trip Assignment

Figure 6 shows the corresponding site traffic volumes distributed on the study area network. Total volumes into and out of the site correspond to total external vehicular trips generated based on the trip generation methodology developed previously. Trip assignment internal to the site – within its parking lot and between adjacent parking lots was not specifically studied due to the uncertainties involved in predicting the likelihood of trips being made that use a different parking lot than the one immediately connected to their external access driveway. However, a qualitative and quantitative estimate of parking supply and how it relates to traffic assignment at the site driveways is presented later in this report.

D.) Future Traffic Forecasts with the Proposed Development

Figure 7 shows the traffic volumes for Condition 2 (without site), and **Figure 8** displays the Condition 3 projected study area traffic volumes with site traffic added. Site traffic only includes the *additional* traffic volumes in renovating the five screen theater to ten screens. Condition 1 (existing traffic) was previously shown by **Figure 4.**

III. IMPACT ANALYSES

A.) Peak Hour Intersection Level of Service Analysis

i.) Methodology

Evaluation of traffic operations on suburban arterials is most effective through the determination of level of service (LOS) criteria. The concept of level of service correlates qualitative aspects of traffic flow to quantitative terms. This enables transportation professionals to take the qualitative issues, such as congestion and substandard geometrics, and translate them into measurable quantities, such as operating speeds and vehicular delays. The 2000 *Highway Capacity Manual (HCM 2000)* characterizes level of service by letter designations A through F. Level of service A represents ideal low-volume traffic operations, and level of service F represents over-saturated high-volume traffic operations. Level of service is measured differently for various highway facilities, but in general, level of service letter designations are described by the following in **Table 3.**

The *Highway Capacity Software (HCS 2000)* was used to analyze peak hour conditions at unsignalized intersections and was supplemented with the traffic operations optimization and evaluation software *Synchro Professional Version 5.0* to evaluate future signal operations at signalized intersections (if applicable).

The minimum acceptable peak hour intersection level of service established for this project is LOS D for signalized intersections or LOS E for critical movements at unsignalized intersections, or no increase in delay for intersections operating below LOS D (if signalized) or LOS E (critical movements at unsignalized intersections) without the inclusion of site traffic. The following four conditions were evaluated:

Condition 1 - Existing Traffic

Condition 2 - 2007 Traffic without Site Traffic

Condition 3 - 2007 Traffic with Site Traffic Volumes Added

Condition 4 - 2007 Traffic with Site Traffic and Improvements (for all intersections operating below LOS D (signalized) or LOS E (unsignalized), where applicable)

If applicable, information related to signal timing minimums, cycle lengths, splits, offsets, and phasing sequences will be assumed based upon the typical standards and practices of the Town of Chapel Hill Engineering staff and the NCDOT Signals and Geometrics Section.

Table 3
Level of Service (LOS) Characteristics

Level of Service Description	Per Vehicle Delay at Signal	Per Vehicle Delay at Stop Sign
LOS A ➢ Free flow ➢ Freedom to select desired speed and to maneuver is extremely high ➢ General level of comfort and convenience for motorists is excellent	**< 15.0 sec**	**< 10.0 sec**
LOS B ➢ Stable flow ➢ Other vehicles in the traffic stream become noticeable ➢ Reduction in freedom to maneuver from LOS A	**10.0 – 20.0 sec**	**10.0 – 15.0 sec**
LOS C ➢ Stable flow ➢ Maneuverability and operating speed are significantly affected by other vehicles ➢ General level of comfort and convenience declines noticeably	**20.0 – 35.0 sec**	**15.0 – 25.0 sec**
LOS D ➢ High density but stable flow ➢ Speed and freedom to maneuver are severely restricted ➢ General level of comfort / convenience is poor ➢ Small increases in traffic will generally cause operational problems	**35.0 – 55.0 sec**	**25.0 – 35.0 sec**
[redacted] ➢ Unstable flow ➢ Speed reduced to lower but relatively uniform value ➢ Volumes at or near capacity level ➢ Comfort and convenience are extremely poor ➢ Small flow increases or minor traffic stream disturbances will cause breakdowns	**55.0 – 80.0 sec**	**35.0 – 50.0 sec**
LOS F ➢ Forced or breakdown flow ➢ Volumes exceed roadway capacity ➢ Formation of unstable queues ➢ Stoppages for long periods of time because of traffic congestion	**> 80.0 sec**	**> 50.0 sec**

The results of this analysis are based on the procedures presented in the *HCM 2000* and performed with the corresponding HCS 2000. If applicable, the timing optimization software Synchro Version 5.0 will be used for obtainment of optimized signal timings for actuated signals given existing volumes. The methodology of evaluating each condition is presented below:

- **Condition 1** – No currently signalized intersections.

- **Conditions 2 and 3** – If applicable, obtain optimal cycle length and splits of each individual signalized intersection and report LOS and delay values from Synchro Version 5.0. Determine split timings that allow the overall intersection to operate at LOS D, or better, if possible.

- **Condition 4** – Reoptimize the cycle lengths and splits of individual intersections in Synchro. Adjust split timings to allow the overall intersection to operate at LOS D, or better, if possible. Adjust cycle lengths, splits, and offsets, if necessary, if the signal is currently operating in a coordinated system. Recommendations, if warranted, will be made to obtain at least LOS D for the intersection as a whole.

The net effect of this process is that direct comparisons, by movement, of delay and LOS between each of the conditions are impossible because splits and cycle lengths can and do change between conditions. The pertinent statistic of this analysis is the *overall intersection level of service and delay*. Improvements to deficient intersections in Condition 3 were made by first attempting to create an optimally progressed signal system (if applicable) with acceptable adjustments to signal phasing. If that did not produce satisfactory results for all intersections, geometric improvements to improve intersection capacity were considered for the deficient intersections.

The six unsignalized intersections were analyzed directly in HCS. Their results were evaluated on a per-movement basis, since HCS does not produce an overall intersection level of service for unsignalized intersections. Thus, intersections with deficient movements in Condition 2 would need to be evaluated for improvements in Condition 3. This methodology differs from signalized intersections, where one or more movements at an intersection may be deficient in Condition 2, but as long as the overall intersection level of service does not fall below LOS D, no intersection improvements are deemed necessary. ***Appendix C*** contains the HCS output for all unsignalized intersections under study.

ii.) Existing Conditions

Table 4 presents the results for the existing year traffic conditions as compiled from field data. A summary of operations for each intersection is given on the following page. The table lists LOS and delay values for those movements that are in existence at this time. It also only lists data for individual movements encountering delay at the stop-controlled intersections (which also do not have an overall intersection delay value produced by HCS). A qualitative description and analysis of the results is contained below in **Table 4.**

Table 4 – Capacity Analysis Results for Study Area Intersections
Condition 1 – 2004 Existing Traffic

Intersection	LOS		Average Vehicular Delay (sec/veh)	
	FRI	SAT	FRI	SAT
Elliott Road and Driveway "A"	N/A	N/A	N/A	N/A
NB LTR	B	B	11.8	11.6
SB LTR	C	C	17.3	15.3
EB LT	A	A	8.1	8.0
WB LT	A	A	8.1	8.1
Elliott Road and Driveway "B"	N/A	N/A	N/A	N/A
SB LT	B	B	13.2	12.6
SB RT	B	B	10.1	10.1
EB LT	A	A	7.9	8.0
Elliott Road and Driveway "C"	N/A	N/A	N/A	N/A
SB LT	A	A	8.2	8.0
WB LTRT	B	B	11.3	10.7
Elliott Road and Driveway "D"	N/A	N/A	N/A	N/A
SB LT	A	A	8.1	8.0
WB LTRT	B	B	12.9	12.1
Elliott Road and Driveway "E"	N/A	N/A	N/A	N/A
SB LT	A	A	8.1	7.9
WB LTRT	B	B	12.9	12.4
Elliott Road and Driveway "F"	N/A	N/A	N/A	N/A
NB LT	A	A	7.8	7.7
SB LT	A	A	8.2	8.0
EB LTR	C	C	15.7	15.7
WB LTTH	C	C	16.8	16.3
WB RT	B	B	11.0	10.2

N/A => Not Applicable, i.e. movement is non-existent or no improvements made

During existing conditions, all six intersections operate at acceptable levels of service for the Friday and Saturday evening peak hour. As shown in **Table 4**, each intersection is under capacity for both periods, with the worst conditions occurring for the southbound shared left/through/right-turning movement at Driveway "A." Current volumes on all facilities are light to moderate and turning traffic is not significantly delayed in this Condition.

iii.) 2007 No-Build Scenario (Condition 2)

Table 5 presents the results for the design year estimated traffic conditions without the impacts of site-related traffic. This analysis includes ambient growth, but no data for any future background site developments. A summary of operations for each intersection is given below.

Table 5 – Capacity Analysis Results for Study Area Intersections
Condition 2 – 2007 Without Site Traffic

	LOS		Average Vehicular Delay (sec/veh)	
	FRI	SAT	FRI	SAT
Elliott Road and Driveway "A"	N/A	N/A	N/A	N/A
NB LTR	B	B	12.0	11.4
SB LTR	C	C	18.0	15.1
EB LT	A	A	8.2	8.1
WB LT	A	A	8.2	8.1
Elliott Road and Driveway "B"	N/A	N/A	N/A	N/A
SB LT	B	B	13.6	13.1
SB RT	B	B	10.4	10.2
EB LT	A	A	8.1	8.0
Elliott Road and Driveway "C"	N/A	N/A	N/A	N/A
SB LT	A	A	8.3	8.1
WB LTRT	B	B	11.6	10.9
Elliott Road and Driveway "D"	N/A	N/A	N/A	N/A
SB LT	A	A	8.2	8.0
WB LTRT	B	B	13.3	12.4
Elliott Road and Driveway "E"	N/A	N/A	N/A	N/A
SB LT	A	A	7.9	8.2
WB LTRT	B	B	12.5	13.4
Elliott Road and Driveway "F"	N/A	N/A	N/A	N/A
NB LT	A	A	7.8	7.7
SB LT	A	A	8.3	8.1
EB LTR	C	C	16.0	16.1
WB LTTH	C	C	17.0	16.7
WB RT	B	B	11.3	10.3

N/A => Not Applicable, i.e. movement is non-exdstent or no improvements made

During Condition 2, 2007 Without Site Conditions, all six intersections will continue to operate at acceptable levels of service for the Friday and Saturday evening peak hour. As shown in **Table 5**, each intersection is under capacity for both periods, with the worst conditions again occurring for the southbound shared left/through/right-turning movement at Driveway "A." Predicted 2007 volumes on all facilities are light to moderate and turning traffic is not significantly delayed in this Condition.

iv.) 2007 Build Scenario (Condition 3)

Table 6 presents the results for the design year estimated traffic conditions including the impacts of site-related traffic. This assumes all site traffic will use existing driveways and that no changes will be made to any of the existing driveways. A summary of operations for each intersection is given below.

Table 6 – Capacity Analysis Results for Study Area Intersections
Condition 3 – 2007 With Village Plaza Theater Site Traffic

	LOS		Average Vehicular Delay (sec/veh)	
	FRI	SAT	FRI	SAT
Elliott Road and Driveway "A"	N/A	N/A	N/A	N/A
NB LTR	B	B	14.4	13.7
SB LTR	D	C	28.7	22.5
EB LT	A	A	8.9	8.9
WB LT	A	A	8.7	8.6
Elliott Road and Driveway "B"	N/A	N/A	N/A	N/A
SB LT	C	C	19.2	19.2
SB RT	B	B	11.9	11.8
EB LT	A	A	8.8	8.7
Elliott Road and Driveway "C"	N/A	N/A	N/A	N/A
SB LT	A	A	9.6	9.4
WB LT	E	D	36.1	33.9
WB RT	B	B	13.3	12.8
Elliott Road and Driveway "D"	N/A	N/A	N/A	N/A
SB LT	A	A	8.7	8.5
WB LTRT	C	B	16.1	15.0
Elliott Road and Driveway "E"	N/A	N/A	N/A	N/A
SB LT	A	A	8.7	8.5
WB LTRT	C	C	16.5	16.8
Elliott Road and Driveway "F"	N/A	N/A	N/A	N/A
NB LT	A	A	8.4	8.3
SB LT	A	A	8.9	8.7
EB LTR	C	C	23.0	23.3
WB LTTH	C	C	23.6	25.0
WB RT	B	B	13.4	12.2

N/A => Not Applicable, i.e. movement is non-existent or no improvements made

During Condition 3, 2007 With Site Conditions, all six intersections will continue to operate at acceptable levels of service for the Friday and Saturday evening peak hour. As shown in **Table 6**, each intersection is under capacity for both periods, with the worst conditions again occurring for the southbound shared left/through/right-turning movement at Driveway "A." Predicted 2007 volumes, including the addition of site traffic, on all facilities are moderate and turning traffic is not significantly delayed in this Condition.

B.) Access Analysis

Vehicular site access is to be accommodated via the six potential site driveways connecting to Elliott Road. The three on-site driveways ("A", "B", and "C") should ideally handle all of the site-related traffic, but with the availability and connectivity of internal roadways from "D", "E", and "F", there is a strong possibility that some theater-related traffic will use those driveways for access to parking.

Driveway throat lengths as shown on the proposed site redevelopment plans are adequate for projected 2007 with site traffic conditions. Estimated queues should rarely exceed the 50 foot throat length for Driveways "A" and "B". Driveway "C" has an approximate 25 foot driveway throat length, with separate left and right-turning vehicle lanes. This throat length is too short for adequate and safe operations, even with estimated queue lengths of approximately 2 vehicles for exiting left-turns. During peak turnover periods within the peak hour itself, traffic may back up beyond predicted hourly queue length maximums. A 50 foot minimum driveway throat length would greatly add to safe vehicular circulation to and from Elliott Road. This additional requirement would force a redesign of circulation lanes within the parking lot, due to the fact that the current site plans show travel lanes meeting at the end of the 25 foot throat. The *2003 NCDOT Policy on Street and Driveway Access to North Carolina Highways* recommends a 100 foot minimum throat length (similar to Driveway "F") for driveways accessing arterial roadways.

Internal circulation and access to other commercial development within the Village Plaza Shopping Center is well designed on the site plan. Traffic can use internal driveway connections to access all other parcels from the front of the theater and from the back of the theatre. Also, cross access is maintained with the Red, Hot and Blue, and Whole Foods parking lots. As a stipulation in the original 2003 Special Use Permit for the Village Plaza Theaters, the developer is to provide sentinel personnel to ensure that cross parking is not occurring by theater patrons in the Red, Hot and Blue and Whole Foods parking areas. More information about the correlation between site trip generation, driveway assignment and parking supply is found in **Section III. F) Special Analyses**.

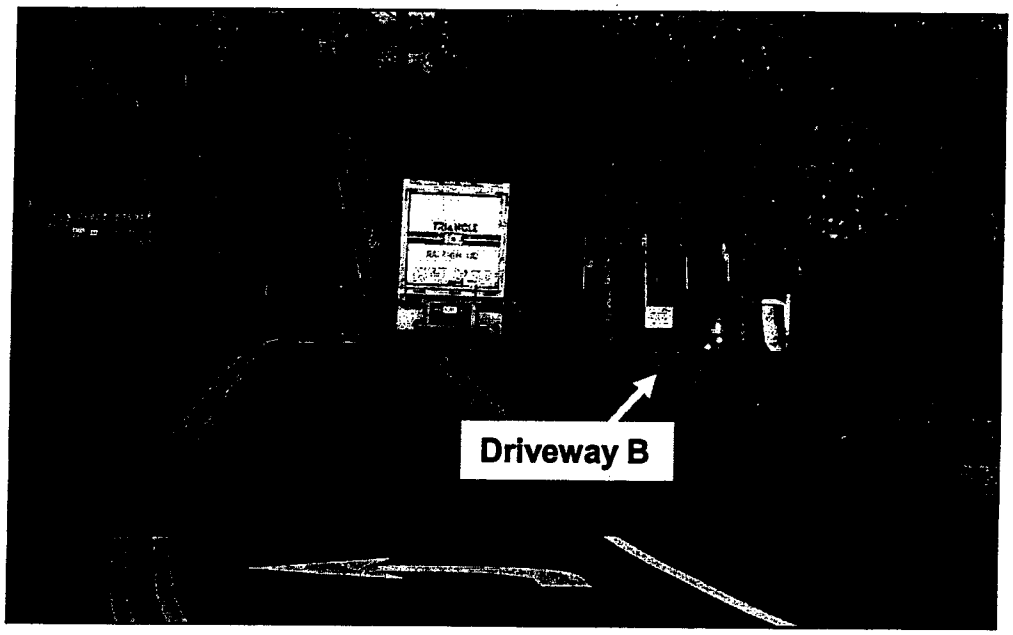
Access for pedestrians is currently acceptable. As previously discussed, there are ample area sidewalks and good sidewalk connectivity, at least in the local study area. Bicycle access is also adequate to and from the site, although no specific bicycle amenities are provided on Elliott Road. The Lower Booker Creek Greenway provides some additional external connectivity for non-motorized transportation.

C.) Signal Warrant Analysis

Based on projected traffic volumes, none of the unsignalized intersections in the project study area would warrant the installation of a traffic signal based on the methodology found in the *2000 Manual on Uniform Traffic Control Devices (MUTCD)*. A warrant often satisfied from the MUTCD methodology is the Peak Hour Warrant, which would have comparable data collected from this study. Based on Figure 4C-4 from the *MUTCD 2000*, no study area intersection with the additional Village Park Theater site trips added would warrant the installation of a signal based on the Peak Hour thresholds.

D.) Sight Distance Analysis

In general sight distance issues entering and exiting the driveways are minimal, except for Driveway "B". Driveway "B" is located on a section of horizontal curvature along Elliott Road that, when coupled with tree trunks and shrubbery along the eastern edge of the roadway, makes it difficult for vehicles exiting this driveway to see oncoming eastbound Elliott Road traffic. The picture below identifies this problem (and shows a speed limit sign obscured by foliage, as well). Every effort should be made to clear shrubbery and overhanging branches from the many site-related driveways to ensure safe turning movements onto and off of Elliott Road.



E.) Other Transportation-Related Analyses

Other transportation-related analyses normally required by the 2001 Town of Chapel Hill Guidelines for the preparation of Traffic Impact Studies were completed as part of the original 2002 Village Plaza Theaters TIA by RS&H. The following studies listed in **Table 7** were completed at that time and were not reanalyzed in this report because no appreciable changes have occurred to the study area or development plans in the last two years that would affect a particular analysis.

