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**REASSESSMENT OF TRAFFIC, PARKING AND
CIRCULATION IMPACTS OF PROPOSED VILLAGE
PLAZA THEATER REDEVELOPMENT**

EXECUTIVE SUMMARY

Prepared for:

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P.O. Box 51729
Durham, NC 27717-1729

on behalf of:

Ginn & Company
3730 Middleton Avenue
Cincinnati, OH 45220

Prepared by:

PBSJ

1616 East Millbrook Road, Suite 310
Raleigh, NC 27609

June 2004

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6/11/04

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EXECUTIVE SUMMARY

INTRODUCTION

Study Area and Site Description

Eastern Federal Theaters is proposing to redevelop its former theater site located at 141 South Elliot Road in Chapel Hill, North Carolina, by constructing a 10-screen multiplex theater with stadium seating and other modern amenities (see **Figure E1**). A 5-screen Eastern Federal Theater formerly occupied this site but was demolished in Fall 2003 to prepare for redevelopment of the property.

The Eastern Federal property fronts Elliott Road and abuts three shopping center properties. To the north is a shopping center owned by Ginn & Company that has Whole Foods as its anchor tenant. To the northeast is the Gateway Commons shopping center owned by the Little & Cloniger partnership and site of the Staples Office Superstore. To the south is the shopping center owned by Triangle V II (i.e., Mark Properties) that houses Spa Health Club. **Figure E2** illustrates the spatial relationship of these four properties.

There is a physical connection between the Eastern Federal property and the Ginn & Company property that permits vehicular cross access between these properties. However, there is no existing cross access agreement executed between Ginn & Company and Eastern Federal. An executed cross access agreement between Eastern Federal and Mark Properties does exist. There is no vehicular cross access between the Little & Cloniger properties and either Eastern Federal or Mark Properties. However, there is an executed cross access agreement between Ginn & Company and Little and Cloniger. **Table E1** summarizes the status of vehicular cross access between the four properties.

Table E1
Summary of Existing Vehicular Cross Access

Abutting Properties	Existing Vehicular Cross Access?	Formal, Documented Cross Access Agreement Exists?
Ginn & Company and Little & Cloniger	Yes	Yes
Ginn & Company and Eastern Federal	Yes	No
Eastern Federal and Mark Properties	Yes	Yes
Eastern Federal and Little & Cloniger	None	No
Mark Properties and Little & Cloniger	None	No

A total of six driveway connections along the east side of Elliott Road provide direct access to the public street system for all of the aforementioned properties except the Little & Cloniger property. The Elliott Road driveways and the properties on which each one is located are summarized in **Table E2** and their spatial relationship and location are illustrated in **Figure E2**. Six additional driveways on the opposite side of Elliott Road serve other property owners and businesses on the side of Elliott Road opposite the shopping centers and

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proposed theater. Three of these driveways align with Driveways A, D and F to form four-way intersections. All of the driveways are stop sign controlled.

Table E2
Summary of Driveways along East Side of Elliott Road

Property Owner	Driveway	Nearby Businesses	Intersection Type
Mark Properties	A	Spa Health Club <i>Burger King</i>	4-way
	B	Coffee Shop/Restaurant	3-way
Eastern Federal	C	Village Plaza Theaters	3-way
Ginn & Company	D	Red Hot & Blue (Theater side) <i>Rehabilitation Center</i> <i>State Employees Credit Union</i>	4-way
	E	Red Hot & Blue (Whole Foods side)	3-way
	F	Whole Foods <i>First Citizens Bank</i>	4-way

NOTE: Businesses shown in italics are located on property owned by others on opposite side of Elliott Road and are served by a fourth leg of the intersection.

Elliott Road is a collector street that connects fronting commercial property to East Franklin Street to the north and to US 15-501 (Fordham Boulevard) to the south. East Franklin Street and US 15-501 (Fordham Boulevard), in turn, provide access to major origins and destinations within Chapel Hill and the regional roadway network. Traffic signals control the Elliott Road intersections with East Franklin Street and US 15-501 (Fordham Boulevard).

Project History

In order to redevelop the existing 5-screen Village Plaza Theater into the proposed Plaza Stadium 10 multiplex theater, Eastern Federal Theaters applied for a modification to their existing Special Use Permit (SUP) with the Town of Chapel Hill. Triangle V II (Mark Properties) was a co-applicant on the existing special use permit and is likewise a co-applicant on the SUP modification. The SUP application proposes to improve the Mark Properties shopping center parking lot in conjunction with the redevelopment of the theaters. In addition, a cross-access agreement between Eastern Federal and Mark Properties would permit the theater to use (i.e., share) Mark Properties' parking lot for theater employee and theater patron parking.

As part of the application review process, the Town of Chapel Hill contracted with the consulting engineering firm RS&H to perform a traffic impact analysis (TIA) for the proposed redevelopment of the Eastern Federal property. The RS&H TIA was conducted based upon a conceptual plan prepared by Richard A. Gurlitz Architects that had been submitted to the Town by the applicant. This site plan showed all four of the aforementioned adjoining properties and all of the site driveways (i.e., Driveways A through F) that connected to Elliott Road. The two driveways directly in front of the proposed theater on this conceptual plan were Driveways C and D. Therefore, RS&H assumed that all theater

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traffic would enter and exit via Driveways C and D and analyzed those two driveways along with the signalized intersections at East Franklin Street and at US 15-501 (Fordham Boulevard).

The original TIA analyzed traffic impacts during the AM and PM commuter peak hours on a Thursday and during Saturday night. It did not examine the theater traffic impacts during the afternoon commuter peak on Friday, during the peak theater operations on Friday night or during the middle of the day on Saturday. In addition, RS&H did not count the traffic actually using Driveways C and D but rather estimated the traffic volumes for Driveways C and D.

RS&H presented their findings and recommendations to the Town in a report dated February 2002. In this report, RS&H recommended that both Driveways C and D be widened to 30 feet and marked to provide two exiting lanes "to accommodate peak exiting traffic at the theaters" (Traffic Impact Analysis, Village Plaza Theaters, Executive Summary, by RS&H, February 2002, p. 2).

On January 27, 2003, the Town Council of the Town of Chapel Hill adopted Resolution 2003-01-27/R-11a to approve the application for the Special Use Permit. This resolution included Stipulation No. 4, which required that the applicant (i.e., Eastern Federal Corporation and Triangle V II L.P.) improve Driveways C and D to 30-foot widths with separate exiting left and right turn lanes plus one entering lane as recommend by RS&H.

Eastern Federal did not have an executed cross access agreement with Ginn & Company that would be needed in order for Eastern Federal to make the required improvements to Driveway D. Therefore, Eastern Federal petitioned the Town of Chapel Hill to have the requirement that they improve Driveway D deleted from Stipulation No. 4 of the Town Council's resolution to approve the SUP application and to have the application placed on expedited review.