Table 7. Status of Other Transportation-Related Analyses

Analysis	Comment
Generalized Peak Hour and/or Daily LOS Analysis	No relevant changes from the 2002 Original Study. A description is found on page 25 of that study.
Signal Phasing Analysis	No signals at current study area intersections nor are any proposed in future design year
Intersection Accident Analysis	An "Intersection Accident Analysis" is provided on page 25 of the February 2002 RS&H TIA. No intersection improvements were recommended to improve area safety.
Progression Analysis	No signalized intersections were studied for this amendment.
Turn Lane Storage Requirements	All storage lanes adequately meet the traffic demands for existing and future traffic.
Appropriateness of Acceleration/Deceleration Lanes	Given the proposed configuration of site driveways, the lane geometrics and traffic patterns on Elliott Road, and a low 25 mph speed limit, no special acceleration or deceleration lanes are required due to the proposed Village Plaza Theater development.
Pedestrian and Bicycle Analysis	A discussion of the "Pedestrian and Bicycle Analysis" is provided on pages 31-32 of the February 2002 RS&H TIA.
Public Transportation Analysis	A discussion of the "Public Transportation Analysis" is provided on page 32 of the February 2002 RS&H TIA.

F.) Special Analysis/Issues Related to Project

The original TIA document alluded to the special issue of providing a direct access point from the Lower Booker Creek Greenway to the site, thus encouraging and enhancing pedestrian and bicycle access to the Village Plaza Theaters and Shopping Center. Though the effects of this improvement were not directly studied in this analysis, any improvement to better serve non-motorized trips to the theater should be implemented. The added benefit in this case would be a reduction in vehicular trips to a site with overall limited proximal parking.

The key issue in the need for a reinvestigation of traffic impacts from this site is the more thorough analysis of driveway access and improvements to on-site parking. The original Village Plaza Theaters study conducted by RS&H Engineers made a recommendation of improving both driveways in that study ("C" and "D") to have separated left and right turning lanes exiting the site. This recommendation was not directly due to congested or failing traffic conditions at these site driveways with the addition of theater traffic. The current site plans show Driveway "C", the on-site driveway, being improved for separate exit turning lanes and a single entrance lane. Driveway "D", an off-site driveway, shows no design improvements over existing conditions. The previous trip distribution estimates and corresponding capacity analysis showed that Driveway "D" would not need separate left and right-turn exit lanes during the peak hours under study, but that the need for separate exit turning lanes from Driveway "D" was a general recommendation to improve conditions at this driveway,

though those conditions were not considered to require mitigation by Town of Chapel Hill standards.

Improvements to on-site parking will likely play a significant role into where movie theater-related traffic chooses to access the proposed site. A quantitative investigation into proposed parking shows that there will be approximately 240 parking spaces proximally located adjacent to the theater. Approximately 52 spaces will be created on the north side of the theater, 67 spaces between driveways "D" and "C", and 120 spaces located between driveways "C" and "B". Some non-theater related parking currently uses some spaces in the area between entrances "C" and "B", and will continue to do so in the future.

Beyond the proximal parking areas, there is secondary parking capacity available between driveways "A" and "B" – approximately 150 spaces and off site in the Red, Hot and Blue lot – 25 spaces and behind stores in the adjacent shopping center – 30+ spaces. Secondary parking capacity indicates that these stalls would likely not be considered optimal theater parking, but would be desirable parking spaces if optimal spaces were taken. Again, there is some existing parking demand during the peak hours under study at these locations. Proximity to the proposed theater entrance was considered the main criteria for parking space importance.

Additional parking space opportunities are located farther to the north in the Whole Foods lot and farther east of driveway "A" in the Village Plaza complex, but with the primary and secondary parking supply available, it is highly unlikely that these spots would be needed. Signage outside the Whole Foods lot indicates that this lot is exclusively for shoppers at the market and adjacent stores, and not for general area parking.

With this distribution of parking capacity, it is reasonable that most access will occur at Driveways "C" and "B". To a lesser extent, some vehicles may attempt to access at Driveways "D" and "E", but little immediate parking would be available in Red, Hot & Blue and traffic would have to negotiate through significant speed bumps on internal circulation roads in that area.

It is important to note that the focus of traffic impact studies under the Guidelines for Preparation of a Traffic Impact Study provided by the Town of Chapel Hill is on the analysis of transportation impacts on the adjacent and external transportation network surrounding a proposed development. While some account needs to be made for a development's parking access and circulation, the scope of this Village Plaza Theater traffic impact study does not attempt a further, quantitative analysis of parking issues for the Village Plaza Theaters and its study area environs.

IV. MITIGATION MEASURES/RECOMMENDATIONS

A.) Planned Improvements

Neither the Town of Chapel Hill nor the North Carolina Department of Transportation are expected to make any significant planned improvement projects for study area facilities studied during this amendment. Page 32 of the February 2002 RS&H TIA mentions several planned improvements by the Town beyond the boundaries of this study area, but they are not expected to affect this study.

B.) Background Committed Improvements

No background improvements are committed by other area project developments.

C.) Applicant Committed Improvements

The only stipulation made in the original operations analysis as an "Applicant Committed Improvements" is the widening of Driveways "C" and "D". Based on a reanalysis of the site generated trips in the appropriate peak periods and a more accurate redistribution of site traffic among the six possible site driveways, there are no necessary improvements to be made beyond what are indicated on the site plan for driveway throat lengths and lane designation/striping.

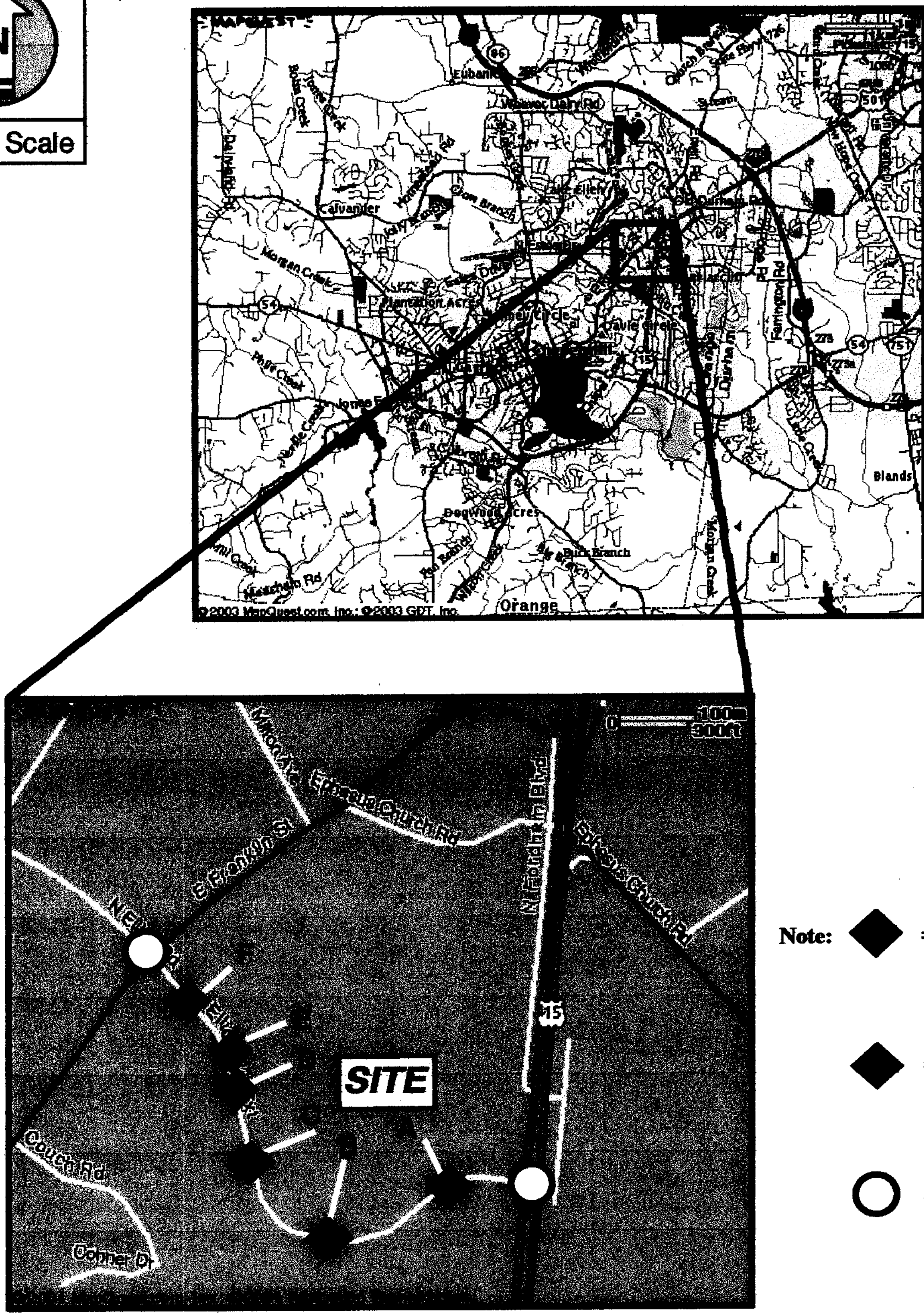
D.) Necessary Improvements

No additional external roadway improvements are necessary to due to the addition of ambient growth and/or site traffic. However, as described in the Access Analysis section, the throat length for Driveway "C" should be extended to at least 50 feet. This would impact the circulation plan for the parking lot on current plans. Care needs to be taken with streetscape improvements along Elliott Road to allow adequate sight distance from Driveways "B" and "C", as they both are located near a horizontal curve. Driveways "B" and "C" should also feature conspicuous signage indicating that they are the main entry points for the proposed Village Plaza Theaters.

As part of the original Special Use Permit for this site, the developer agreed to provide personnel to monitor parking operations and ensure, to the greatest extent possible, that theater-goers were parking in lots on the Village Plaza site. This policy needs to be adhered to since the Red, Hot and Blue lot has a limited amount of parking capacity and the neighboring lot at Whole Foods is designated only for patrons of that shopping center.

Appendix A – Figures

Not to Scale



Note:

◆ = Site Driveways Included in Study

◆ = Other Driveways Included in Study

○ = Other Intersections Studied Previously

Site Location Map

Figure 1

HNTB

Village Plaza Theaters
Traffic Impact Study

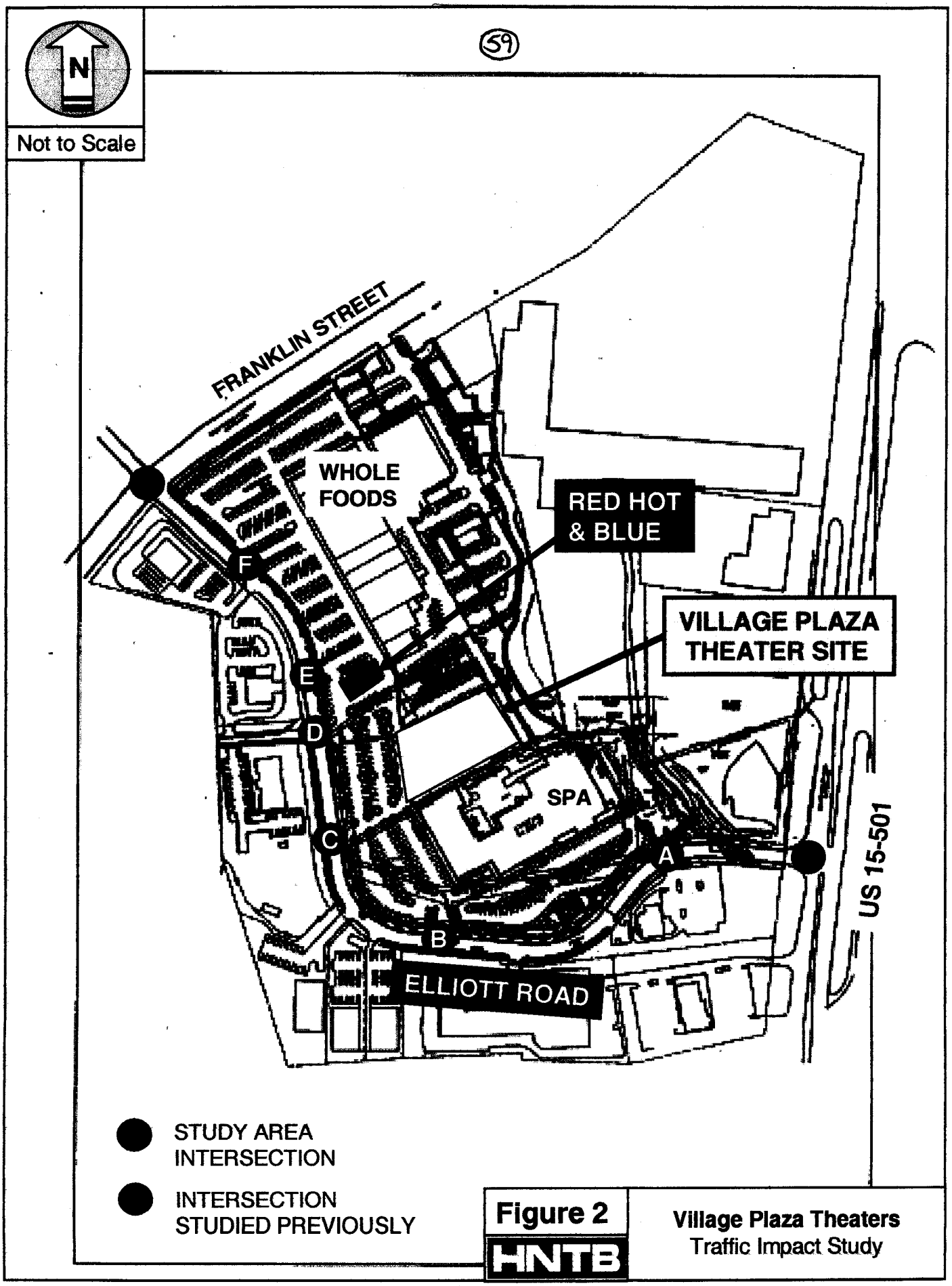
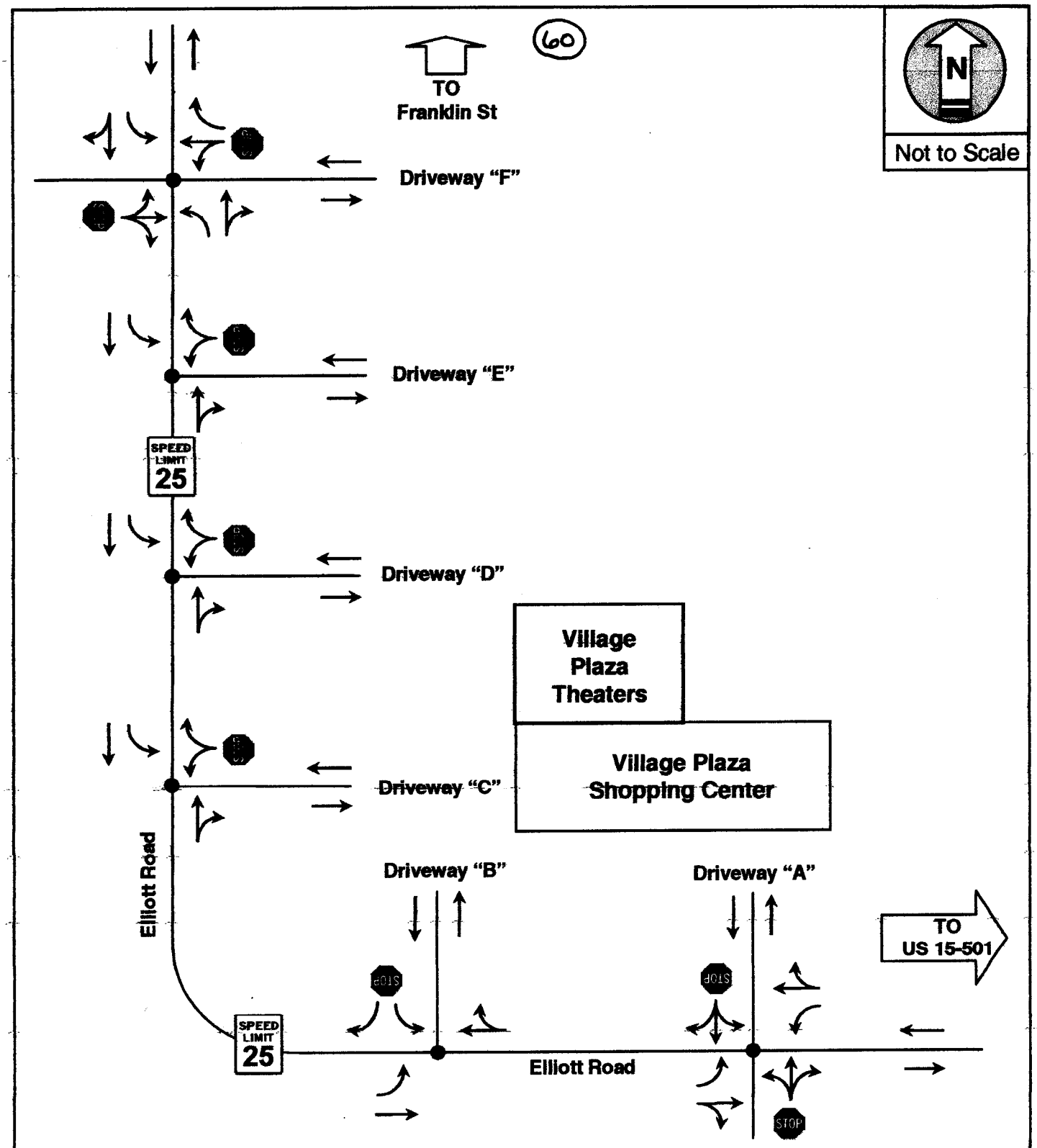