Purpose of Re-evaluation

Since the Town's traffic engineering consultant concluded that Driveway D needed to be improved to "accommodate peak exiting traffic at the theaters", Eastern Federal's petition to delete those improvements from Stipulation No. 4 raised serious concerns for the tenants of the adjoining Whole Foods shopping center and its owner, Ginn & Company. They worried that theater traffic would have serious adverse impacts on circulation within the Whole Foods shopping center parking lot not if Eastern Federal did not improve Driveway D as required by the approved SUP. They were also concerned that the Town may not have thoroughly examined all potential traffic and parking impacts of the theater traffic.

Given that the theater parking lot would adjoin the Ginn & Company parking lot and considering that there is an existing physical vehicular connection between the two properties, preventing theater traffic from encroaching onto Ginn property and affecting parking and circulation would be difficult short of erecting an undesirable fence or barrier between the two properties. Ginn & Company is concerned that not examining and mitigating these potential negative impacts as part of the Eastern Federal property redevelopment will threaten the economic well being of businesses within the Whole Foods shopping center.

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To address these concerns, Faison & Gillespie, the counsel for Ginn & Company, retained PBS&J to perform a broader and more in-depth study of the potential impacts of the proposed theater redevelopment on access, parking and circulation. Major issues that PBS&J was asked to examine included the following:

1. **Assess the Necessity of the Originally Proposed Driveway D Improvements** - Perform technical analyses to evaluate Eastern Federal's assertion that the improvements to Driveway D recommended by the Town's traffic consultant were actually optional and not needed to maintain acceptable operating conditions and to provide adequate ingress/egress for the proposed theater.
2. **Expand the Scope of the Traffic Analyses to Consider All Critical Time Periods and All Elliott Road Driveways** - The original TIA conducted by RS&H for the Town examined only one of the four time periods that the Institute of Transportation Engineers (ITE) considers critical when assessing the traffic impacts of a multiplex theater. The critical traffic periods for a multiplex theater according to ITE are summarized in **Table E3**.

Table E3
Summary of Critical Theater Traffic Periods Analyzed by Original TIA

Potentially Critical Theater Traffic Period	Analyzed in Original TIA?
Friday PM Peak Hour of Adjacent Street Traffic <i>One hour between 4:00 pm - 6:00 pm</i>	No
Friday PM Peak Hour of Generator <i>One hour between 6:00 pm - 10:00 pm</i>	No
Saturday Peak Hour of Adjacent Street Traffic <i>One hour between 11:00 am - 1:00 pm</i>	No
Saturday Peak Hour of Generator <i>One hour between 6:00 pm - 10:00 pm</i>	Yes

Critical theater traffic periods as defined in *Trip Generation Characteristics of Traditional and Multiplex Movie Theaters*, ITE, March 2001, and *Trip Generation*, 7th Edition, ITE.

The analyst cannot simply assume that the peak traffic hour of the theater is the peak traffic period overall. The peak traffic period is that when the combination of traffic, theater and non-theater, is at its highest, which may or may not be the same as the peak hour of the theater itself. This point is emphasized by the Institute of Transportation Engineers as follows:

"The time period(s) that provide the highest cumulative directional traffic demands should be used to assess the impact of site traffic on the adjacent street system and to define the roadway configurations and traffic control measure changes needed in the study area. The improvements will be based on the cumulative needs of these time

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periods," *Traffic Access and Impact Studies for Site Development*, 1991, ITE, p.8.

Secondly, the analyses in this PBS&J reassessment will be based upon actual traffic counts taken at all of the Elliott Road driveways A through F during the critical Friday and Saturday time periods. All driveways, not just Driveways C and D, will be analyzed to evaluate all of the impacts of traffic generated by the proposed multiplex theater.

3. **Perform a More In-Depth Analysis of Potential Parking Impacts** - The original RS&H TIA did not provide a thorough evaluation of the potential parking impacts of the proposed theater. It simply compared the number of spaces proposed by the redevelopment with the number of spaces required by the Town less a reduction for shared parking. The original TIA did not investigate whether or not the parking spaces that the theater needed would actually be available (unoccupied) when they would be needed.
4. **Examine Potential Impacts of Theater Traffic on Ginn & Company Parking Lot Circulation** - PBS&J will perform a qualitative assessment of potential theater traffic impacts on circulation within the Whole Foods parking lot. In addition, PBS&J will perform a cursory examination of the overall circulation within the interconnected lots to identify any potential deficiencies and concerns.

DATA COLLECTION

PBS&J performed Friday and Saturday intersection turning movement counts at each of the study area intersections along Elliott Road. The following Elliott Road intersections were counted:

- US 15-501 (Fordham Boulevard)
- Driveway A (Spa Health Club/Burger King)
- Driveway B (Mark Properties)
- Driveway C (Eastern Federal)
- Driveway D (Red Hot and Blue - theater side)
- Driveway E (Red Hot and Blue - Whole Foods side)
- Driveway F (Whole Foods)
- East Franklin Street

A total of 10 hours of traffic volume data was collected at each intersection on the following dates and during the following times:

- Friday, February 13, 2004, 4:00 pm - 6:00 pm
- Saturday, February 14, 2004, 11:00 am - 3:00 pm and 5:00 pm - 9:00 pm

BACKGROUND (NO-BUILD) TRAFFIC

Based on completion date of January 27, 2006, stipulated in the approved SUP, PBS&J selected 2006 as the build-out year of the theater. The 2004 peak hour traffic volumes were factored by a modest annual growth rate of 2% per year to estimate the 2006 background traffic volumes. Background traffic is, of course, traffic that would be present on Elliott

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Road and the various driveways in the build-out year (2006) even if the proposed theater is not built.

THEATER TRAFFIC

PBS&J estimated traffic that would be generated by the proposed 10-screen multiplex theater using the rates and procedures found in the Institute of Transportation Engineers (ITE) *Trip Generation*, 7th Edition, and *Trip Generation Handbook*, March 2001. PBS&J selected Land Use 445, Multiplex Movie Theater, as the most appropriate source of trip generation rates to estimate traffic for the new theaters. The resulting trip generation for the proposed 10-screen multiplex theater is summarized **Table E4**. No reductions were made for pass-by trips, internal capture, and modal split for this study.

Table E4
Trip Generation

ITE Land Use Code 445: Multiplex Movie Theater						
Independent Variable: Movie Screens			Size of Independent Variable: 10			
Time Period	Average Trip Rate (per movie screen)	Directional Distribution		Average Trips (vehicles)		
		Entering	Exiting	Total	Entering	Exiting
Friday PM Peak Hour of Adjacent Street Traffic (between 4 and 6 pm)	23.02	60%	40%	230	138	92
Friday PM Peak Hour of Generator (between 6 and 10 pm)	62.89	57%	43%	629	359	270
Saturday Peak Hour of Adjacent Street Traffic (between 11 am and 1 pm)	19.97	72%	28%	200	144	56
Saturday Peak Hour of Generator (between 6 pm - 10 pm)	69.14	52%	48%	691	359	332

Source: *Trip Generation*, 7th Edition, 2003, Institute of Transportation Engineers, Washington, DC

It is also important to recognize that the trip rates and computed number of trips in Table E4 represent average theater conditions and not peak theater operations. ITE explicitly excluded data collected during "blockbuster" movies and during peak holiday periods. The showing of "blockbuster" movies at the proposed theaters and the traditional peak theater operations between Thanksgiving and New Years would generate much larger traffic volumes than what is shown in Table E10.

INTERSECTION ANALYSES

Analysis Scenarios

PBS&J analyzed each study area intersection under the existing (2004) conditions and the 2006 background traffic conditions (i.e., without the theater). Given the present uncertainties associated with vehicular cross access between Eastern Federal and the adjoining properties, four scenarios of cross access and driveway usage by theater traffic were analyzed. A brief description of each analysis scenario is provided below and a summary of each is provided in Table E5.

Scenario 1:

- Vehicular cross access exists between Eastern Federal and Ginn & Company as well as between Eastern Federal and Mark Properties as it does today.
- Driveway C is improved to two exiting lanes as proposed in SUP
- Driveway D is left as it is currently without the improvements proposed in the SUP
- Theater traffic uses all driveways except F (i.e., A through E)

Scenario 2:

- Identical to Scenario 1 except that Driveway D is improved to two exiting lanes as proposed in the SUP.

Scenario 3:

- Vehicular cross access exists between Eastern Federal and Mark Properties as it does today. However, vehicular cross access between Eastern Federal and Ginn & Company is restricted due to absence of cross-access agreement.
- Driveway C is improved to two exiting lanes as proposed in SUP
- Driveway D is left as it is currently without the improvements proposed in the SUP
- Theater traffic uses Driveways A through C only.

Scenario 4:

- No vehicular cross access between the theater and either Ginn & Company or Mark Properties. Vehicular cross access between Eastern Federal and Ginn & Company is restricted due to absence of cross-access agreement. Mark Properties invokes the clause in their cross-access agreement with Eastern Federal to restrict cross access and parking by theater patrons on the Triangle V II property.
- Driveway C is improved to two exiting lanes as proposed in SUP
- Driveway D is left as it is currently without the improvements proposed in the SUP
- Theater traffic uses Driveway C only.

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Table E5
Summary of Analysis Scenarios

Scenario	Eastern Federal Vehicular Cross Access	Theater Traffic Assigned to Driveways:					
		A	B	C	D	E	F
1	Ginn and Mark	✓	✓	✓	✓	✓	
2	Ginn and Mark	✓	✓	✓	✓	✓	
3	Mark Only	✓	✓	✓			
4	None			✓			

Trip Assignment

For each analysis scenario, PBS&J used a logical procedure for assigning theater traffic to the various Elliott Road driveways that considered the following factors:

- External trip distribution to East Franklin Street and US 15-501 (Fordham Boulevard)
- Location of driveway relative to East Franklin Street and US 15-501 (Fordham Boulevard)
- Proximity of the driveway to the theater
- Travel distance from the driveway to the theater box office
- Location of parking relative to the driveway
- Physical interconnectivity of the parking lots of the adjoining properties

Logically, Driveway C on the Eastern Federal property would be assigned the heaviest volume of theater traffic under any of the analysis scenarios due to the drop-off/pick-up lane and the fact that it is the entrance closest to the theater building. However, motorists can certainly be expected to use the other driveways as well in the absence of any physical barrier that prevents them from doing so. The general traffic assignment by driveway for each scenario is summarized in **Table E6**.

Table E6
Theater Traffic Assignments by Driveway & Scenario

Scenario	Eastern Federal Vehicular Cross Access	Theater Traffic Assigned to Driveways:					
		A	B	C	D	E	F
1	Ginn and Mark	3%	21%	50%	20%	6%	0%
2	Ginn and Mark	3%	21%	50%	20%	6%	0%
3	Mark Only	5%	30%	65%	0%	0%	0%
4	None	0%	0%	100%	0%	0%	0%

Table E7 summarizes the levels of service and delays for each intersection resulting from the analyses of existing 2004 conditions, the 2006 background conditions, and the four 2006 background + theater scenarios.

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Table E7
Summary of Driveway Delays and Levels of Service

Analysis Year & Scenario		2004 Existing		2006 Background		2006 Scenario 1		2006 Scenario 2		2006 Scenario 3		2006 Scenario 4	
Driveways Used by Theater Traffic:		N/A		N/A		A, B, C, D, E Unimproved D		A, B, C, D, E Improved D		A, B, C Only		C Only	
Elliott Road Intersection	Time Period	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Driveway A	FRI, 4-6 pm	32.1	D	36.6	E	49.8	E	49.8	E	49.3	E	50.8	F
	SAT, Midday	34.1	D	39.1	E	53.3	F	53.3	F	54.4	F	52.8	F
	SAT, 6-9 pm	17.7	C	18.6	C	38.0	E	38.0	E	39.1	E	35.9	E
Driveway B	FRI, 4-6 pm	20.7	C	22.3	C	28.3	D	28.3	D	29.0	D	26.8	D
	SAT, Midday	15.2	C	15.9	C	18.5	C	18.5	C	19.0	C	18.0	C
	SAT, 6-9 pm	12.8	B	13.1	B	24.4	C	24.4	C	26.9	D	20.1	C
Driveway C	FRI, 4-6 pm	13.5	B	13.8	B	18.5	C	18.5	C	19.8	C	24.2	C
	SAT, Midday	13.1	B	13.4	B	15.5	C	15.5	C	16.1	C	18.3	C
	SAT, 6-9 pm	11.2	B	11.3	B	26.4	D	26.4	D	42.0	E	148.9	F
Driveway D	FRI, 4-6 pm	29.4	D	33.1	D	46.7	E	38.2	E	44.3	E	44.3	E
	SAT, Midday	20.7	C	22.1	C	28.1	D	23.9	C	26.5	D	26.5	D
	SAT, 6-9 pm	14.6	B	15.1	C	26.0	D	21.4	C	24.5	C	24.5	C
Driveway E	FRI, 4-6 pm	23.1	C	25.1	D	32.0	D	32.0	D	31.3	D	31.3	D
	SAT, Midday	18.7	C	19.8	C	23.8	C	23.8	C	23.1	C	23.1	C
	SAT, 6-9 pm	14.0	B	14.5	B	24.5	C	24.5	C	23.3	C	23.3	C
Driveway F	FRI, 4-6 pm	189.0	F	259.9	F	417.0	F	417.0	F	417.0	F	417.0	F
	SAT, Midday	32.0	D	37.0	E	44.6	E	44.6	E	44.6	E	44.6	E
	SAT, 6-9 pm	18.2	C	19.2	C	33.1	D	33.1	D	33.1	D	33.1	D

NOTE: LOS letters shown in bold font and underscored indicate a drop in the level of service from a preceding analysis scenario.