Figure 2

HNTB

Village Plaza Theaters
Traffic Impact Study

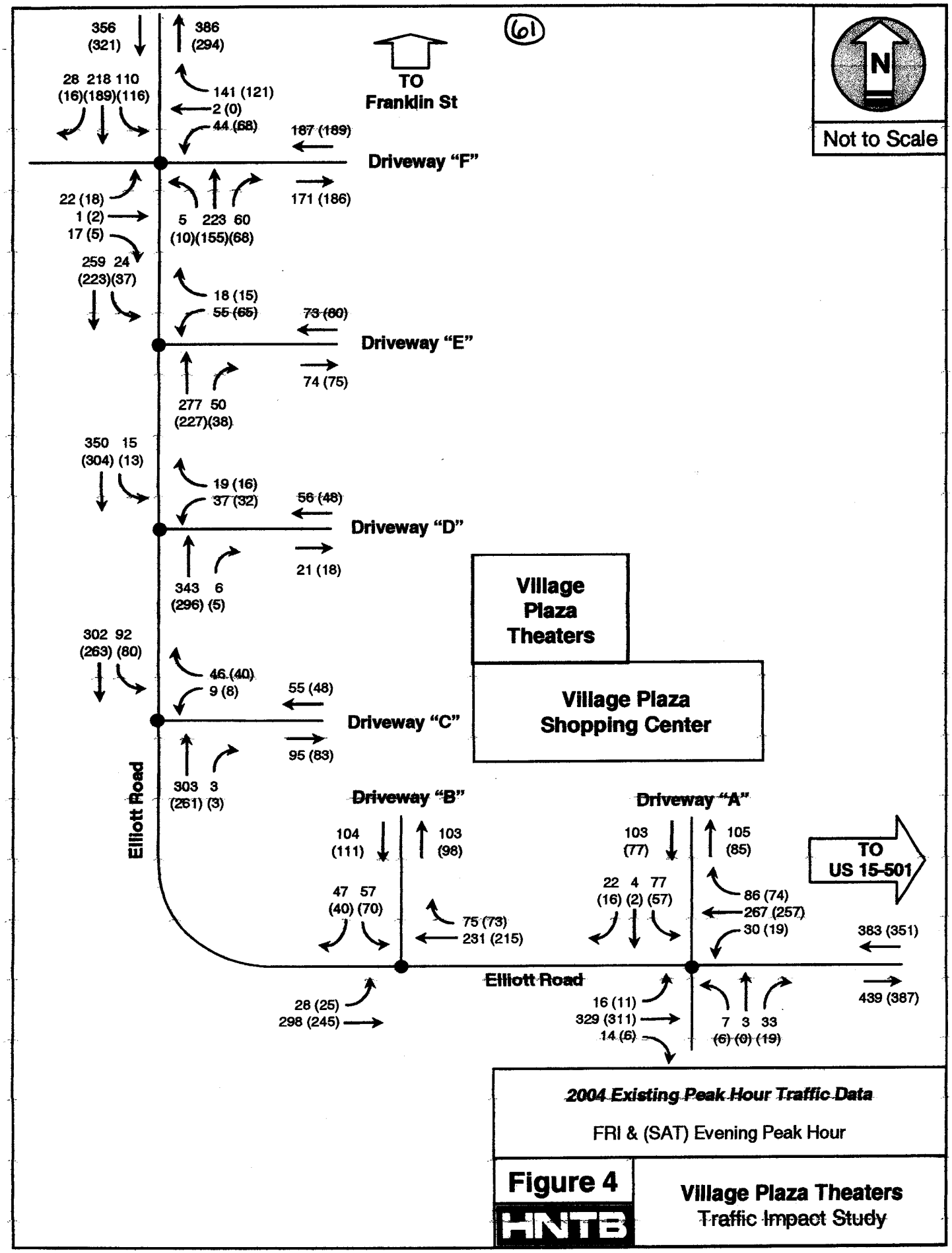


2004 Existing Intersection Lane Configuration
Showing Speed Limits and Traffic Control

Figure 3

HNTB

Village Plaza Theaters
Traffic Impact Study



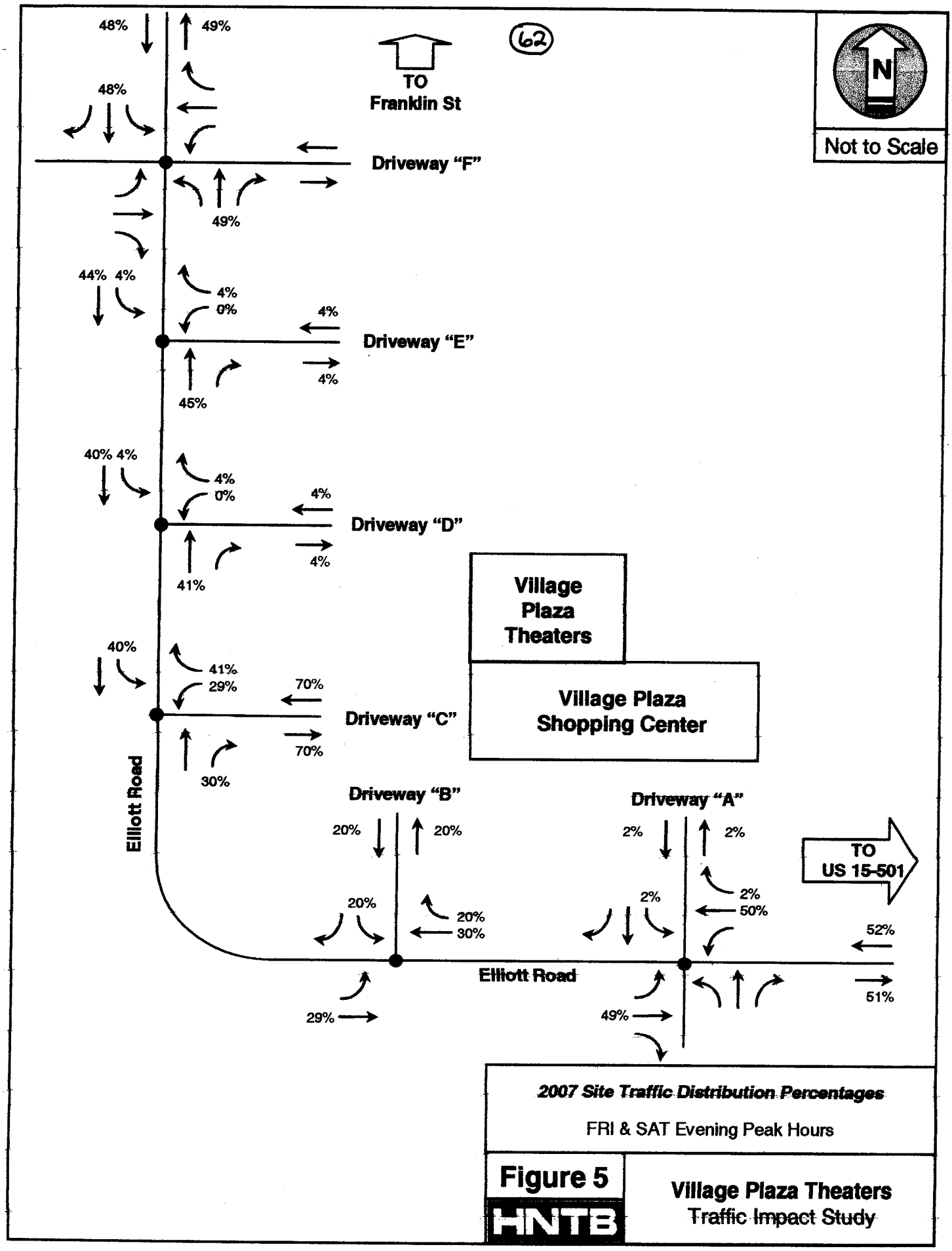
2004 Existing Peak Hour Traffic Data

FRI & (SAT) Evening Peak Hour

Figure 4

HNTB

Village Plaza Theaters
Traffic Impact Study



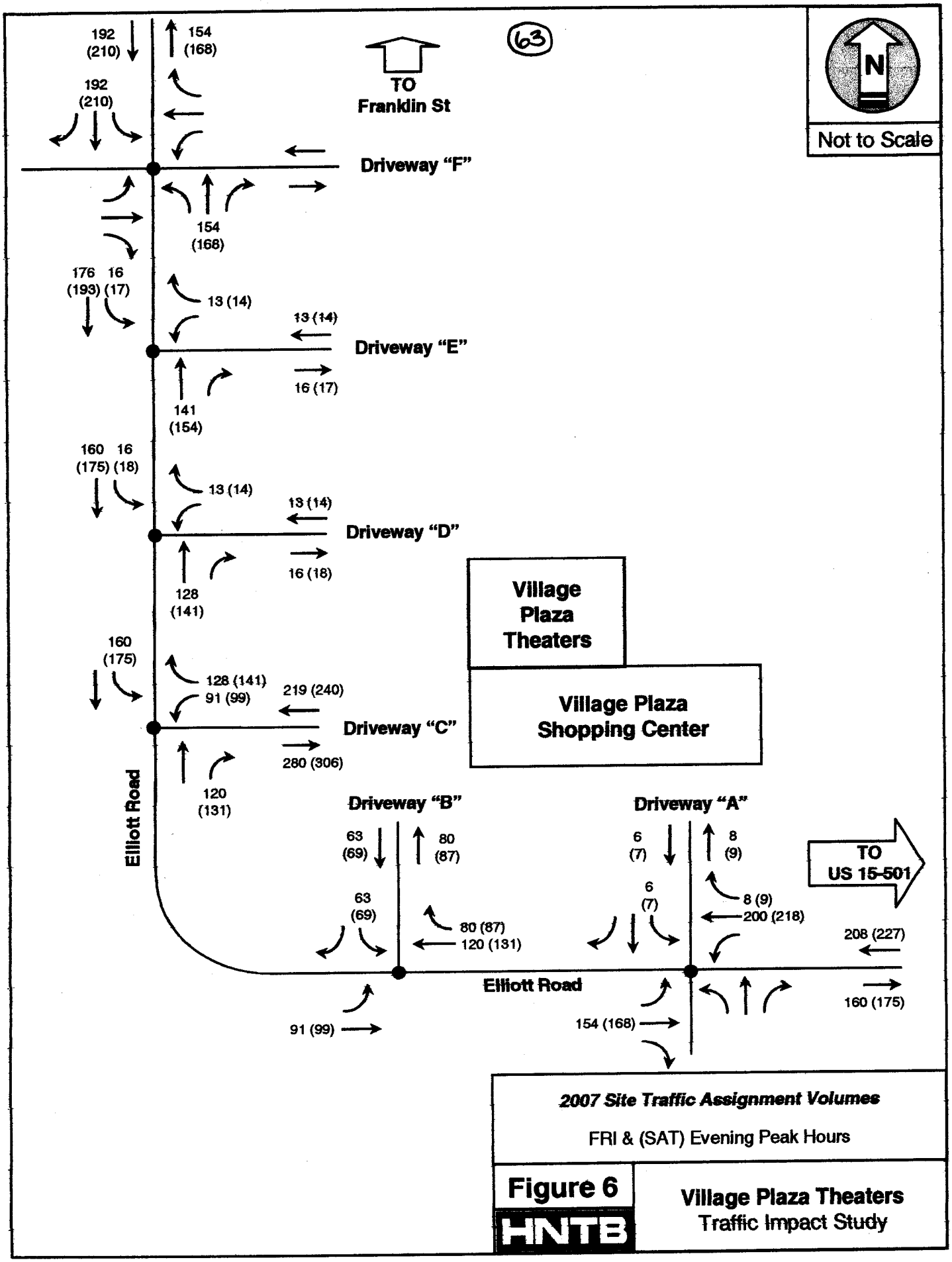
2007 Site Traffic Distribution Percentages

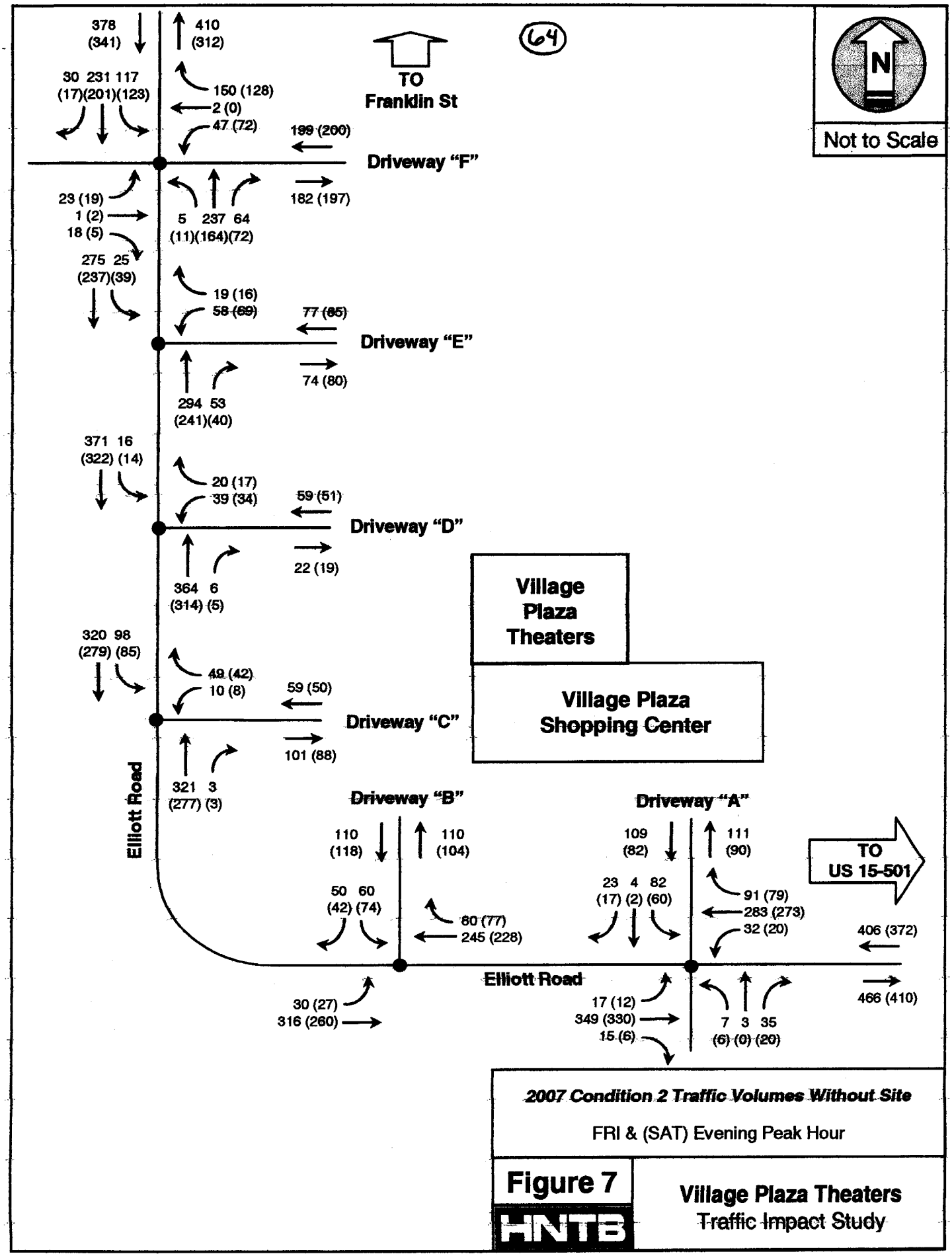
FRI & SAT Evening Peak Hours

Figure 5

HNTB

Village Plaza Theaters
Traffic Impact Study


63
N
Not to Scale
TO
Franklin St
192 (210)
154 (168)
192 (210)
Driveway "F"
154 (168)
176 (193)
16 (17)
13 (14)
13 (14)
Driveway "E"
16 (17)
141 (154)
160 (175)
16 (18)
13 (14)
13 (14)
Driveway "D"
16 (18)
128 (141)
Village Plaza Theaters
Village Plaza Shopping Center
160 (175)
128 (141)
91 (99)
219 (240)
Driveway "C"
280 (306)
120 (131)
Elliott Road
Driveway "B"
Driveway "A"
63 (69)
80 (87)
6 (7)
8 (9)
TO US 15-501
63 (69)
80 (87)
120 (131)
6 (7)
8 (9)
200 (218)
208 (227)
Elliott Road
91 (99)
154 (168)
160 (175)
2007 Site Traffic Assignment Volumes
FRI & (SAT) Evening Peak Hours
Figure 6
HNTB
Village Plaza Theaters
Traffic Impact Study



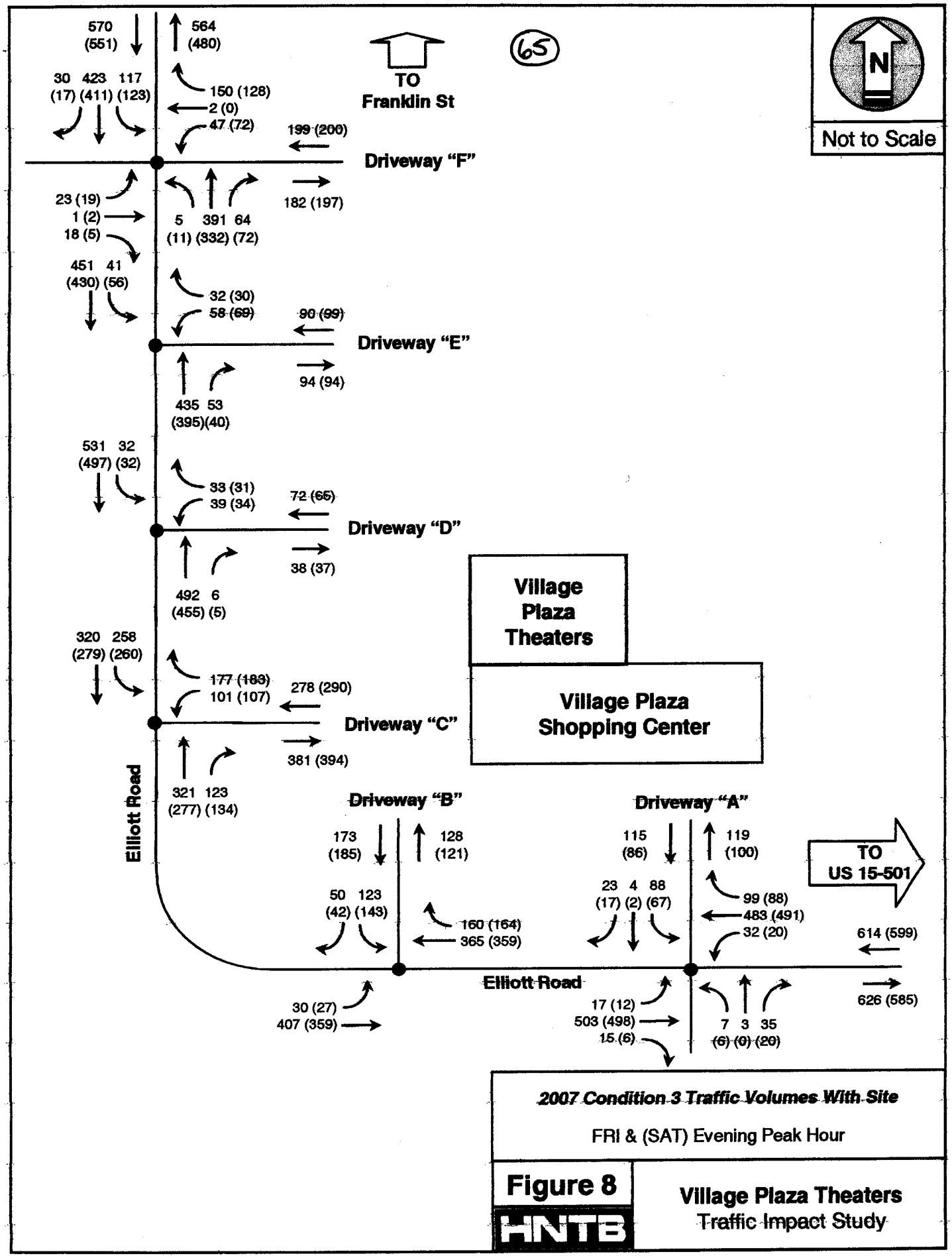
2007 Condition 2 Traffic Volumes Without Site