Intersection Analysis Conclusions

Based on the results of the preceding analyses, the following conclusions can be drawn:

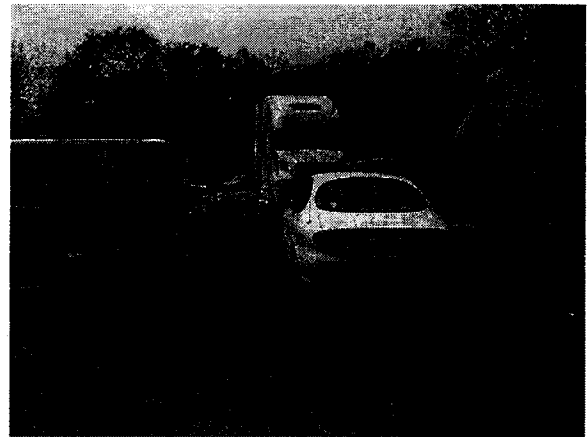
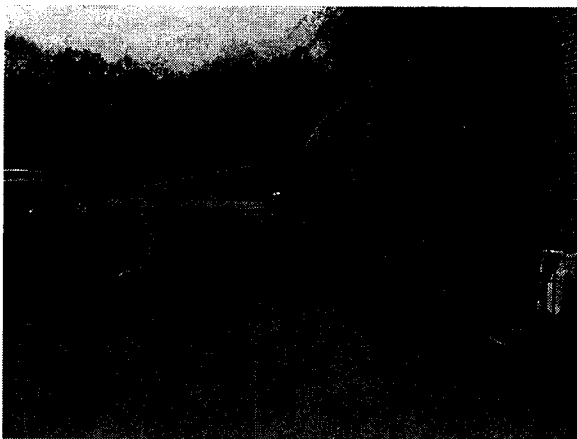
1. Driveway A will drop from LOS C to an unacceptable LOS E during the Saturday evening peak period with the addition of theater traffic. I will also degrade from LOS E to F during the Saturday midday period under all scenarios and from LOS E to F during the Friday afternoon peak under Scenario 4 (i.e., theater traffic using Driveway C only).
2. Driveway C will operate at an unacceptable LOS E during the Saturday evening theater peak if theater traffic is not allowed to use Driveways D and E on the Ginn & Company Property. If vehicular cross access is not permitted between the Ginn & Company property and the Eastern Federal Theaters property due to lack of an executed cross-access agreement and all traffic must use Driveways A through C only, the intersection of Elliott Road and Driveway C will operate at a poor LOS E versus LOS D when cross access is permitted.
3. Driveway C will operate at an unacceptable LOS F during the Saturday evening theater peak if theater traffic is not allowed to use either the Ginn & Company driveways or the Mark Properties driveways. If theater traffic cannot use Driveways A and B due to Mark Properties invoking the clause in their cross-access agreement to prohibit theater traffic from using or parking on the Triangle V II property, Driveway C will be the only theater access point. Driveway C will fail during the Saturday peak movie period under this scenario.
4. The addition of theater traffic to Driveway D will cause Driveway D to deteriorate one level of service during each of the three analysis periods if Driveway D is not improved in accordance with the approved SUP. Driveway D will drop from a 2006 No-Build LOS D to an unacceptable LOS E during the Friday afternoon peak hour between 4:00 pm and 6:00 pm with the addition of traffic from the proposed theater.
5. Improving Driveway D as required by the approved SUP will enable Driveway D to operate very near the expected 2006 conditions without the proposed theater (i.e., background/no-build conditions). There will be deterioration in the 2006 background LOS C during the Saturday midday period and Saturday evening peak period, with only minor increases in delay. During the Friday afternoon peak, Driveway D will not improve from LOS E back to the 2006 background LOS D, but there will be only 5 seconds difference in delay.
6. The theater traffic volumes used in the analyses represent *average* theater traffic conditions, not the "worst case" theater traffic conditions. Traffic produced by the theater during holiday times such as between Thanksgiving and Christmas or during the first run of "blockbuster" movies will be significantly higher than the traffic used in these analyses.

CIRCULATION ISSUES

Driveway D serves not only the patrons of the Ginn & Company shopping center, but it also is the designated entrance for trucks servicing the shopping center, and it provides access to Elliott Road from the Staples shopping center via cross access. Three circulation issues related to Driveway D need to be addressed in conjunction with the redevelopment of the theater to facilitate ingress and egress of theater traffic and ensure efficient traffic flow once the theater is built.

Condition 1 - Narrow Width of Driveway D

While two way traffic flow is currently permitted on Driveway D, the driveway is only one lane wide for most of its length between Elliott Road and the rear of the Red Hot and Blue restaurant. At its narrowest point, driveway D is only 19.25 feet wide, compared with a required width of 21-26 feet for two-way traffic. It is difficult if not impossible for an entering vehicle to pass an oncoming exiting vehicle in this area. The photos below illustrate the narrow width of Driveway D.



It is important to note that this bottleneck condition constrains the capacity of Driveway D, but the intersection analyses procedures used to determine the Driveway D level of service are incapable of taking this capacity constraint into account. Therefore, the intersection analyses in this study and in the previous study tend to overstate the level of service that Driveway D can attain given their inability to simulate this capacity constraint.

Condition 2 - Oblique Angle Turn

The current site plan for the theater does not provide for construction of radius around the southwest corner of the intersection of Driveway D and the cross-access aisle from the theater parking lot. Theater traffic entering via Driveway D will have to make an awkward, undesirable oblique angle right turn from Driveway D onto the theater property. The absence of an adequate corner radius will cause vehicles, particular larger ones such as full-size SUVs and vans, to swing wide and encroach upon the path of on-coming vehicles departing the theater.

Condition 3 - Theater Drop-off/Pick-up Lane Alignment

The theater's drop-off/pick-up lane has been designed so that traffic departing this lane is aimed directly toward the Ginn & Company property. The natural tendency of a motorist departing this lane would be to drive straight ahead and onto the Ginn & Company property. It is the most clearly evident, direct path in his/her field of view and appears to be the quickest way out. Theater traffic exiting onto the Ginn & Company property would compound the already congested flow in front of Whole Foods. Improving Driveway D to provide a clear, expeditious exit route to Elliott Road would discourage theater traffic from traveling past Driveways D and lessen the impacts on circulation in front of Whole Foods.