FRI & (SAT) Evening Peak Hour

Figure 7

HNTB

Village Plaza Theaters
Traffic Impact Study


570 (551)
564 (480)
30 423 117 (17) (411) (123)
150 (128)
2 (0)
47 (72)
199 (200)
TO Franklin St
65
N
Not to Scale
Driveway "F"
23 (19)
1 (2)
18 (5)
5 391 64 (11) (332) (72)
182 (197)
451 41 (430) (56)
32 (30)
58 (69)
90 (99)
Driveway "E"
94 (94)
435 53 (395)(40)
531 32 (497) (32)
33 (31)
39 (34)
72 (65)
Driveway "D"
38 (37)
492 6 (455) (5)
Village Plaza Theaters
320 258 (279) (260)
177 (183)
101 (107)
278 (290)
Driveway "C"
Village Plaza Shopping Center
381 (394)
321 123 (277) (134)
Elliott Road
Driveway "B"
Driveway "A"
173 (185)
128 (121)
115 (86)
119 (100)
TO US 15-501
50 123 (42) (143)
160 (164)
365 (359)
23 4 88 (17) (2) (67)
99 (88)
483 (491)
32 (20)
614 (599)
Elliott Road
30 (27)
407 (359)
17 (12)
503 (498)
15 (6)
7 3 35 (6) (0) (20)
626 (585)
2007 Condition 3 Traffic Volumes With Site
FRI & (SAT) Evening Peak Hour
Figure 8
HNTB
Village Plaza Theaters
Traffic Impact Study

Appendix B – Trip Generation Estimate Details

(67)

Village Plaza Theatres Amendment TIS - Trip Generation

Trip Generation Changes Between Buildout and Existing

Day	TOTAL TRIPS			TRIPS IN			TRIPS OUT		
	Buildout	Existing	Growth	Buildout	Existing	Growth	Buildout	Existing	Growth
Friday	714	552	162	400	309	91	314	247	67
Saturday	780	631	149	437	353	84	343	278	65

Village Plaza Theatres Amendment TIS - Trip Generation

Day FRIDAY
Scenario Build Out

ITE LU Code	Name	Variable	Rate	Site Data	Total Trips	% IN	% OUT	Trips IN	Trips OUT
445	Multi-Plex	Seats	0.29	1600	464	59	41	274	190
445	Multi-Plex	Screens	62.89	10	629	57	43	358	270
445	Multi-Plex	GFA	17.87	35.46	634	52	48	330	304
				average	*576*	*56*	*44*	*323*	*253*
444	Movie Theatre w/ Matinee	Seats	0.36	1600	576	56	44	323	253
444	Movie Theatre w/ Matinee	Screens	102.87	10	1029	58	42	597	432
444	Movie Theatre w/ Matinee	GFA	26.7	35.46	947	56	44	530	417
				average	*851*	*56*	*44*	*477*	*374*
				avg. 444&445	**714**	**56**	**44**	**400**	**314**

Day SATURDAY
Scenario Build Out

ITE LU Code	Name	Variable	Rate	Site Data	Total Trips	% IN	% OUT	Trips IN	Trips OUT
445	Multi-Plex	Seats	0.3	1600	480	52	48	250	230
445	Multi-Plex	Screens	69.14	10	691	52	48	360	332
445	Multi-Plex	GFA	16.76	35.46	594	52	48	309	285
				average	*588*	*52*	*48*	*306*	*282*
444	Movie Theatre w/ Matinee	Seats	0.46	1600	736	56	44	412	324
444	Movie Theatre w/ Matinee	Screens	120.48	10	1205	58	42	699	506
444	Movie Theatre w/ Matinee	GFA	27.39	35.46	971	56	44	544	427
				average	*971*	*56*	*44*	*544*	*427*
				avg. 444&445	**780**	**56**	**44**	**437**	**343**

Village Plaza Theatres Amendment TIS - Trip Generation

Day FRIDAY
Scenario Existing

ITE LU Code	Name	Variable	Rate	Site Data	Total Trips	% IN	% OUT	Trips IN	Trips OUT
445	Multi-Plex	Seats	0.29	1332	386	59	41	228	158
445	Multi-Plex	Screens	62.89	5	314	57	43	179	135
445	Multi-Plex	GFA	17.87	24.78	443	52	48	230	213
				average	*381*	*56*	*44*	*213*	*168*
444	Movie Theatre w/ Matinee	Seats	0.36	1332	480	56	44	269	211
444	Movie Theatre w/ Matinee	Screens	102.87	5	514	58	42	298	216
444	Movie Theatre w/ Matinee	GFA	26.7	24.78	662	56	44	371	291
				average	***552***	***56***	***44***	***309***	***247***

Day SATURDAY
Scenario Existing

ITE LU Code	Name	Variable	Rate	Site Data	Total Trips	% IN	% OUT	Trips IN	Trips OUT
445	Multi-Plex	Seats	0.3	1332	400	59	41	236	164
445	Multi-Plex	Screens	69.14	5	346	57	43	197	149
445	Multi-Plex	GFA	16.76	24.78	415	52	48	216	199
				average	*387*	*56*	*44*	*217*	*170*
444	Movie Theatre w/ Matinee	Seats	0.46	1332	613	56	44	343	270
444	Movie Theatre w/ Matinee	Screens	120.48	5	602	58	42	349	253
444	Movie Theatre w/ Matinee	GFA	27.39	24.78	679	56	44	380	299
				average	***631***	***56***	***44***	***353***	***278***

The 444 Land Use Type more closely corresponds with the original Village Plaza Theaters, so these numbers were used directly.

(80)

Appendix C – Highway Capacity Software Analysis

(70)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	KJF
Agency/Co.	HNTB North Carolina, PC
Date Performed	3/2/04
Analysis Time Period	2004 Friday PM Peak

Site Information

Intersection	Elliott Road and Driveway A
Jurisdiction	Town of Chapel Hill
Analysis Year	2004 Existing

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Elliott Road | North/South Street: Driveway "A"

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	16	329	14	30	267	86
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	17	353	15	31	281	90
Proportion of heavy vehicles, P_{HV}	2	--	--	2	--	--
Median type	Two Way Left Turn Lane					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	7	3	33	77	4	22
Peak-hour factor, PHF	0.67	0.67	0.67	0.79	0.79	0.79
Hourly Flow Rate (veh/h)	10	4	49	97	5	27
Proportion of heavy vehicles, P_{HV}	2	2	2	2	2	2
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	17	31		63			129	
Capacity, c_m (vph)	1188	1191		589			421	
v/c ratio	0.01	0.03		0.11			0.31	
Queue length (95%)	0.04	0.08		0.36			1.28	

(71)

Control Delay (s/veh)	8.1	8.1		11.8			17.3	
LOS	A	A		B			C	
Approach delay (s/veh)	--	--	11.8			17.3		
Approach LOS	--	--	B			C		

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(72)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	KJF
Agency/Co.	HNTB North Carolina, PC
Date Performed	3/2/04
Analysis Time Period	2004 Saturday PM Peak

Site Information

Intersection	Elliott Road and Driveway "A"
Jurisdiction	Town of Chapel Hill
Analysis Year	2004 Existing

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Elliott Road | North/South Street: Driveway "A"

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	11	311	6	19	257	74
Peak-hour factor, PHF	0.80	0.80	0.80	0.91	0.91	0.91
Hourly Flow Rate (veh/h)	13	388	7	20	282	81
Proportion of heavy vehicles, P_{HV}	2	--	--	2	--	--
Median type	Two Way Left Turn Lane					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	6	0	19	57	2	16
Peak-hour factor, PHF	0.84	0.84	0.84	0.77	0.77	0.77
Hourly Flow Rate (veh/h)	7	0	22	74	2	20
Proportion of heavy vehicles, P_{HV}	2	2	2	2	2	2
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	13	20		29			96	
Capacity, c_m (vph)	1196	1164		573			446	
v/c ratio	0.01	0.02		0.05			0.22	
Queue length (95%)	0.03	0.05		0.16			0.81	

(73)

Control Delay (s/veh)	8.0	8.1		11.6			15.3	
LOS	A	A		B			C	
Approach delay (s/veh)	--	--	11.6			15.3		
Approach LOS	--	--	B			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KJF*
Agency/Co.	*HNTB North Carolina, PC*
Date Performed	*3/2/04*
Analysis Time Period	*2004 Existing Friday PM Peak*

Site Information

Intersection	*Elliott Road and Driveway "B"*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2004 Existing*

Project Description *38435 - Town of Chapel Hill TIS - Village Plaza Theatres*

East/West Street: *Elliott Road* | North/South Street: *Driveway "B"*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*28*	*298*	*0*	*0*	*231*	*75*
Peak-hour factor, PHF	*0.92*	*0.92*	*1.00*	*1.00*	*0.99*	*0.99*
Hourly Flow Rate (veh/h)	*30*	*323*	*0*	*0*	*233*	*75*
Proportion of heavy vehicles, P_{HV}	*2*	--	--	*0*	--	--
Median type	*Two Way Left Turn Lane*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*57*	*0*	*47*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*0.70*	*1.00*	*0.70*
Hourly Flow Rate (veh/h)	*0*	*0*	*0*	*81*	*0*	*67*
Proportion of heavy vehicles, P_{HV}	*0*	*0*	*0*	*2*	*0*	*2*
Percent grade (%)		*0*			*3*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
Volume, v (vph)	*30*					*81*		*67*
Capacity, c_m (vph)	*1253*					*519*		*769*
v/c ratio	*0.02*					*0.16*		*0.09*
Queue length (95%)	*0.07*					*0.55*		*0.29*

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Control Delay (s/veh)	7.9					13.2		10.1
LOS	A					B		B
Approach delay (s/veh)	--	--				11.8		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "B"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	3/2/04	Analysis Year	2004 Existing
Analysis Time Period	2004 Existing Saturday PM Peak		

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Elliott Road | North/South Street: Driveway "B"

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	25	245	0	0	215	73
Peak-hour factor, PHF	0.95	0.95	1.00	1.00	0.88	0.88
Hourly Flow Rate (veh/h)	26	257	0	0	244	82
Proportion of heavy vehicles, P_{HV}	2	--	--	0	--	--
Median type	Two Way Left Turn Lane					
RT Channelized?			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	70	0	40
Peak-hour factor, PHF	1.00	1.00	1.00	0.93	1.00	0.93
Hourly Flow Rate (veh/h)	0	0	0	75	0	43
Proportion of heavy vehicles, P_{HV}	0	0	0	2	0	2
Percent grade (%)	0			3		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
Volume, v (vph)	26					75		43
Capacity, c_m (vph)	1234					548		754
v/c ratio	0.02					0.14		0.06
Queue length (95%)	0.06					0.47		0.18

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Control Delay (s/veh)	8.0					12.6		10.1
LOS	A					B		B
Approach delay (s/veh)	--	--				11.7		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "C"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/22/04	Analysis Year	2004 Existing
Analysis Time Period	2004 Existing Friday PM Peak		

Project Description	38435 - Town of Chapel Hill - Village Plaza Theatres
East/West Street:	Driveway "C"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	303	3	92	302	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	336	3	102	335	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	9	0	46	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	10	0	51	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		102		61				
C (m) (vph)		1220		630				
v/c		0.08		0.10				
95% queue length		0.27		0.32				
Control Delay		8.2		11.3				
LOS		A		B				
Approach Delay	--	--	11.3					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "C"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/22/04	Analysis Year	2004 Existing
Analysis Time Period	2004 Existing Saturday PM Peak		

Project Description: 38435 - Town of Chapel Hill - Village Plaza Theatres

East/West Street: Driveway "C" | North/South Street: Elliott Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	261	3	80	263	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	290	3	88	292	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	8	0	40	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	8	0	44	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		88		52				
C (m) (vph)		1269		680				
v/c		0.07		0.08				
95% queue length		0.22		0.25				
Control Delay		8.0		10.7				
LOS		A		B				
Approach Delay	--	--	10.7					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "D"
Agency/Co.	HNTB North Carolina, PC		
Date Performed	5/22/04	Jurisdiction	Town of Chapel Hill
Analysis Time Period	2004 Existing Friday PM Peak	Analysis Year	2004 Existing

Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres
East/West Street:	Driveway "D"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	343	6	15	350	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	381	6	16	388	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	37	0	19	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	41	0	21	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)	-2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		16		62				
C (m) (vph)		1171		518				
v/c		0.01		0.12				
95% queue length		0.04		0.41				
Control Delay		8.1		12.9				
LOS		A		B				
Approach Delay	--	--	12.9					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "D"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/22/04	Analysis Year	2004 Existing
Analysis Time Period	2004 Existing Saturday PM Peak		

Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres
East/West Street:	Driveway "D"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	296	5	13	304	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	328	5	14	337	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	32	0	16	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	35	0	17	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		-2			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		14		52				
C (m) (vph)		1226		561				
v/c		0.01		0.09				
95% queue length		0.03		0.31				
Control Delay		8.0		12.1				
LOS		A		B				
Approach Delay	--	--	12.1					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "E"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	3/2/04	Analysis Year	2004 Existing
Analysis Time Period	2004 Existing Friday PM Peak		

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Driveway "E" | North/South Street: Elliott Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	277	50	24	259	0
Peak-Hour Factor, PHF	1.00	0.89	0.89	0.89	0.89	1.00
Hourly Flow Rate, HFR	0	311	56	26	291	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	55	0	18	0	0	0
Peak-Hour Factor, PHF	0.78	1.00	0.78	1.00	1.00	1.00
Hourly Flow Rate, HFR	70	0	23	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)	-1			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		26		93				
C (m) (vph)		1192		548				
v/c		0.02		0.17				
95% queue length		0.07		0.61				
Control Delay		8.1		12.9				
LOS		A		B				
Approach Delay	--	--	12.9					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "E"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	3/2/04	Analysis Year	2004 Existing
Analysis Time Period	2004 Existing Saturday PM Peak		

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Driveway "E" | North/South Street: Elliott Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	227	38	37	223	0
Peak-Hour Factor, PHF	1.00	0.91	0.91	0.93	0.93	1.00
Hourly Flow Rate, HFR	0	249	41	39	239	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	65	0	15	0	0	0
Peak-Hour Factor, PHF	0.89	1.00	0.89	1.00	1.00	1.00
Hourly Flow Rate, HFR	73	0	16	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)	-1			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		39		89				
C (m) (vph)		1272		578				
v/c		0.03		0.15				
95% queue length		0.09		0.54				
Control Delay		7.9		12.4				
LOS		A		B				
Approach Delay	--	--	12.4					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "F"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	3/2/04	Analysis Year	2004 Existing
Analysis Time Period	2004 Existing Friday PM Peak		
Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres		
East/West Street:	Driveway "F"	North/South Street:	Elliott Road
Intersection Orientation:	North-South	Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	223	60	110	218	28
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.83	0.83	0.83
Hourly Flow Rate, HFR	5	247	66	132	262	33
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	44	2	141	22	1	17
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.83	0.83	0.83
Hourly Flow Rate, HFR	48	2	156	26	1	20
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		1			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	0
Configuration	LT		R		LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R		LTR	
v (vph)	5	132	50		156		47	
C (m) (vph)	1278	1247	354		759		382	
v/c	0.00	0.11	0.14		0.21		0.12	
95% queue length	0.01	0.35	0.49		0.77		0.42	
Control Delay	7.8	8.2	16.8		11.0		15.7	
LOS	A	A	C		B		C	
Approach Delay	--	--	12.4			15.7		
Approach LOS	--	--	B			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "F"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	3/2/04	Analysis Year	2004 Existing
Analysis Time Period	2004 Existing Saturday PM Peak		
Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres		
East/West Street:	Driveway "F"	North/South Street:	Elliott Road
Intersection Orientation:	North-South	Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	155	68	116	189	16
Peak-Hour Factor, PHF	0.99	0.99	0.99	0.90	0.90	0.90
Hourly Flow Rate, HFR	10	156	68	128	210	17
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	68	0	121	18	2	5
Peak-Hour Factor, PHF	0.73	0.73	0.73	0.61	0.61	0.61
Hourly Flow Rate, HFR	93	0	165	29	3	8
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)	1			-3		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	0
Configuration	LT		R		LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R		LTR	
v (vph)	10	128	93		165		40	
C (m) (vph)	1341	1345	410		852		376	
v/c	0.01	0.10	0.23		0.19		0.11	
95% queue length	0.02	0.31	0.86		0.71		0.35	
Control Delay	7.7	8.0	16.3		10.2		15.7	
LOS	A	A	C		B		C	
Approach Delay	--	--	12.4			15.7		
Approach LOS	--	--	B			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	KJF
Agency/Co.	HNTB North Carolina, PC
Date Performed	3/2/04
Analysis Time Period	2007 W/O Site Friday PM Peak

Site Information

Intersection	Elliott Road and Driveway A
Jurisdiction	Town of Chapel Hill
Analysis Year	2007 Without Site

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Elliott Road | North/South Street: Driveway "A"

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	17	349	15	32	283	91
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	18	387	16	35	314	101
Proportion of heavy vehicles, P_{HV}	2	--	--	2	--	--
Median type	Two Way Left Turn Lane					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	7	3	35	82	4	23
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	7	3	38	91	4	25
Proportion of heavy vehicles, P_{HV}	2	2	2	2	2	2
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	18	35		48			120	
Capacity, c_m (vph)	1144	1156		562			395	
v/c ratio	0.02	0.03		0.09			0.30	
Queue length (95%)	0.05	0.09		0.28			1.26	

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Control Delay (s/veh)	8.2	8.2		12.0			18.0	
LOS	A	A		B			C	
Approach delay (s/veh)	--	--	12.0			18.0		
Approach LOS	--	--	B			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	KJF
Agency/Co.	HNTB North Carolina, PC
Date Performed	3/2/04
Analysis Time Period	2007 W/O Site Saturday PM Peak

Site Information

Intersection	Elliott Road and Driveway "A"
Jurisdiction	Town of Chapel Hill
Analysis Year	2007 Without Site

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Elliott Road | North/South Street: Driveway "A"

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	12	330	6	20	273	79
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	13	366	6	22	303	87
Proportion of heavy vehicles, P_{HV}	2	--	--	2	--	--
Median type	Two Way Left Turn Lane					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	6	0	20	60	2	17
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	6	0	22	66	2	18
Proportion of heavy vehicles, P_{HV}	2	2	2	2	2	2
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	13	22		28			86	
Capacity, c_m (vph)	1169	1186		593			442	
v/c ratio	0.01	0.02		0.05			0.19	
Queue length (95%)	0.03	0.06		0.15			0.71	

(89)

Control Delay (s/veh)	8.1	8.1		11.4			15.1	
LOS	A	A		B			C	
Approach delay (s/veh)	--	--	11.4			15.1		
Approach LOS	--	--	B			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "B"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	3/2/04	Analysis Year	2007 Without Site
Analysis Time Period	2007 W/O Site Friday PM Peak		

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Elliott Road | North/South Street: Driveway "B"

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	30	316	0	0	245	80
Peak-hour factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate (veh/h)	33	351	0	0	272	88
Proportion of heavy vehicles, P_{HV}	2	--	--	0	--	--
Median type	Two Way Left Turn Lane					
RT Channelized?			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	60	0	50
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate (veh/h)	0	0	0	66	0	55
Proportion of heavy vehicles, P_{HV}	0	0	0	2	0	2
Percent grade (%)	0			3		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
Volume, v (vph)	33					66		55
Capacity, c_m (vph)	1199					485		724
v/c ratio	0.03					0.14		0.08
Queue length (95%)	0.08					0.47		0.25

(91)

Control Delay (s/veh)	8.1					13.6		10.4
LOS	A					B		B
Approach delay (s/veh)	--	--				12.1		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "B"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	3/2/04	Analysis Year	2007 Without Site
Analysis Time Period	2007 W/O Site Saturday PM Peak		

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Elliott Road | North/South Street: Driveway "B"

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	27	260	0	0	228	77
Peak-hour factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate (veh/h)	30	288	0	0	253	85
Proportion of heavy vehicles, P_{HV}	2	--	--	0	--	--
Median type	Two Way Left Turn Lane					
RT Channelized?			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	74	0	42
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate (veh/h)	0	0	0	82	0	46
Proportion of heavy vehicles, P_{HV}	0	0	0	2	0	2
Percent grade (%)		0			3	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
Volume, v (vph)	30					82		46
Capacity, c_m (vph)	1221					524		743
v/c ratio	0.02					0.16		0.06
Queue length (95%)	0.08					0.55		0.20

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Control Delay (s/veh)	8.0					13.1		10.2
LOS	A					B		B
Approach delay (s/veh)	--	--				12.1		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "C"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/22/04	Analysis Year	2007 Without Site
Analysis Time Period	2007 W/O Site Friday PM Peak		

Project Description	38435 - Town of Chapel Hill - Village Plaza Theatres
East/West Street:	Driveway "C"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	321	3	98	320	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	356	3	108	355	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	49	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	11	0	54	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		108		65				
C (m) (vph)		1200		608				
v/c		0.09		0.11				
95% queue length		0.30		0.36				
Control Delay		8.3		11.6				
LOS		A		B				
Approach Delay	--	--	11.6					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "C"
Agency/Co.	HNTB North Carolina, PC		
Date Performed	5/22/04	Jurisdiction	Town of Chapel Hill
Analysis Time Period	2007 W/O Site Saturday PM Peak	Analysis Year	2007 Without Site

Project Description	38435 - Town of Chapel Hill - Village Plaza Theatres
East/West Street:	Driveway "C"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	277	3	85	279	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	307	3	94	310	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	8	0	42	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	8	0	46	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		94		54				
C (m) (vph)		1250		665				
v/c		0.08		0.08				
95% queue length		0.24		0.26				
Control Delay		8.1		10.9				
LOS		A		B				
Approach Delay	--	--	10.9					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "D"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/22/04	Analysis Year	2007 Without Site
Analysis Time Period	2007 W/O Site Friday PM Peak		

Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres
East/West Street:	Driveway "D"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	364	6	16	371	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	404	6	17	412	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	39	0	20	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	43	0	22	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		-2			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		17		65				
C (m) (vph)		1149		498				
v/c		0.01		0.13				
95% queue length		0.05		0.45				
Control Delay		8.2		13.3				
LOS		A		B				
Approach Delay	--	--	13.3					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "D"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/22/04	Analysis Year	2007 Without Site
Analysis Time Period	2007 W/O Site Saturday PM Peak		

Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres
East/West Street:	Driveway "D"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	314	5	14	322	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	348	5	15	357	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	34	0	17	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	37	0	18	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)	-2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		15		55				
C (m) (vph)		1206		543				
v/c		0.01		0.10				
95% queue length		0.04		0.34				
Control Delay		8.0		12.4				
LOS		A		B				
Approach Delay	--	--	12.4					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "E"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	3/2/04	Analysis Year	2007 Without Site
Analysis Time Period	2007 W/O Site Friday PM Peak		
Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres		
East/West Street:	Driveway "E"	North/South Street:	Elliott Road
Intersection Orientation:	North-South	Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	241	40	25	275	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	267	44	27	305	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	58	0	19	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	64	0	21	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		-1			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		27		85				
C (m) (vph)		1249		566				
v/c		0.02		0.15				
95% queue length		0.07		0.53				
Control Delay		7.9		12.5				
LOS		A		B				
Approach Delay	--	--	12.5					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "E"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	3/2/04	Analysis Year	2007 Without Site
Analysis Time Period	2007 W/O Site Saturday PM Peak		

Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres
East/West Street:	Driveway "E"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	294	53	39	237	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	326	58	43	263	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	69	0	16	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	76	0	17	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		-1			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		43		93				
C (m) (vph)		1174		523				
v/c		0.04		0.18				
95% queue length		0.11		0.64				
Control Delay		8.2		13.4				
LOS		A		B				
Approach Delay	--	--	13.4					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "F"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	3/2/04	Analysis Year	2007 Without Site
Analysis Time Period	2007W/O Site Friday PM Peak		

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Driveway "F" | North/South Street: Elliott Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	237	64	117	231	30
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	263	71	130	256	33
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	47	2	150	23	1	18
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	52	2	166	25	1	20
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		1			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	0
Configuration	LT		R		LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R		LTR	
v (vph)	5	130	54		166		46	
C (m) (vph)	1273	1225	354		741		372	
v/c	0.00	0.11	0.15		0.22		0.12	
95% queue length	0.01	0.36	0.53		0.86		0.42	
Control Delay	7.8	8.3	17.0		11.3		16.0	
LOS	A	A	C		B		C	
Approach Delay	--	--	12.7			16.0		
Approach LOS	--	--	B			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	KJF	Intersection	Elliott Road and Driveway "F"
Agency/Co.	HNTB North Carolina, PC		
Date Performed	3/2/04	Jurisdiction	Town of Chapel Hill
Analysis Time Period	2007 W/O Site Saturday PM Peak	Analysis Year	2007 Without Site

Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres
East/West Street:	Driveway "F"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	11	164	72	123	201	17
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	12	182	80	136	223	18
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	72	0	128	19	2	5
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	80	0	142	21	2	5
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		1			-3	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	0
Configuration	LT		R		LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R		LTR	
v (vph)	12	136	80		142		28	
C (m) (vph)	1326	1302	386		818		353	
v/c	0.01	0.10	0.21		0.17		0.08	
95% queue length	0.03	0.35	0.77		0.63		0.26	
Control Delay	7.7	8.1	16.7		10.3		16.1	
LOS	A	A	C		B		C	
Approach Delay	--	--	12.6			16.1		
Approach LOS	--	--	B			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CRS
Agency/Co.	HNTB North Carolina, PC
Date Performed	5/18/04
Analysis Time Period	2007 Site REV Friday PM Peak

Site Information

Intersection	Elliott Road and Driveway A
Jurisdiction	Town of Chapel Hill
Analysis Year	2007 Site

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Elliott Road | North/South Street: Driveway "A"

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	17	503	15	32	483	99
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	18	558	16	35	536	110
Proportion of heavy vehicles, P_{HV}	2	–	–	2	–	–
Median type	Two Way Left Turn Lane					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	7	3	35	88	4	23
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	7	3	38	97	4	25
Proportion of heavy vehicles, P_{HV}	2	2	2	2	2	2
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	18	35		48			126	
Capacity, c_m (vph)	939	999		430			275	
v/c ratio	0.02	0.04		0.11			0.46	
Queue length (95%)	0.06	0.11		0.37			2.26	

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Control Delay (s/veh)	8.9	8.7		14.4			28.7	
LOS	A	A		B			D	
Approach delay (s/veh)	–	–	14.4			28.7		
Approach LOS	–	–	B			D		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CRS
Agency/Co.	HNTB North Carolina, PC
Date Performed	5/18/04
Analysis Time Period	2007 Site REV Saturday PM Peak

Site Information

Intersection	Elliott Road and Driveway "A"
Jurisdiction	Town of Chapel Hill
Analysis Year	2007 Site

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Elliott Road | North/South Street: Driveway "A"

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	12	498	6	20	491	88
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	13	553	6	22	545	97
Proportion of heavy vehicles, P_{HV}	2	–	–	2	–	–
Median type	Two Way Left Turn Lane					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	6	0	20	67	2	17
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	6	0	22	74	2	18
Proportion of heavy vehicles, P_{HV}	2	2	2	2	2	2
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	13	22		28			94	
Capacity, c_m (vph)	943	1012		440			298	
v/c ratio	0.01	0.02		0.06			0.32	
Queue length (95%)	0.04	0.07		0.20			1.31	

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Control Delay (s/veh)	8.9	8.6		13.7			22.5	
LOS	A	A		B			C	
Approach delay (s/veh)	–	–	13.7			22.5		
Approach LOS	–	–	B			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*CRS*
Agency/Co.	*HNTB North Carolina, PC*
Date Performed	*5/18/04*
Analysis Time Period	*2007 Site REV Friday PM Peak*

Site Information

Intersection	*Elliott Road and Driveway "B"*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2007 Site*

Project Description *38435 - Town of Chapel Hill TIS - Village Plaza Theatres*

East/West Street: *Elliott Road* | North/South Street: *Driveway "B"*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*30*	*407*	*0*	*0*	*365*	*160*
Peak-hour factor, PHF	*0.90*	*0.90*	*1.00*	*1.00*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*33*	*452*	*0*	*0*	*405*	*177*
Proportion of heavy vehicles, P_{HV}	*2*	–	–	*0*	–	–
Median type	*Two Way Left Turn Lane*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*123*	*0*	*50*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*0.90*	*1.00*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*0*	*136*	*0*	*55*
Proportion of heavy vehicles, P_{HV}	*0*	*0*	*0*	*2*	*0*	*2*
Percent grade (%)		*0*			*3*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
Volume, v (vph)	*33*					*136*		*55*
Capacity, c_m (vph)	*992*					*388*		*575*
v/c ratio	*0.03*					*0.35*		*0.10*
Queue length (95%)	*0.10*					*1.54*		*0.32*

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Control Delay (s/veh)	8.8					19.2		11.9
LOS	A					C		B
Approach delay (s/veh)	–	–				17.1		
Approach LOS	–	–				C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*CRS*	Intersection	*Elliott Road and Driveway "B"*
Agency/Co.	*HNTB North Carolina, PC*	Jurisdiction	*Town of Chapel Hill*
Date Performed	*5/18/04*	Analysis Year	*2007 Site*
Analysis Time Period	*2007 Site REV Saturday PM Peak*		

Project Description *38435 - Town of Chapel Hill TIS - Village Plaza Theatres*

East/West Street: *Elliott Road* | North/South Street: *Driveway "B"*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*27*	*359*	*0*	*0*	*359*	*164*
Peak-hour factor, PHF	*0.90*	*0.90*	*1.00*	*1.00*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*30*	*398*	*0*	*0*	*398*	*182*
Proportion of heavy vehicles, P_{HV}	*2*	–	–	*0*	–	–
Median type	*Two Way Left Turn Lane*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*143*	*0*	*42*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*0.90*	*1.00*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*0*	*158*	*0*	*46*
Proportion of heavy vehicles, P_{HV}	*0*	*0*	*0*	*2*	*0*	*2*
Percent grade (%)		*0*			*3*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
Volume, v (vph)	*30*					*158*		*46*
Capacity, c_m (vph)	*994*					*409*		*579*
v/c ratio	*0.03*					*0.39*		*0.08*
Queue length (95%)	*0.09*					*1.79*		*0.26*

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Control Delay (s/veh)	8.7					19.2		11.8
LOS	A					C		B
Approach delay (s/veh)	–	–				17.5		
Approach LOS	–	–				C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "C"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/22/04	Analysis Year	2007 Site
Analysis Time Period	2007 Site REV Friday PM Peak		

Project Description	38435 - Town of Chapel Hill - Village Plaza Theatres
East/West Street:	Driveway "C"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	321	123	258	320	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	356	136	286	355	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	101	0	177	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	112	0	196	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	L		R			
v (vph)		286	112		196			
C (m) (vph)		1071	224		630			
v/c		0.27	0.50		0.31			
95% queue length		1.08	2.54		1.32			
Control Delay		9.6	36.1		13.3			
LOS		A	E		B			
Approach Delay	--	--	21.6					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "C"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/22/04	Analysis Year	2007 Site
Analysis Time Period	2007 Site REV Saturday PM Peak		

Project Description	38435 - Town of Chapel Hill - Village Plaza Theatres
East/West Street:	Driveway "C"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	277	134	260	279	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	307	148	288	310	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	107	0	183	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	118	0	203	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	L		R			
v (vph)		288	118		203			
C (m) (vph)		1106	239		666			
v/c		0.26	0.49		0.30			
95% queue length		1.05	2.51		1.29			
Control Delay		9.4	33.9		12.8			
LOS		A	D		B			
Approach Delay	--	--	20.5					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "D"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/22/04	Analysis Year	2007 Site
Analysis Time Period	2007 Site REV Friday PM Peak		

Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres
East/West Street:	Driveway "D"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	492	6	32	531	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	546	6	35	590	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	39	0	33	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	43	0	36	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		-2			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		35		79				
C (m) (vph)		1018		402				
v/c		0.03		0.20				
95% queue length		0.11		0.72				
Control Delay		8.7		16.1				
LOS		A		C				
Approach Delay	--	--	16.1					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "D"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/22/04	Analysis Year	2007 Site
Analysis Time Period	2007 Site REV Saturday PM Peak		

Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres
East/West Street:	Driveway "D"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	455	5	32	497	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	505	5	35	552	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	34	0	31	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	37	0	34	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		-2			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		35		71				
C (m) (vph)		1055		431				
v/c		0.03		0.16				
95% queue length		0.10		0.58				
Control Delay		8.5		15.0				
LOS		A		B				
Approach Delay	--	--	15.0					
Approach LOS	--	--	B					

Rights Reserved

(114)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "E"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/18/04	Analysis Year	2007 Site
Analysis Time Period	2007 Site REV Friday PM Peak		

Project Description	38435 - Town of Chapel Hill TIS - Village Plaza Theatres
East/West Street:	Driveway "E"
North/South Street:	Elliott Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	435	53	41	451	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	483	58	45	501	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	58	0	32	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	64	0	35	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)	-1			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		45		99				
C (m) (vph)		1028		412				
v/c		0.04		0.24				
95% queue length		0.14		0.93				
Control Delay		8.7		16.5				
LOS		A		C				
Approach Delay	--	--	16.5					
Approach LOS	--	--	C					

Rights Reserved

(115)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "E"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/18/04	Analysis Year	2007 Site
Analysis Time Period	2007 Site REV Saturday PM Peak		

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Driveway "E" | North/South Street: Elliott Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	395	40	56	430	0
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR	0	438	44	62	477	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	69	0	30	0	0	0
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR	76	0	33	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)	-1			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (vph)		62		109				
C (m) (vph)		1081		414				
v/c		0.06		0.26				
95% queue length		0.18		1.04				
Control Delay		8.5		16.8				
LOS		A		C				
Approach Delay	--	--	16.8					
Approach LOS	--	--	C					

Rights Reserved

(116)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "F"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/18/04	Analysis Year	2007 Site
Analysis Time Period	2007 Site REV Friday PM Peak		

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Driveway "F" | North/South Street: Elliott Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	391	64	117	423	30
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	434	71	130	470	33
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	47	2	150	23	1	18
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	52	2	166	25	1	20
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		1			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	0
Configuration	LT		R		LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R		LTR	
v (vph)	5	130	54		166		46	
C (m) (vph)	1072	1060	247		593		246	
v/c	0.00	0.12	0.22		0.28		0.19	
95% queue length	0.01	0.42	0.81		1.14		0.67	
Control Delay	8.4	8.9	23.6		13.4		23.0	
LOS	A	A	C		B		C	
Approach Delay	--	--	15.9			23.0		
Approach LOS	--	--	C			C		

Rights Reserved

(117)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRS	Intersection	Elliott Road and Driveway "F"
Agency/Co.	HNTB North Carolina, PC	Jurisdiction	Town of Chapel Hill
Date Performed	5/18/04	Analysis Year	2007 Site
Analysis Time Period	2007 Site REV Saturday PM Peak		

Project Description: 38435 - Town of Chapel Hill TIS - Village Plaza Theatres

East/West Street: Driveway "F" | North/South Street: Elliott Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	11	332	72	123	411	17
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	12	368	80	136	456	18
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	72	0	128	19	2	5
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	80	0	142	21	2	5
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		1			-3	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	0
Configuration	LT		R		LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R		LTR	
v (vph)	12	136	80		142		28	
C (m) (vph)	1088	1112	259		643		225	
v/c	0.01	0.12	0.31		0.22		0.12	
95% queue length	0.03	0.42	1.27		0.84		0.42	
Control Delay	8.3	8.7	25.0		12.2		23.3	
LOS	A	A	C		B		C	
Approach Delay	--	--	16.8			23.3		
Approach LOS	--	--	C			C		