Benefits of Three-Driveway Ingress and Egress

Given the close proximity of Driveway D to parking spaces close to the theater and the orientation of the theaters drop-off/pick-up lane that encourages traffic to depart toward Driveway D, improving Driveway D would enhance overall ingress and egress for the theater. **Figure E3** shows how three driveways, Driveways B through D, can facilitate theater traffic circulation by allowing separation of entering and exiting theater traffic. Establishing site ingress and egress points that encourage "natural" separation of large volumes of opposing traffic flows will provide more efficient circulation.

PARKING ANALYSES

The original TIA performed only a cursory, mathematical comparison of the number of spaces proposed versus the number of spaces required by the Town of Chapel Hill. While this simple check is an important first step, it does not assure that a sufficient number of parking spaces will actually be available (unoccupied) at the times when they will be needed by the theater or that the available spaces will be located in reasonable proximity to the theater. Simply having the correct number of parking spaces is not sufficient unless the spaces will actually be available when needed and the vacant spaces are located where they are needed. PBS&J, therefore, undertook a detailed study of the expected parking situation to answer the following two critical questions:

1. **How many spaces will actually be available (vacant, free) during the peak theater times versus the number of spaces the theater needs?**
2. **Will the available spaces be located where they are needed (i.e., where will they be located in relation to the theater)?**

The Town requires the co-applicants (i.e., Eastern Federal and Mark Properties) to provide a minimum of 490 parking spaces, which is slightly less than the 497 spaces that existed prior to demolition of the former 5-screen theater. The current site plan for the proposed theater redevelopment provides a total of 484 spaces, 118 (24%) of which are located on the Eastern Federal property and the remaining 366 (76%) of which are located on the Triangle V II property. Stipulation 2 does permit a slight decrease in the number of spaces provided in order to accommodate pedestrian crosswalks/walkways.

The 490 parking space requirement reflects a Town-authorized 50% reduction in the cumulative parking requirements for the co-applicants' to account for shared parking. Shared

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parking reductions can be considered if the peak parking demand for the theater occurs at different time than the peak parking demand for the shopping center. **Table E8** summarizes the distribution of the proposed parking spaces as related to the new theater and the Mark Properties shopping center.

TableE8
Summary of Parking Spaces Proposed for Theater Redevelopment

Property Owner	Location	No. of Spaces Proposed	Subtotals by Property Owner	Total
Eastern Federal	In front of theater (West)	66	118	484
	North side of theater	52		
Mark Properties	West side adjacent to theater	120	366	
	Front of shopping center (South)	165		
	East side of shopping center	48		
	Refuse/service/delivery area behind shopping center	33		

Note: As shown on Village Plaza Theater Renovation Signage and Striping Plan, Sheet No. CD-2.3 of 17, by Coulter Jewell Thames, P.A. and Richard A Gurlitz Architects, P.A., dated 11/21/03.

Theater Parking Needs

The 50% reduction in total parking spaces due to shared parking does not mean that there will be 50% fewer theater parkers. There is no reduction in theater parking demand, only in the number of spaces that must be provided for exclusive use by theater patrons. The total number of parking spaces that the theater must have access to during peak theater periods remains the same.

The Town of Chapel Hill Code of Ordinances requires 400 parking spaces for the proposed 1600-seat theater, either on the theater property or on a combination of the theater property and an adjacent shopping center property. The Chapel Hill rate of one parking space for every four theater seats is a common rate used by many practitioners and municipalities. Only 118 (30%) of the 400 parking spaces needed to accommodate the peak parking demand will be provided on the Eastern Federal property. The remaining 282 spaces (70%) will have to come from the adjoining Mark Properties shopping center parking lot in the form of shared parking spaces.

Based on a PBS&J review of five similar multiplex theaters in the Research Triangle Area, one of which is an Eastern Federal theater, such a heavy reliance on the adjacent property's

REASSESSMENT OF TRAFFIC, PARKING AND CIRCULATION IMPACTS OF PROPOSED VILLAGE PLAZA THEATER REDEVELOPMENT

parking is unusual. Although the exact number of spaces that should be provided on the Eastern Federal property is unclear, 118 seems to be very low number for a theater of this size. However, the critical issue is whether or not Mark Properties alone can absorb the theater parking in excess of these 118 spaces. Will there be 282 spaces (i.e., the balance of the 400 theater spaces needed) available for theater parkers out of the 366 spaces proposed for the Mark Properties parking lots during peak theater business?

Parking Space Availability for Theater Use

To determine how many parking spaces would be available (unoccupied) during critical theater periods on Friday and Saturday, PBS&J conducted parking occupancy surveys of the three shopping center parking lots. PBS&J recorded the occupied parking spaces at 30 minute intervals on the following dates and during the following times:

- Friday, February 13, 2004, 4:00 pm - 6:00 pm
- Friday, March 19, 2004, 6:00 pm - 8:30 pm
- Saturday, February 14, 2004, 11:00 am - 3:00 pm
- Saturday, February 14, 2004, 5:00 pm - 9:00 pm

Table E9 summarizes the peak 30-minute periods and their occupancy rate for Mark Properties, Ginn & Company and the entire study area.

Table E9
Summary of Peak Parking Occupancies

Time Period	Friday Evening		Saturday Midday		Saturday Evening	
Survey Area	Peak Half Hour	Spaces Occupied	Peak Half Hour	Spaces Occupied	Peak Half Hour	Spaces Occupied
Mark Properties	7:00 pm - 7:30 pm	77.3%	1:00 pm - 1:30 pm	77.6%	5:00 pm - 5:30 pm	61.0%
Ginn & Company	5:30 pm - 6:00 pm	78.3%	2:00 pm - 2:30 pm	93.0%	5:00 pm - 5:30 pm	72.9%
Entire Study Area (Mark + Ginn + Little)	5:30 pm - 6:00 pm	72.8%	1:00 pm - 1:30 pm	77.6%	5:00 pm - 5:30 pm	63.2%

The key observation from the table above is that the Mark Properties parking peaks at the same time that parking for the proposed multiplex theater will peak on Friday night. These concurrent parking peaks appear to violate one of the Town's conditions for taking the 50% reduction for shared parking. The Town Code of Ordinances stipulates that the peak usage of the theater and of the shopping center cannot occur at the same time if a 50% reduction in parking is going to be allowed (see paragraph 5.9.3, Item (a) in the Town Code of Ordinances). **Figure E4** shows the parking spaces occupied during the Mark Properties Friday night peak.