Rights Reserved

Appendix D – Traffic Count Data

HNTB North Carolina, PC

343 East Six Forks Road Ste. 200
Raleigh, NC 27609
Architects, Engineers, Planners

(119)

Intersection: Elliott Rd & Driveway A
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrafri
Site Code : 00000004
Start Date : 3/5/04
Page No : 1

Groups Printed- Unshifted

	Driveway A Southbound					Elliot Road Westbound					Burger King Northbound					Elliot Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	21	1	3	0	25	12	68	21	0	101	1	2	8	0	11	2	79	3	0	84	221
06:15 PM	21	1	7	1	30	4	65	23	0	92	5	1	10	0	16	4	84	4	0	92	230
06:30 PM	25	1	7	0	33	6	71	16	0	93	1	0	5	0	6	5	89	3	0	97	229
06:45 PM	10	1	5	0	16	8	63	26	0	97	0	0	10	0	10	5	77	4	0	86	209
Total	77	4	22	1	104	30	267	86	0	383	7	3	33	0	43	16	329	14	0	359	889
07:00 PM	25	0	3	0	28	6	64	22	0	92	3	1	7	0	11	5	62	6	0	73	204
07:15 PM	19	0	9	0	28	4	50	17	0	71	3	1	7	0	11	7	55	3	2	67	177
07:30 PM	30	0	5	0	35	2	56	14	0	72	2	0	3	0	5	4	52	0	0	56	168
07:45 PM	33	2	7	0	42	3	32	12	2	49	0	0	6	2	8	3	42	3	0	48	147
Total	107	2	24	0	133	15	202	65	2	284	8	2	23	2	35	19	211	12	2	244	696
08:00 PM	16	1	4	0	21	4	48	8	0	60	3	0	4	0	7	2	40	1	0	43	131
08:15 PM	14	0	6	0	20	2	52	10	0	64	4	1	2	0	7	4	38	2	0	44	135
08:30 PM	15	0	2	0	17	4	35	6	0	45	2	0	4	0	6	1	45	3	0	49	117
08:45 PM	10	0	2	0	12	2	28	9	0	39	1	0	3	0	4	2	43	2	0	47	102
Total	55	1	14	0	70	12	163	33	0	208	10	1	13	0	24	9	166	8	0	183	485
09:00 PM	13	0	1	0	14	3	20	7	0	30	0	0	4	0	4	1	29	0	0	30	78
09:15 PM	5	0	2	0	7	3	10	2	0	15	1	1	3	0	5	1	29	3	0	33	60
09:30 PM	11	0	3	0	14	2	19	9	0	30	1	0	4	0	5	3	32	2	0	37	86
09:45 PM	5	2	2	0	9	0	15	4	0	19	2	2	0	0	4	0	26	2	0	28	60
Total	34	2	8	0	44	8	64	22	0	94	4	3	11	0	18	5	116	7	0	128	284
Grand Total	273	9	68	1	351	65	696	206	2	969	29	9	80	2	120	49	822	41	2	914	2354
Apprch %	77.8	2.6	19.4	0.3		6.7	71.8	21.3	0.2		24.2	7.5	66.7	1.7		5.4	89.9	4.5	0.2		
Total %	11.6	0.4	2.9	0.0	14.9	2.8	29.6	8.8	0.1	41.2	1.2	0.4	3.4	0.1	5.1	2.1	34.9	1.7	0.1	38.8	

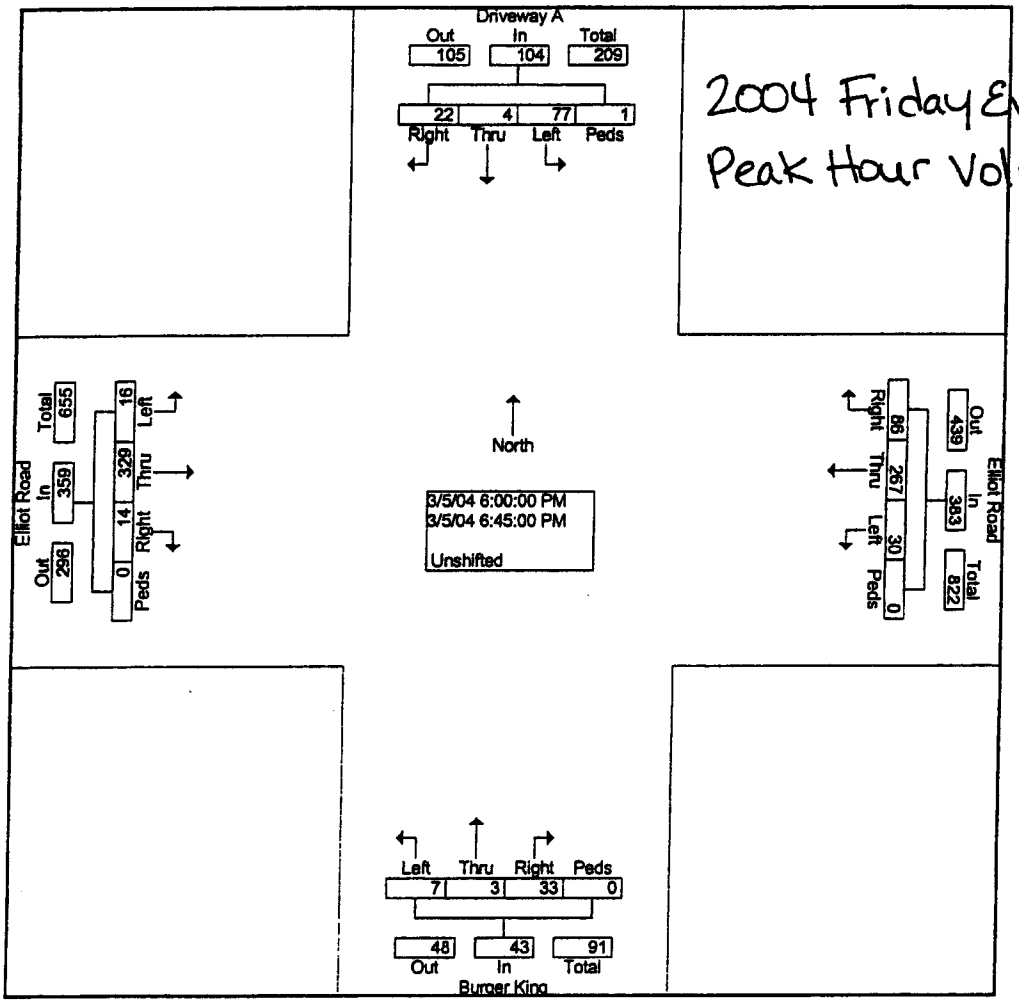
HNTB North Carolina, PC
343 East Six Forks Road Ste. 200
Raleigh, NC 27609
Architects, Engineers, Planners

(120)

Intersection: Elliott Rd & Driveway A
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrafri
Site Code : 00000004
Start Date : 3/5/04
Page No : 2

	Driveway A Southbound					Elliot Road Westbound					Burger King Northbound					Elliot Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 06:00 PM to 09:45 PM - Peak 1 of 1																					
Intersection 06:00 PM																					
Volume	77	4	22	1	104	30	267	86	0	383	7	3	33	0	43	16	329	14	0	359	889
Percent	74.0	3.8	21.2	1.0		7.8	69.7	22.5	0.0		16.3	7.0	76.7	0.0		4.5	91.6	3.9	0.0		
06:15 Volume	21	1	7	1	30	4	65	23	0	92	5	1	10	0	16	4	84	4	0	92	230
Peak Factor																					0.966
High Int. 06:30 PM						06:00 PM					06:15 PM					06:30 PM					
Volume	25	1	7	0	33	12	68	21	0	101	5	1	10	0	16	5	89	3	0	97	
Peak Factor					0.788					0.948					0.672					0.925	



2004 Friday Evening Peak Hour Volumes

HNTB North Carolina, PC

343 East Six Forks Road Ste. 200
Raleigh, NC 27609
Architects, Engineers, Planners

(121)

Intersection: Elliott Rd & Driveway B
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrbfri
Site Code : 00000003
Start Date : 3/5/04
Page No : 1

Groups Printed- Unshifted

	Driveway B Southbound					Elliot Road Westbound					Northbound					Elliot Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	11	0	11	0	22	0	61	16	0	77	0	0	0	0	0	6	71	0	0	77	176
06:15 PM	10	0	9	0	19	0	80	17	0	77	0	0	0	0	0	10	79	0	0	89	185
06:30 PM	20	0	17	0	37	0	54	22	0	76	0	0	0	0	0	4	78	0	0	82	195
06:45 PM	16	0	10	0	26	0	56	20	0	76	0	0	0	0	0	8	70	0	0	78	180
Total	57	0	47	0	104	0	231	75	0	306	0	0	0	0	0	28	298	0	0	326	736
07:00 PM	20	0	13	0	33	0	63	11	0	74	0	0	0	0	0	4	52	0	0	56	163
07:15 PM	13	0	10	0	23	0	54	17	0	71	0	0	0	0	0	6	58	0	0	64	158
07:30 PM	20	0	10	0	30	0	42	22	0	64	0	0	0	0	0	6	36	0	0	42	136
07:45 PM	15	0	9	0	24	0	29	13	0	42	0	0	0	0	0	4	37	0	0	41	107
Total	68	0	42	0	110	0	188	63	0	251	0	0	0	0	0	20	183	0	0	203	564
08:00 PM	15	0	15	0	30	0	37	16	0	53	0	0	0	0	0	6	26	0	0	32	115
08:15 PM	13	0	15	0	28	0	42	24	0	66	0	0	0	0	0	3	37	0	0	40	134
08:30 PM	16	0	16	0	32	0	31	9	0	40	0	0	0	0	0	3	31	0	0	34	106
08:45 PM	21	0	9	0	30	0	18	12	0	30	0	0	0	0	0	2	26	0	0	28	88
Total	65	0	55	0	120	0	128	61	0	189	0	0	0	0	0	14	120	0	0	134	443
09:00 PM	5	0	4	0	9	0	23	4	0	27	0	0	0	0	0	2	23	0	0	25	61
09:15 PM	9	0	10	0	19	0	12	3	0	15	0	0	0	0	0	4	25	0	0	29	63
09:30 PM	5	0	3	0	8	0	24	5	0	29	0	0	0	0	0	2	23	0	0	25	62
09:45 PM	4	0	5	0	9	0	19	3	0	22	0	0	0	0	0	2	24	0	0	26	57
Total	23	0	22	0	45	0	78	15	0	93	0	0	0	0	0	10	95	0	0	105	243
Grand Total	213	0	166	0	379	0	625	214	0	839	0	0	0	0	0	72	696	0	0	768	1986
Apprch %	56.2	0.0	43.8	0.0		0.0	74.5	25.5	0.0		0.0	0.0	0.0	0.0		9.4	90.6	0.0	0.0		
Total %	10.7	0.0	8.4	0.0	19.1	0.0	31.5	10.8	0.0	42.2	0.0	0.0	0.0	0.0	0.0	3.6	35.0	0.0	0.0	38.7	

HNTB North Carolina, PC

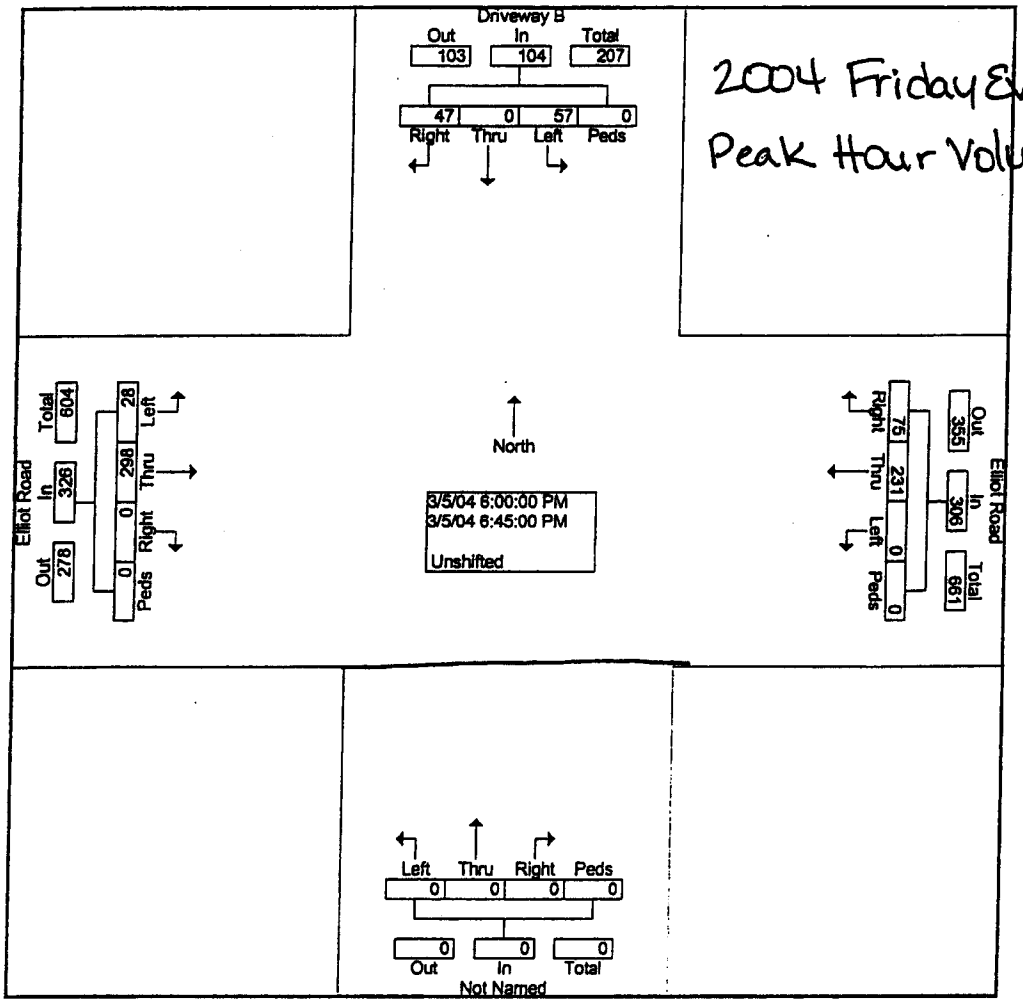
343 East Six Forks Road Ste. 200
Raleigh, NC 27609
Architects, Engineers, Planners

(122)

Intersection: Elliott Rd & Driveway B
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrbfri
Site Code : 00000003
Start Date : 3/5/04
Page No : 2

	Driveway B Southbound					Elliot Road Westbound					Northbound					Elliot Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 06:00 PM to 09:45 PM - Peak 1 of 1																					
Intersection	06:00 PM																				
Volume	57	0	47	0	104	0	231	75	0	306	0	0	0	0	0	28	298	0	0	326	736
Percent	54.8	0.0	45.2	0.0		0.0	75.5	24.5	0.0		0.0	0.0	0.0	0.0		8.6	91.4	0.0	0.0		
06:30 Volume	20	0	17	0	37	0	54	22	0	76	0	0	0	0	0	4	78	0	0	82	195
Peak Factor																					0.944
High Int.	06:30 PM					06:00 PM					5:45:00 PM					06:15 PM					
Volume	20	0	17	0	37	0	61	16	0	77	0	0	0	0	0	10	79	0	0	89	
Peak Factor					0.703					0.994										0.916	



HNTB North Carolina, PC

343 East Six Forks Road Ste. 200
Raleigh, NC 27609
Architects, Engineers, Planners

(123)

Intersection: Elliott Rd & Driveway E
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrefri
Site Code : 00000001
Start Date : 3/5/04
Page No : 1

Groups Printed- Unshifted

	Elliot Road Southbound					Driveway E Westbound					Elliot Road Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	6	62	0	0	68	10	0	3	0	13	0	73	8	0	81	0	0	0	0	0	162
06:15 PM	6	71	1	2	80	13	0	4	0	17	0	74	16	3	93	0	0	0	0	0	190
06:30 PM	8	73	0	0	81	12	0	7	2	21	1	57	13	0	71	0	0	2	2	4	177
06:45 PM	4	53	0	2	59	20	0	4	0	24	0	73	13	0	86	0	0	0	0	0	169
Total	24	259	1	4	288	55	0	18	2	75	1	277	50	3	331	0	0	2	2	4	698
07:00 PM	7	48	0	2	57	12	0	4	1	17	2	63	8	0	73	0	0	0	0	0	147
07:15 PM	7	53	1	0	61	15	0	1	0	16	5	61	9	1	76	0	0	0	0	0	153
07:30 PM	4	41	0	0	45	5	0	5	0	10	1	47	2	0	50	0	0	0	0	0	105
07:45 PM	0	39	0	0	39	6	0	2	0	8	2	47	5	3	57	0	0	0	1	1	105
Total	18	181	1	2	202	38	0	12	1	51	10	218	24	4	256	0	0	0	1	1	510
08:00 PM	3	46	0	0	49	7	0	4	0	11	2	58	2	0	62	0	0	0	0	0	122
08:15 PM	1	48	1	0	50	4	0	4	0	8	1	52	3	0	56	0	0	0	0	0	114
08:30 PM	5	19	1	0	25	4	0	0	0	4	1	60	3	0	64	0	0	0	0	0	93
08:45 PM	0	21	1	0	22	2	0	2	0	4	0	33	5	0	38	0	0	0	0	0	64
Total	9	134	3	0	146	17	0	10	0	27	4	203	13	0	220	0	0	0	0	0	393
09:00 PM	2	24	0	0	26	3	0	3	0	6	0	28	1	0	29	0	0	0	0	0	61
09:15 PM	1	18	0	0	19	4	0	1	0	5	0	26	1	0	27	0	0	0	0	0	51
09:30 PM	2	29	0	0	31	3	0	0	0	3	0	35	2	0	37	0	0	0	0	0	71
09:45 PM	1	27	0	0	28	2	0	3	0	5	0	20	0	0	20	0	0	0	0	0	53
Total	6	98	0	0	104	12	0	7	0	19	0	109	4	0	113	0	0	0	0	0	236
Grand Total	57	672	5	6	740	122	0	47	3	172	15	807	91	7	920	0	0	2	3	5	1837
Apprch %	7.7	90.8	0.7	0.8		70.9	0.0	27.3	1.7		1.6	87.7	9.9	0.8		0.0	0.0	40.0	60.0		
Total %	3.1	36.6	0.3	0.3	40.3	6.6	0.0	2.6	0.2	9.4	0.8	43.9	5.0	0.4	50.1	0.0	0.0	0.1	0.2	0.3	

HNTB North Carolina, PC

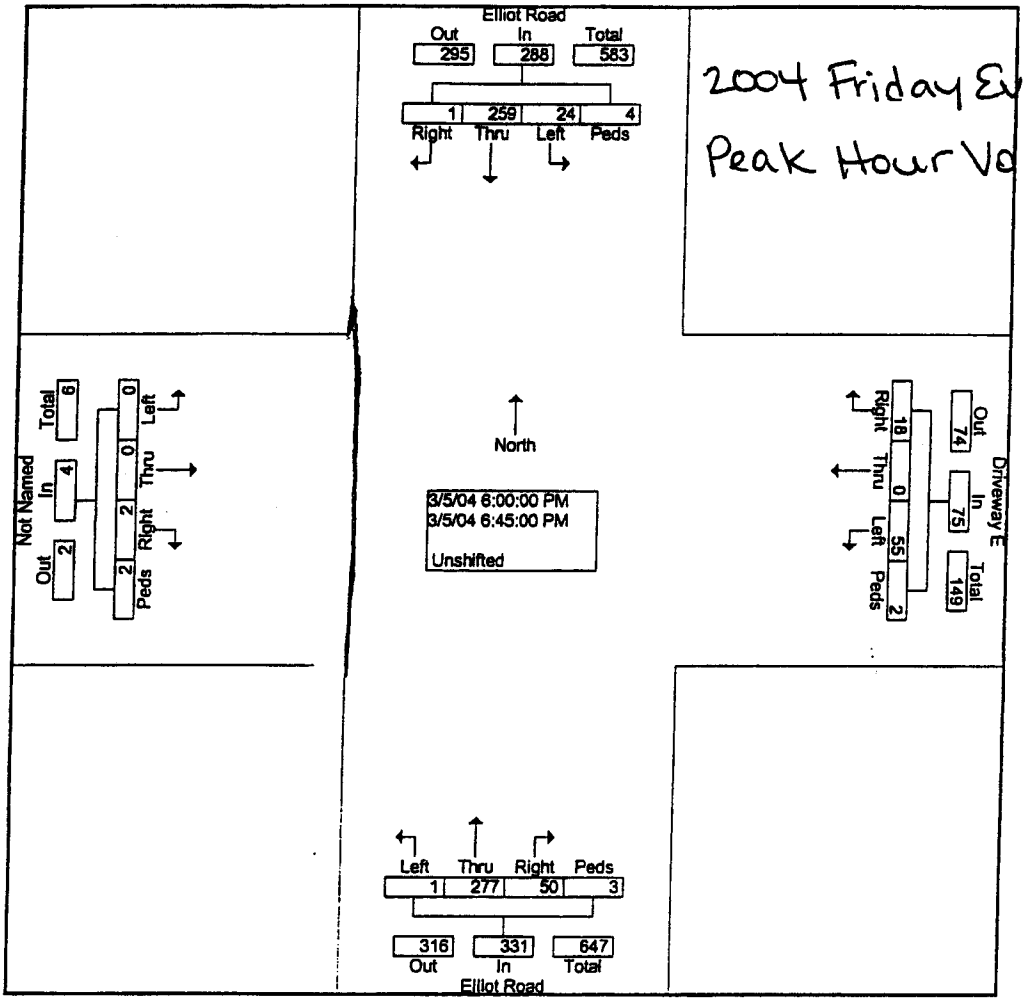
343 East Six Forks Road Ste. 200
Raleigh, NC 27609
Architects, Engineers, Planners

(124)

Intersection: Elliott Rd & Driveway E
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrefri
Site Code : 00000001
Start Date : 3/5/04
Page No : 2

	Elliot Road Southbound					Driveway E Westbound					Elliot Road Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 06:00 PM to 09:45 PM - Peak 1 of 1																					
Intersection	06:00 PM																				
Volume	24	259	1	4	288	55	0	18	2	75	1	277	50	3	331	0	0	2	2	4	698
Percent	8.3	89.9	0.3	1.4		73.3	0.0	24.0	2.7		0.3	83.7	15.1	0.9		0.0	0.0	50.0	50.0		
06:15 Volume	6	71	1	2	80	13	0	4	0	17	0	74	16	3	93	0	0	0	0	0	190
Peak Factor																					0.918
High Int.	06:30 PM					06:45 PM					06:15 PM					06:30 PM					
Volume	8	73	0	0	81	20	0	4	0	24	0	74	16	3	93	0	0	2	2	4	
Peak Factor					0.889					0.781					0.890					0.250	



HNTB North Carolina, PC

343 East Six Forks Road Ste. 200
Raleigh, NC 27609
Architects, Engineers, Planners

(125)

Intersection: Elliott Rd & Driveway F
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrffri
Site Code : 00000001
Start Date : 3/5/04
Page No : 1

Groups Printed- Unshifted

	Elliot Road Southbound					Driveway F Westbound					Elliot Road Northbound					First Citizens Driveway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:00 PM	29	49	4	0	82	12	2	35	0	49	3	57	18	0	78	8	0	3	0	11	220
06:15 PM	23	57	12	2	94	11	0	39	0	50	1	64	15	0	80	7	1	4	0	12	236
06:30 PM	35	67	6	0	108	13	0	39	0	52	1	51	9	1	62	3	0	7	0	10	232
06:45 PM	23	45	6	0	74	8	0	28	0	36	0	51	18	0	69	4	0	3	0	7	186
Total	110	218	28	2	358	44	2	141	0	187	5	223	60	1	289	22	1	17	0	40	874
07:00 PM	14	40	5	2	61	6	0	28	1	35	1	53	16	0	70	6	1	5	0	12	178
07:15 PM	28	44	5	0	77	11	1	21	0	33	1	50	14	1	66	5	0	3	0	8	184
07:30 PM	14	35	3	0	52	11	1	28	0	40	2	32	11	0	45	6	1	4	0	11	148
07:45 PM	19	26	2	0	47	6	0	26	1	33	0	39	8	0	47	2	0	3	0	5	132
Total	75	145	15	2	237	34	2	103	2	141	4	174	49	1	228	19	2	15	0	36	642
08:00 PM	12	41	7	0	60	8	1	17	0	26	1	49	8	2	60	7	1	3	0	11	157
08:15 PM	15	36	5	0	56	10	0	17	0	27	3	43	10	0	56	7	0	4	0	11	150
08:30 PM	17	19	4	0	40	2	0	12	0	14	0	44	7	0	51	1	0	0	0	1	106
08:45 PM	8	23	2	0	33	5	0	14	0	19	0	31	3	0	34	1	0	1	0	2	88
Total	52	119	18	0	189	25	1	60	0	86	4	167	28	2	201	16	1	8	0	25	501
09:00 PM	4	17	2	0	23	4	0	16	0	20	0	31	3	2	36	1	1	0	0	2	81
09:15 PM	2	24	1	0	27	2	0	9	0	11	0	23	2	0	25	0	0	0	0	0	63
09:30 PM	5	25	1	0	31	4	0	5	0	9	0	29	2	0	31	3	0	0	0	3	74
09:45 PM	2	24	1	0	27	6	0	5	0	11	1	25	2	0	28	1	0	0	0	1	67
Total	13	90	5	0	108	16	0	35	0	51	1	108	9	2	120	5	1	0	0	6	285
Grand Total	250	572	66	4	892	119	5	339	2	465	14	672	146	6	838	62	5	40	0	107	2302
Apprch %	28.0	64.1	7.4	0.4		25.6	1.1	72.9	0.4		1.7	80.2	17.4	0.7		57.9	4.7	37.4	0.0		
Total %	10.9	24.8	2.9	0.2	38.7	5.2	0.2	14.7	0.1	20.2	0.6	29.2	6.3	0.3	36.4	2.7	0.2	1.7	0.0	4.6	

HNTB North Carolina, PC

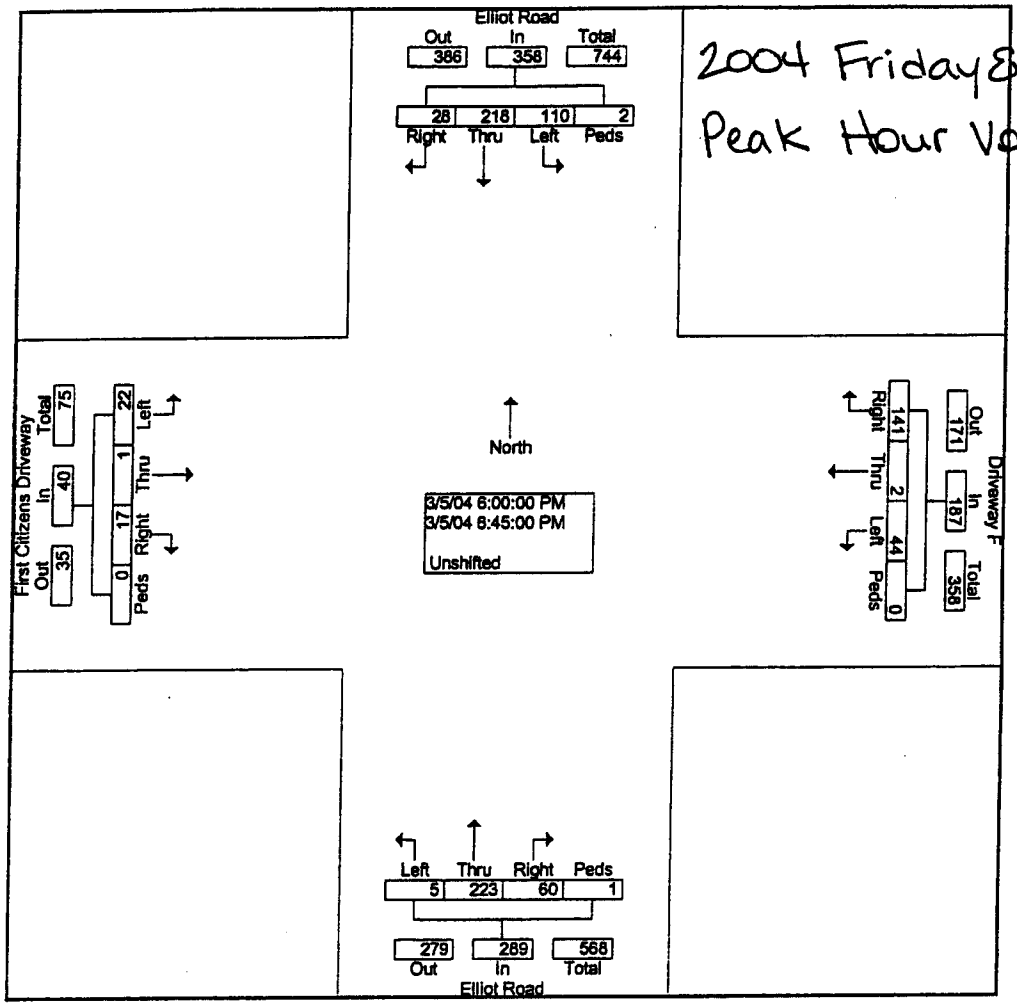
343 East Six Forks Road Ste. 200
Raleigh, NC 27609
Architects, Engineers, Planners

(126)

Intersection: Elliott Rd & Driveway F
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrffri
Site Code : 00000001
Start Date : 3/5/04
Page No : 2

	Elliot Road Southbound					Driveway F Westbound					Elliot Road Northbound					First Citizens Driveway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 06:00 PM to 09:45 PM - Peak 1 of 1																					
Intersection	06:00 PM																				
Volume	110	218	28	2	358	44	2	141	0	187	5	223	60	1	289	22	1	17	0	40	874
Percent	30.7	60.9	7.8	0.6		23.5	1.1	75.4	0.0		1.7	77.2	20.8	0.3		55.0	2.5	42.5	0.0		
06:15 Volume	23	57	12	2	94	11	0	39	0	50	1	64	15	0	80	7	1	4	0	12	236
Peak Factor																					0.926
High Int.	06:30 PM					06:30 PM					06:15 PM					06:15 PM					
Volume	35	67	6	0	108	13	0	39	0	52	1	64	15	0	80	7	1	4	0	12	
Peak Factor					0.829					0.899					0.903					0.833	



HNTB North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609
Architects, Engineers, Planners

(127)

Intersection: Elliott Rd & Driveway A
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrasat
Site Code : 00000000
Start Date : 2/28/04
Page No : 1

Groups Printed- Unshifted

	Driveway A Southbound				Elliott Road Westbound				Burger King Northbound				Elliott Road Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:00 PM	4	0	21	0	24	60	3	0	4	0	1	2	2	98	3	0	222
06:15 PM	8	1	13	1	20	65	1	0	2	0	4	0	3	75	1	0	194
06:30 PM	1	0	11	0	12	60	8	1	6	0	0	0	1	70	4	0	174
06:45 PM	3	1	12	1	18	72	7	0	7	0	1	0	0	68	3	0	193
Total	16	2	57	2	74	257	19	1	19	0	6	2	6	311	11	0	783
07:00 PM	6	1	17	0	14	48	3	0	2	0	5	0	5	53	3	0	157
07:15 PM	8	0	15	0	13	41	1	0	4	0	2	1	3	51	3	0	142
07:30 PM	4	0	12	0	13	48	2	0	8	0	0	0	2	53	3	0	145
07:45 PM	1	0	12	0	4	41	3	0	2	0	3	1	1	54	2	0	124
Total	19	1	56	0	44	178	9	0	16	0	10	2	11	211	11	0	568
08:00 PM	2	0	8	1	7	34	2	0	1	0	4	0	3	47	1	0	110
08:15 PM	3	0	12	0	7	25	3	1	5	0	1	0	1	39	3	0	100
08:30 PM	2	0	6	0	4	33	2	0	1	0	3	0	4	48	3	0	106
08:45 PM	3	0	11	0	5	21	2	0	4	0	2	0	1	27	2	0	78
Total	10	0	37	1	23	113	9	1	11	0	10	0	9	161	9	0	394
09:00 PM	0	0	7	0	2	20	1	0	3	0	0	0	2	33	1	0	69
09:15 PM	3	0	11	0	6	18	4	0	1	0	2	0	1	26	3	0	75
09:30 PM	1	0	5	0	3	13	6	0	3	0	3	0	1	24	1	0	60
09:45 PM	4	0	5	0	3	10	2	0	4	0	0	0	1	20	1	0	50
Total	8	0	28	0	14	61	13	0	11	0	5	0	5	103	6	0	254
Grand Total	53	3	178	3	155	609	50	2	57	0	31	4	31	786	37	0	1999
Apprch %	22.4	1.3	75.1	1.3	19.0	74.6	6.1	0.2	62.0	0.0	33.7	4.3	3.6	92.0	4.3	0.0	
Total %	2.7	0.2	8.9	0.2	7.8	30.5	2.5	0.1	2.9	0.0	1.6	0.2	1.6	39.3	1.9	0.0	

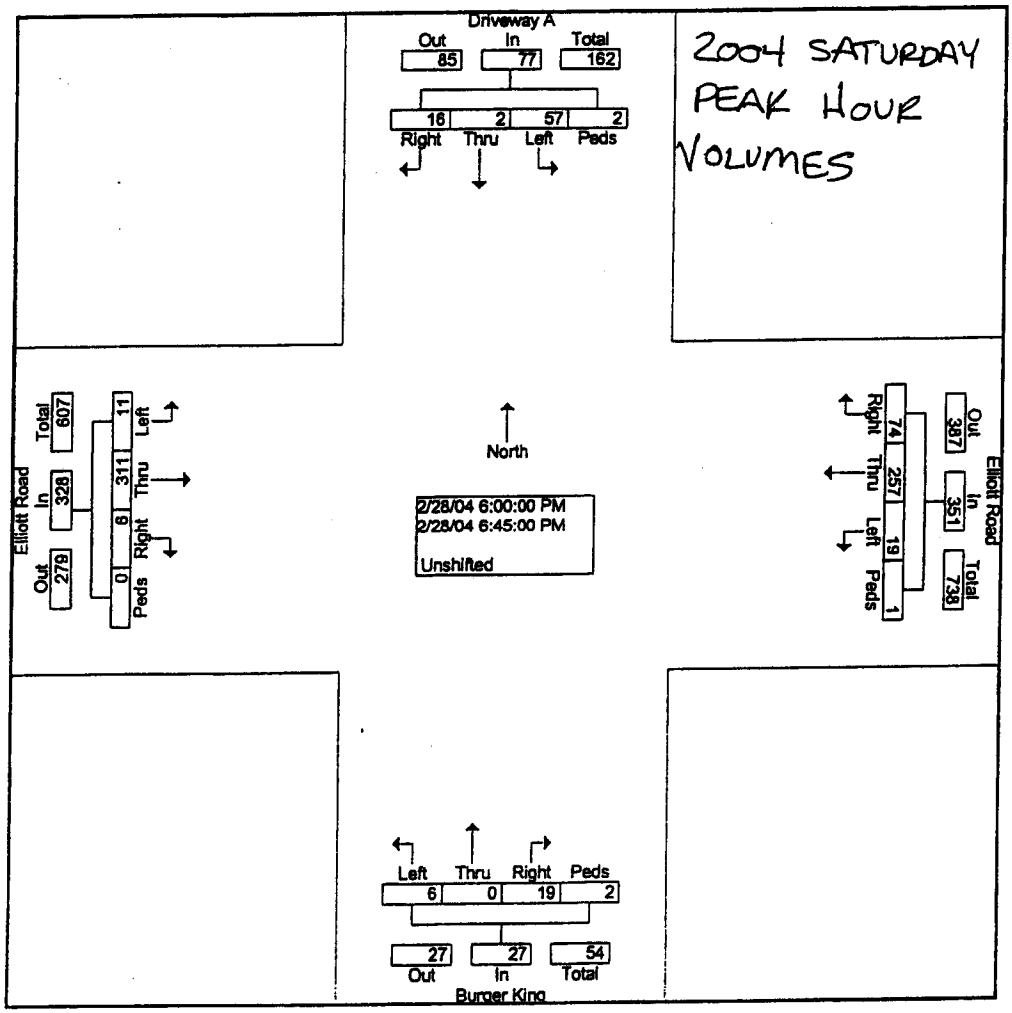
HNTB North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609
Architects, Engineers, Planners

(128)

Intersection: Elliott Rd & Driveway A
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrasat
Site Code : 00000000
Start Date : 2/28/04
Page No : 3