There will not be enough unoccupied parking spaces in the Mark Properties lot to accommodate all of the theater parking during peak periods. In fact, there were not 282

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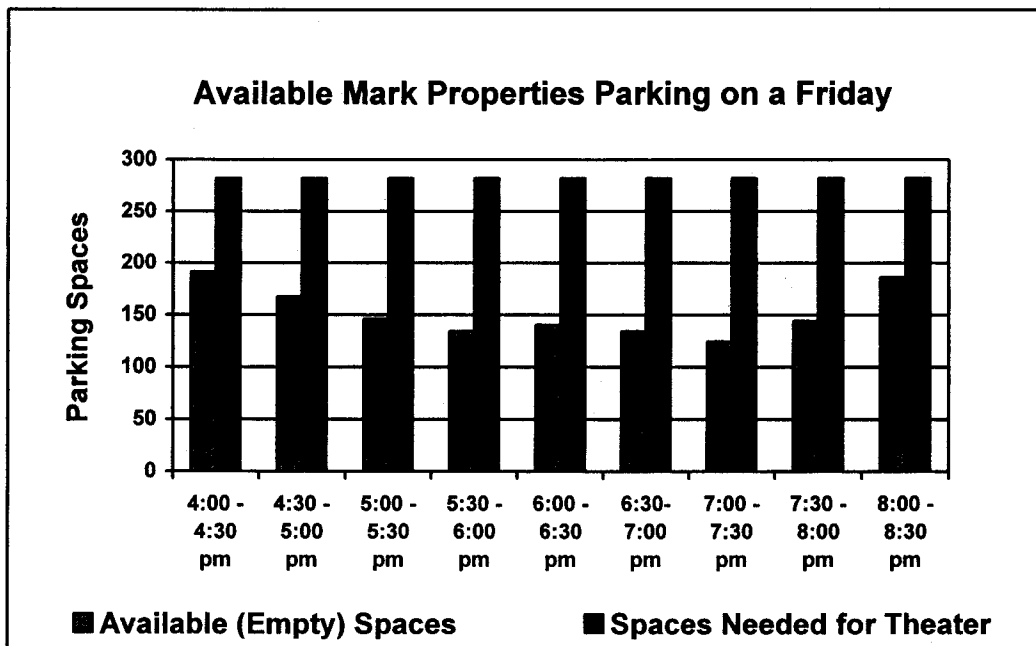
REASSESSMENT OF TRAFFIC, PARKING AND CIRCULATION IMPACTS OF PROPOSED VILLAGE PLAZA THEATER REDEVELOPMENT

vacant spaces in the Mark Properties lot during any of the 12-1/2 hours surveyed on Friday and Saturday. This parking deficit was most pronounced on Friday evenings, a high parking demand time for theaters. The Mark Properties lot will be short some 138 to 158 spaces between 5:30 pm and 8:00 pm on Friday based on the proposed configuration of the lot.

Figures E5 provides a graphical illustration of this theater parking deficit in the Mark Properties parking lot.

This shortfall in the Mark Properties lot will cause theater parkers to search for available parking in other nearby lots, such as the Ginn & Company parking lot. However, there will not be enough spaces within the Whole Foods lot to absorb the overflow from Eastern Federal and Mark Properties without displacing patrons of Whole Foods and Red Hot and Blue until after 8:30 pm on Friday and 8:00 pm on Saturday.

Figure E5 Friday Evening Theater Parking Deficit in Mark Properties Lot



Proximity of Available Parking to Theater

Simply having the correct number of parking spaces is not good enough if those spaces are not located within a reasonable walking distance from the theater and where patrons find them desirable to use. A review of multiple reference documents on parking location and design suggests that a reasonable maximum average walking distance most parkers would find acceptable in a suburban shopping center is 500 feet. **Figure E6** superimposes a 500-foot radius, centered on the proposed box office window, onto the Friday peak parking occupancy illustration. This figure shows that nearly half of the Mark Properties parking spaces fall beyond this 500-foot walking distance, while a large number of spaces on the adjoining Ginn & Company property fall within this desirable 500-foot walking distance to the theater. Theater parkers are quite likely to attempt to park on the Ginn & Company

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REASSESSMENT OF TRAFFIC, PARKING AND CIRCULATION IMPACTS OF PROPOSED VILLAGE PLAZA THEATER REDEVELOPMENT

property, which would be detrimental to commerce within the Ginn & Company shopping center given its high parking turnover rate and high parking occupancy.

Conclusions of Parking Analysis

1. There will not be enough empty parking spaces in the Mark Properties parking lot during peak theater periods to accommodate the overflow of theater parkers from the Eastern Federal property. There will be a theater parking space deficit ranging from 96 to 158 spaces on Friday night.
2. The peak parking occupancy of the Mark Properties lot will occur between 7:00 pm and 7:30 pm on Friday night, which coincides with the peak traffic period of the theater. The Town Code of Ordinances requires that the parking for the theater and the Mark Properties shopping center peak at different times in order to reduce the total parking requirement by 50% for shared parking.
3. About one-half of the Mark Properties parking spaces are beyond an acceptable walking distance from the theater.
4. A large number of parking spaces in the Ginn & Company parking lot are located within an acceptable walking distance from the theater and are even closer to the theater than many of the Mark Properties parking spaces. Their proximity makes them susceptible to encroachment by theater patrons.
5. The Ginn & Company lot in front of Whole Foods and around Red Hot and Blue cannot absorb encroaching theater parkers without displacing Ginn & Company patrons until after 8:30 pm on Friday and after 8:00 pm on Saturday.
6. There will be a theater parking deficit during all of the 12.5 hours surveyed on Friday and Saturday based on the 282 spaces needed in the Mark Properties lot.

MITIGATION MEASURES AND RECOMMENDATIONS

Site Access and Circulation

The preceding analyses have shown that if Driveway D is not improved as required by Stipulation 4 of the SUP, then traffic produced by the proposed multiplex theater will cause Driveway D to:

- Drop from LOS D without the theater to an unacceptable LOS E during the Friday PM peak hour of adjacent street traffic (i.e., peak traffic period for Elliott Road);
- Drop from a good LOS C without that theater to LOS D during the Saturday peak hour of Elliott Road (i.e., midday between 11:00 am - 1:00 pm) as well as during the Saturday peak hour of the theater (i.e., between 6:00 pm and 10:00 pm);
- Drop from a good LOS C without that theater to LOS D during the Saturday peak hour of the theater (i.e., between 6:00 pm and 10:00 pm).

LOS E is not an acceptable level of service according to Town of Chapel Hill standards. Mitigation should be considered for this poor level of service on Driveway D caused by the impact of theater traffic during the Friday PM peak hour of Elliott Road. Although LOS D is an acceptable level of service by the Town standards, additional circumstances indicate the

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need to consider mitigation of theater impacts to Driveway D during the Saturday midday and evening peaks. These considerations include:

- Ginn & Company, the owner of Driveway D, and the businesses within the Ginn & Company shopping center are not causing the increased delay and decline in level of service on Driveway D. The negative impacts on Driveway D are caused by another party, Eastern Federal, and their project external to the Ginn & Company property.
- The increased delay and lower level of service are not occurring on the public street, Elliott Road, but rather on Driveway D, a private driveway owned by Ginn & Company.
- The theater traffic used in the analyses represents average theater conditions, not the peak movie traffic associated with the Thanksgiving-to-Christmas holiday period or associated with the first run of a "blockbuster" movie.
- The analysis methods used to assess the level of service for Driveway D are not capable of modeling or simulating the constraining effects of Driveway D's narrow, single-lane width on intersection operations.

Improving Driveway D as required by the SUP would mitigate and even prevent some of the negative impacts of the theater traffic. If these improvements are made, theater traffic will not cause Driveway D to drop from LOS C to LOS D during the Saturday midday and Saturday night peak periods; the good LOS C expected in 2006 without the theater would be maintained.

The preceding sections of the report also discussed the additional circulation benefits of widening Driveway D as required by the SUP. Simply leaving Driveway D as is will not prevent theater traffic from using it or at least trying to given the alignment of the theater drop-off/pick-up lane and the close proximity of a large number of theater parking spaces. Improvements to Driveway D would improve movie theater ingress and egress and circulation within the theater parking areas. Previous **Figure E3** illustrated how providing three driveways, B, C and D, could help separate conflicting flows of entering vehicles and exiting vehicles.

Finally, the analyses showed that the theater's main driveway, Driveway C, will operate at an unacceptable LOS E during the peak movie time on Saturday night if theater traffic is prevented from using the Ginn & Company driveways (i.e., Driveways D & E). The analyses further demonstrated that Driveway C alone is insufficient to serve the proposed theater. Driveway C will operate at LOS F if theater traffic is prevented from using not only the Ginn & Company driveways (D through F) but also the Mark Properties driveways (A and B). The unacceptable LOS E on Driveway C during this peak Saturday night period illustrates the need for Driveway D to help disperse the theater traffic and ensure an acceptable LOS at Driveway C.

Based upon the above considerations, PBS&J recommends improving Driveway D to two exiting lanes and one entering lane as stipulated in the approved SUP.

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Parking

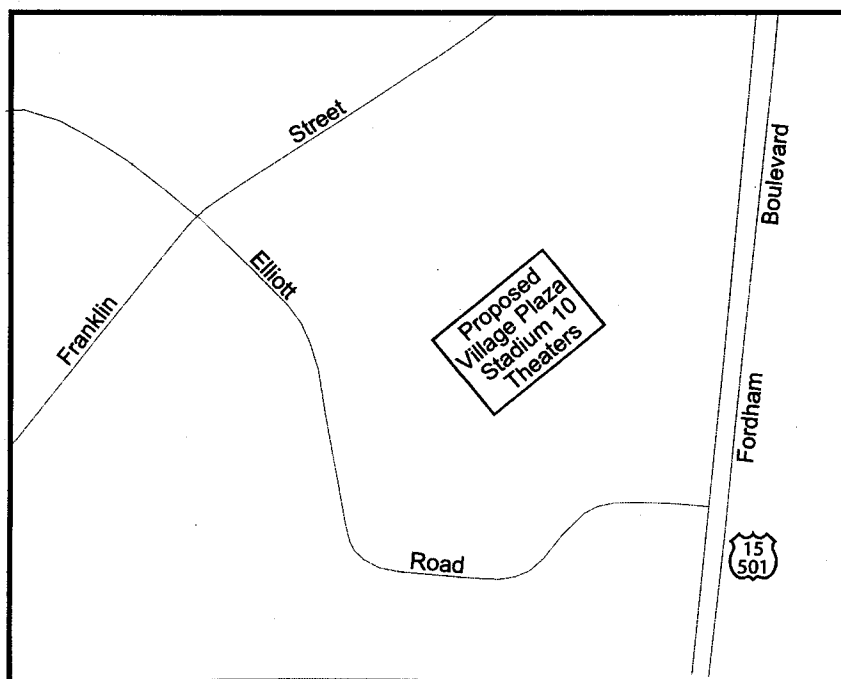
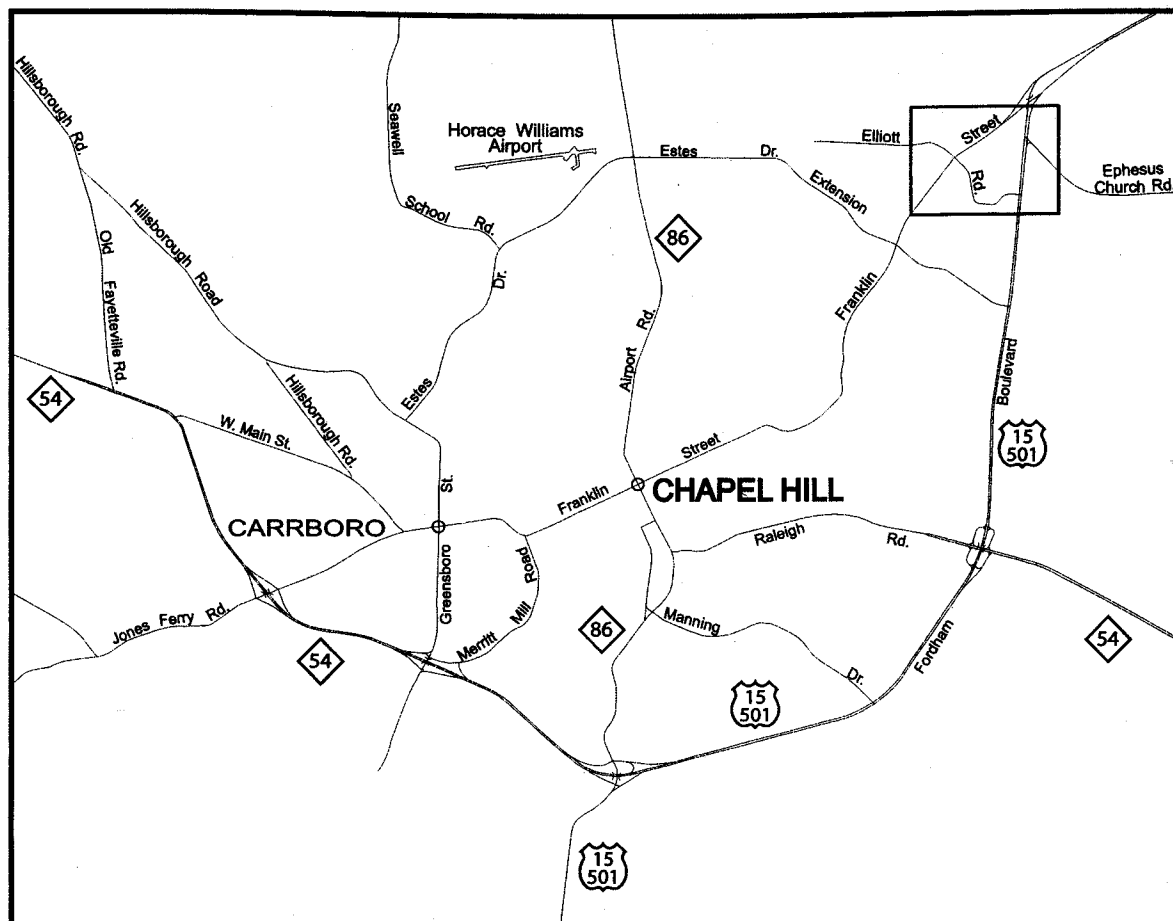
The parking analysis in the preceding section showed that 400 parking spaces are needed to accommodate the peak parking demands of theater of the size proposed by Eastern Federal. Given that Eastern Federal is only providing 118 of those spaces on their property, they must rely upon their co-applicant's parking lot to provide the remaining 282 spaces needed for peak times (i.e., 282 shared spaces). When the actual usage of the Mark Properties lot was studied by PBS&J through parking occupancy surveys, it showed that the Mark Properties parking lot is not capable of providing the 282 shared spaces when needed by the theater. The theater parking shortage will range from 100 to 160 spaces (approximately) on Friday night during the critical peak theater time between 6:00 pm and 8:30 pm.