	Driveway A Southbound					Elliott Road Westbound					Burger King Northbound					Elliott Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 06:00 PM to 09:45 PM - Peak 1 of 1																					
Intersection	06:00 PM																				
Volume	16	2	57	2	77	74	257	19	1	351	19	0	6	2	27	6	311	11	0	328	783
Percent	20.8	2.6	74.0	2.6		21.1	73.2	5.4	0.3		70.4	0.0	22.2	7.4		1.8	94.8	3.4	0.0		
06:00 Volume	4	0	21	0	25	24	60	3	0	87	4	0	1	2	7	2	98	3	0	103	222
Peak Factor																					0.882
High Int.	06:00 PM					06:45 PM					06:45 PM					06:00 PM					
Volume	4	0	21	0	25	18	72	7	0	97	7	0	1	0	8	2	98	3	0	103	
Peak Factor					0.770					0.905					0.844					0.796	



HNTB North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609
Architects, Engineers, Planners

(129)

Intersection: Elliott Rd & Driveway B
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrbsat
Site Code : 00000003
Start Date : 2/28/04
Page No : 1

Groups Printed- Unshifted

	Driveway B Southbound				Elliott Road Westbound				- Northbound				Elliott Road Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:00 PM	4	0	23	0	22	59	0	1	0	0	0	0	0	66	5	1	181
06:15 PM	8	0	19	1	22	52	0	0	0	0	0	0	0	62	5	0	169
06:30 PM	13	0	13	0	11	51	0	0	0	0	0	0	0	57	7	2	154
06:45 PM	15	0	15	0	18	53	0	1	0	0	0	0	0	60	8	0	170
Total	40	0	70	1	73	215	0	2	0	0	0	0	0	245	25	3	674
07:00 PM	12	0	11	0	18	44	0	0	0	0	0	0	0	37	10	0	132
07:15 PM	22	0	12	0	15	44	0	0	0	0	0	0	0	54	9	1	157
07:30 PM	17	0	20	0	17	32	0	0	0	0	0	0	0	38	5	0	129
07:45 PM	12	0	15	0	18	28	0	0	0	0	0	0	0	40	7	0	120
Total	63	0	58	0	68	148	0	0	0	0	0	0	0	169	31	1	538
08:00 PM	11	0	15	1	13	26	0	0	0	0	0	0	0	37	7	1	111
08:15 PM	15	0	10	0	7	18	0	0	0	0	0	0	0	40	4	0	94
08:30 PM	11	0	14	0	11	27	0	0	0	0	0	0	0	37	3	0	103
08:45 PM	6	0	11	0	3	18	0	0	0	0	0	0	0	20	1	0	59
Total	43	0	50	1	34	89	0	0	0	0	0	0	0	134	15	1	367
09:00 PM	3	0	6	0	8	19	0	0	0	0	0	0	0	24	3	0	63
09:15 PM	14	0	5	0	4	15	0	0	0	0	0	0	0	19	3	0	60
09:30 PM	8	0	7	1	7	13	0	0	0	0	0	0	0	20	2	0	58
09:45 PM	1	0	5	0	4	17	0	0	0	0	0	0	0	15	1	0	43
Total	26	0	23	1	23	64	0	0	0	0	0	0	0	78	9	0	224
Grand Total	172	0	201	3	198	516	0	2	0	0	0	0	0	626	80	5	1803
Apprch %	45.7	0.0	53.5	0.8	27.7	72.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	88.0	11.3	0.7	
Total %	9.5	0.0	11.1	0.2	11.0	28.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	34.7	4.4	0.3	

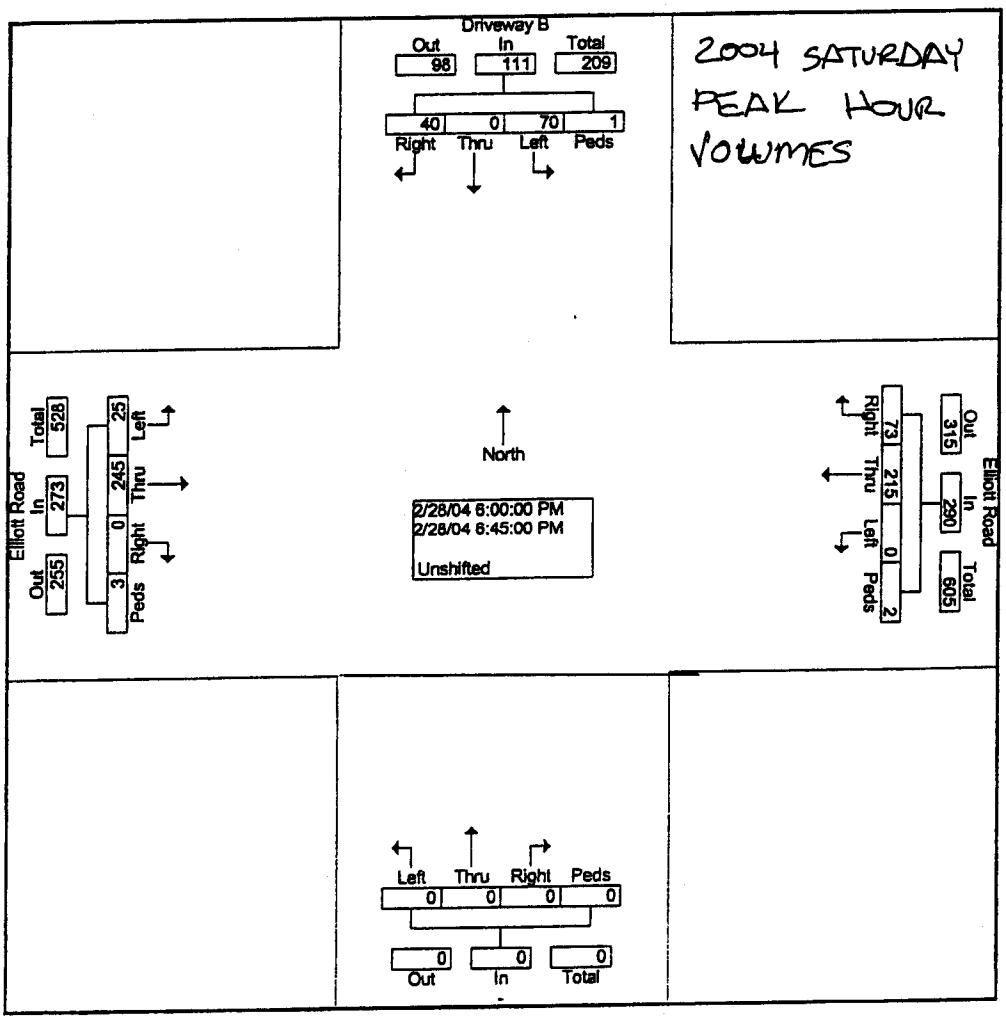
HNTB North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609
Architects, Engineers, Planners

(130)

Intersection: Elliott Rd & Driveway B
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrbsat
Site Code : 00000003
Start Date : 2/28/04
Page No : 3

	Driveway B Southbound					Elliott Road Westbound					- Northbound					Elliott Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 06:00 PM to 09:45 PM - Peak 1 of 1																					
Intersection	06:00 PM																				
Volume	40	0	70	1	111	73	215	0	2	290	0	0	0	0	0	0	245	25	3	273	674
Percent	36.0	0.0	63.1	0.9		25.2	74.1	0.0	0.7		0.0	0.0	0.0	0.0		0.0	89.7	9.2	1.1		
06:00 Volume	4	0	23	0	27	22	59	0	1	82	0	0	0	0	0	0	66	5	1	72	181
Peak Factor																					0.931
High Int.	06:45 PM					06:00 PM					5:45:00 PM					06:00 PM					
Volume	15	0	15	0	30	22	59	0	1	82	0	0	0	0	0	0	66	5	1	72	
Peak Factor					0.925					0.884										0.948	



HNTB North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609
Architects, Engineers, Planners

(13)

Intersection: Elliott Rd & Driveway E
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldresat
Site Code : 00000002
Start Date : 2/28/04
Page No : 1

Groups Printed- Unshifted

	Elliott Road Southbound				Driveway E Westbound				Elliott Road Northbound				Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:00 PM	0	53	8	0	4	0	19	0	10	50	0	0	0	0	0	0	144
06:15 PM	0	54	11	0	6	0	15	2	13	60	0	0	0	0	0	0	161
06:30 PM	0	57	7	0	2	0	16	0	8	60	0	0	0	0	0	0	150
06:45 PM	0	59	11	0	3	0	15	0	7	57	0	0	0	0	0	1	153
Total	0	223	37	0	15	0	65	2	38	227	0	0	0	0	0	1	608
07:00 PM	0	49	8	0	6	0	7	2	7	56	0	0	0	0	0	0	135
07:15 PM	0	46	5	0	5	0	6	0	7	49	0	0	0	0	0	0	118
07:30 PM	0	37	2	0	2	0	4	0	5	50	0	0	0	0	0	0	100
07:45 PM	0	43	2	0	4	0	5	0	3	43	0	0	0	0	0	0	100
Total	0	175	17	0	17	0	22	2	22	198	0	0	0	0	0	0	453
08:00 PM	0	39	1	0	3	0	5	1	5	47	0	0	0	0	0	0	101
08:15 PM	0	41	3	0	3	0	7	0	3	37	0	0	0	0	0	1	95
08:30 PM	0	38	1	0	1	0	7	0	4	34	0	0	0	0	0	0	85
08:45 PM	0	24	3	0	4	0	4	0	0	27	0	0	0	0	0	0	62
Total	0	142	8	0	11	0	23	1	12	145	0	0	0	0	0	1	343
09:00 PM	0	18	2	0	2	0	10	1	2	25	0	0	0	0	0	0	60
09:15 PM	0	20	3	0	0	0	9	0	2	32	0	0	0	0	0	0	66
09:30 PM	0	22	1	0	1	0	1	0	1	32	0	0	0	0	0	0	58
09:45 PM	0	17	1	0	1	0	0	0	1	20	0	0	0	0	0	0	40
Total	0	77	7	0	4	0	20	1	6	109	0	0	0	0	0	0	224
Grand Total	0	617	69	0	47	0	130	6	78	679	0	0	0	0	0	2	1628
Apprch %	0.0	89.9	10.1	0.0	25.7	0.0	71.0	3.3	10.3	89.7	0.0	0.0	0.0	0.0	0.0	100.0	
Total %	0.0	37.9	4.2	0.0	2.9	0.0	8.0	0.4	4.8	41.7	0.0	0.0	0.0	0.0	0.0	0.1	

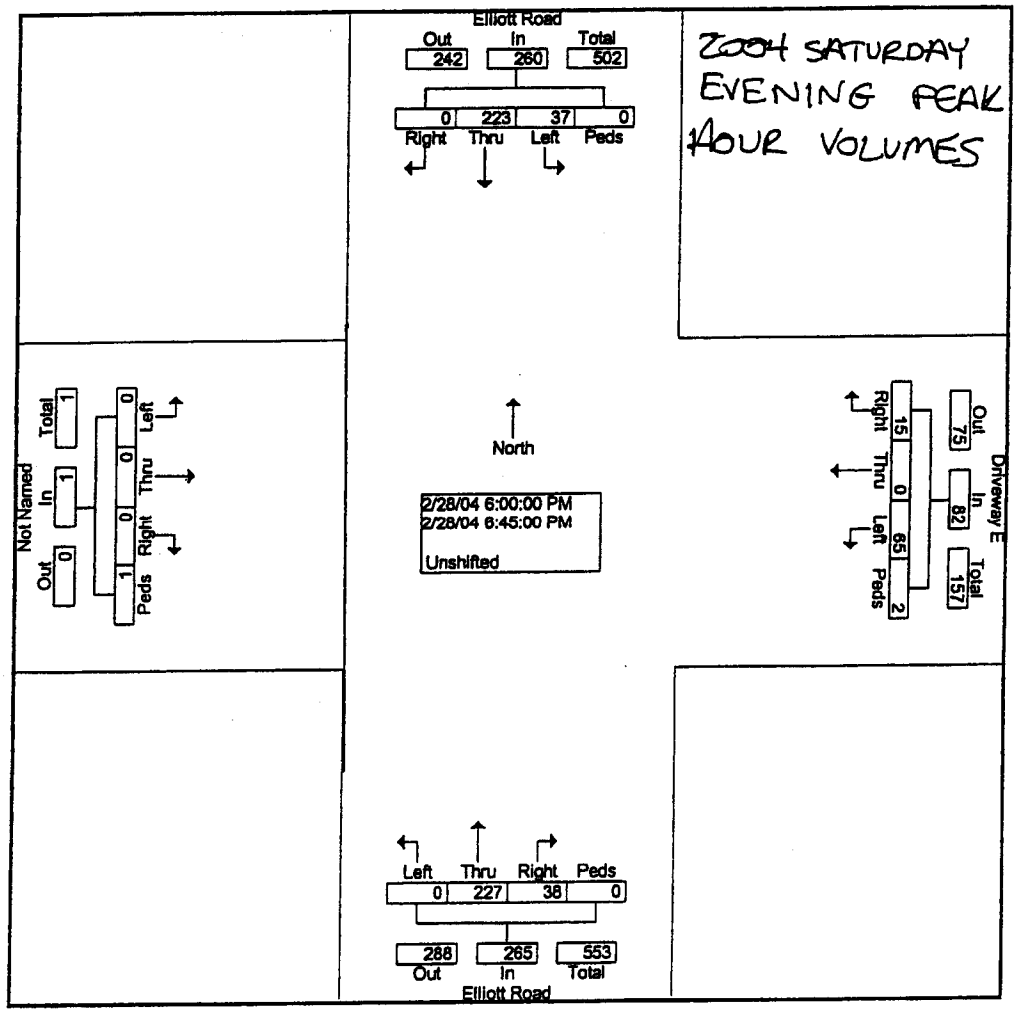
HNTB North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609
Architects, Engineers, Planners

(132)

Intersection: Elliott Rd & Driveway E
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldresat
Site Code : 00000002
Start Date : 2/28/04
Page No : 3

Start Time	Elliott Road Southbound Right	Thru	Left	Peds	App. Total	Driveway E Westbound Right	Thru	Left	Peds	App. Total	Elliott Road Northbound Right	Thru	Left	Peds	App. Total	Eastbound Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 06:00 PM to 09:45 PM - Peak 1 of 1																					
Intersection Volume	06:00 PM 0	223	37	0	260	15	0	65	2	82	38	227	0	0	265	0	0	0	1	1	608
Percent	0.0	85.8	14.2	0.0		18.3	0.0	79.3	2.4		14.3	85.7	0.0	0.0		0.0	0.0	0.0	100.0		
06:15 Volume	0	54	11	0	65	6	0	15	2	23	13	60	0	0	73	0	0	0	0	0	161
Peak Factor																					0.944
High Int. Volume	06:45 PM 0	59	11	0	70	06:00 PM 4	0	19	0	23	06:15 PM 13	60	0	0	73	06:45 PM 0	0	0	1	1	
Peak Factor					0.929					0.891					0.908					0.250	



HNTB North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609
Architects, Engineers, Planners

(133)

Intersection: Elliott Rd & Driveway F
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrfsat
Site Code : 00000001
Start Date : 2/28/04
Page No : 1

Groups Printed- Unshifted

	Elliott Road Southbound				Driveway F Westbound				Elliott Road Northbound				First Citizens Driveway Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:00 PM	5	52	32	0	22	0	16	2	17	40	2	0	1	1	7	0	197
06:15 PM	6	40	25	0	44	0	22	0	16	38	3	0	2	0	7	2	205
06:30 PM	0	51	34	0	26	0	10	1	20	35	3	0	1	1	2	0	184
06:45 PM	5	46	25	0	29	0	20	0	15	42	2	0	1	0	2	0	187
Total	16	189	116	0	121	0	68	3	68	155	10	0	5	2	18	2	773
07:00 PM	6	45	17	0	32	0	10	1	14	47	1	0	6	0	6	0	185
07:15 PM	4	44	28	0	30	0	9	0	7	41	1	0	4	0	3	1	172
07:30 PM	3	31	16	0	23	0	6	2	10	40	2	0	2	0	2	0	137
07:45 PM	2	33	10	0	21	0	10	0	9	38	0	0	3	0	3	0	129
Total	15	153	71	0	106	0	35	3	40	166	4	0	15	0	14	1	623
08:00 PM	2	29	11	0	19	0	9	0	8	42	1	0	1	0	2	2	126
08:15 PM	1	36	12	0	27	0	11	0	3	34	0	0	0	0	2	0	126
08:30 PM	2	34	10	0	13	0	8	0	6	31	0	0	0	0	1	0	105
08:45 PM	1	15	9	0	17	0	6	0	1	28	0	0	2	0	1	0	80
Total	6	114	42	0	76	0	34	0	18	135	1	0	3	0	6	2	437
09:00 PM	0	16	6	0	11	0	4	0	4	20	2	0	2	0	2	0	67
09:15 PM	1	18	9	0	6	0	4	1	0	30	1	0	0	0	1	0	71
09:30 PM	7	15	1	0	4	0	7	0	4	28	0	0	0	0	5	0	71
09:45 PM	2	15	2	0	3	0	2	0	5	16	0	0	0	0	2	0	47
Total	10	64	18	0	24	0	17	1	13	94	3	0	2	0	10	0	256
Grand Total	47	520	247	0	327	0	154	7	139	550	18	0	25	2	48	5	2089
Apprch %	5.8	63.9	30.3	0.0	67.0	0.0	31.6	1.4	19.7	77.8	2.5	0.0	31.3	2.5	60.0	6.3	
Total %	2.2	24.9	11.8	0.0	15.7	0.0	7.4	0.3	6.7	26.3	0.9	0.0	1.2	0.1	2.3	0.2	

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(134)

Intersection: Elliott Rd & Driveway F
Counted By: PMTS
Weather: Cool
HNTB Project #: 38435-PL-004

File Name : eldrfsat
Site Code : 00000001
Start Date : 2/28/04
Page No : 3

	Elliott Road Southbound					Driveway F Westbound					Elliott Road Northbound					First Citizens Driveway Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 06:00 PM to 09:45 PM - Peak 1 of 1																					
Intersection Volume	06:00 PM 16	189	116	0	321	121	0	68	3	192	68	155	10	0	233	5	2	18	2	27	773
Percent	5.0	58.9	36.1	0.0		63.0	0.0	35.4	1.6		29.2	66.5	4.3	0.0		18.5	7.4	66.7	7.4		
06:15 Volume	6	40	25	0	71	44	0	22	0	66	16	38	3	0	57	2	0	7	2	11	205
Peak Factor																					0.943
High Int. Volume	06:00 PM 5	52	32	0	89	06:15 PM 44	0	22	0	66	06:00 PM 17	40	2	0	59	06:15 PM 2	0	7	2	11	
Peak Factor					0.902					0.727					0.987					0.614