The co-applicants on the SUP, Eastern Federal and Triangle V II (i.e., Mark Properties) were allowed a 50% reduction in required parking to account for shared parking between the theater and the Mark Properties shopping center in accordance with the Town Code of Ordinances. A key Code stipulation for taking this 50% reduction for shared parking is that the shopping center and theater cannot experience peak parking conditions at the same time. However, the parking occupancy surveys show that the Mark Properties shopping center parking lot will reach its peak usage between 7:00 pm and 7:30 pm on a Friday night, which is concurrent with the peak operating period of a theater on Friday night (i.e., between 6 pm and 10 pm).

Finally, the parking study showed that nearly half of the Mark Properties parking spaces are located beyond a reasonable 500-foot walking distance from the proposed theater. Hence, even though they may be available at times, the location of these spaces relative to the theater does not favor high usage by theater patrons. Additional parking spaces need to be provided in close proximity to the theater to offset the parking deficit during Friday night peaks and to prevent encroachment on the Ginn & Company parking lots. The parking study revealed that the parking deficit will range between 100 and 160 spaces on a Friday night due to the concurrent peaks of the Mark Properties lot and the movie theater. The shortage will exist at other critical times on during the day on Saturday and on Saturday evening, but it is most pronounced on Friday night.

The parking supply needs to accommodate the peak theater conditions on Friday night as well as other peak times. Therefore, an additional 100-150 parking spaces should be created on the theater site, either through a parking structure or through some other measures, to mitigate this parking shortage during this peak period as well as during other times of the day on Saturday.

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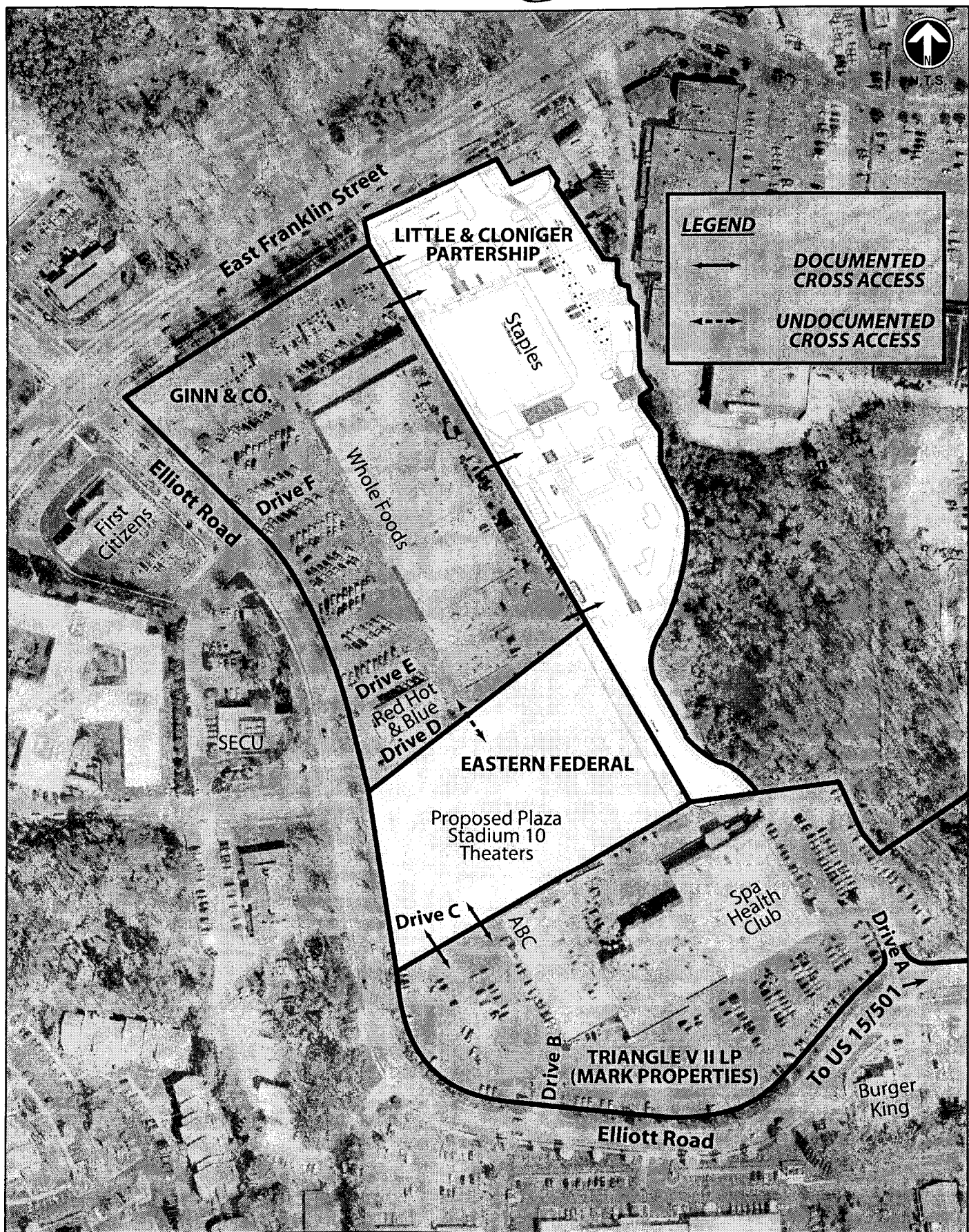



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(919) 876-6888

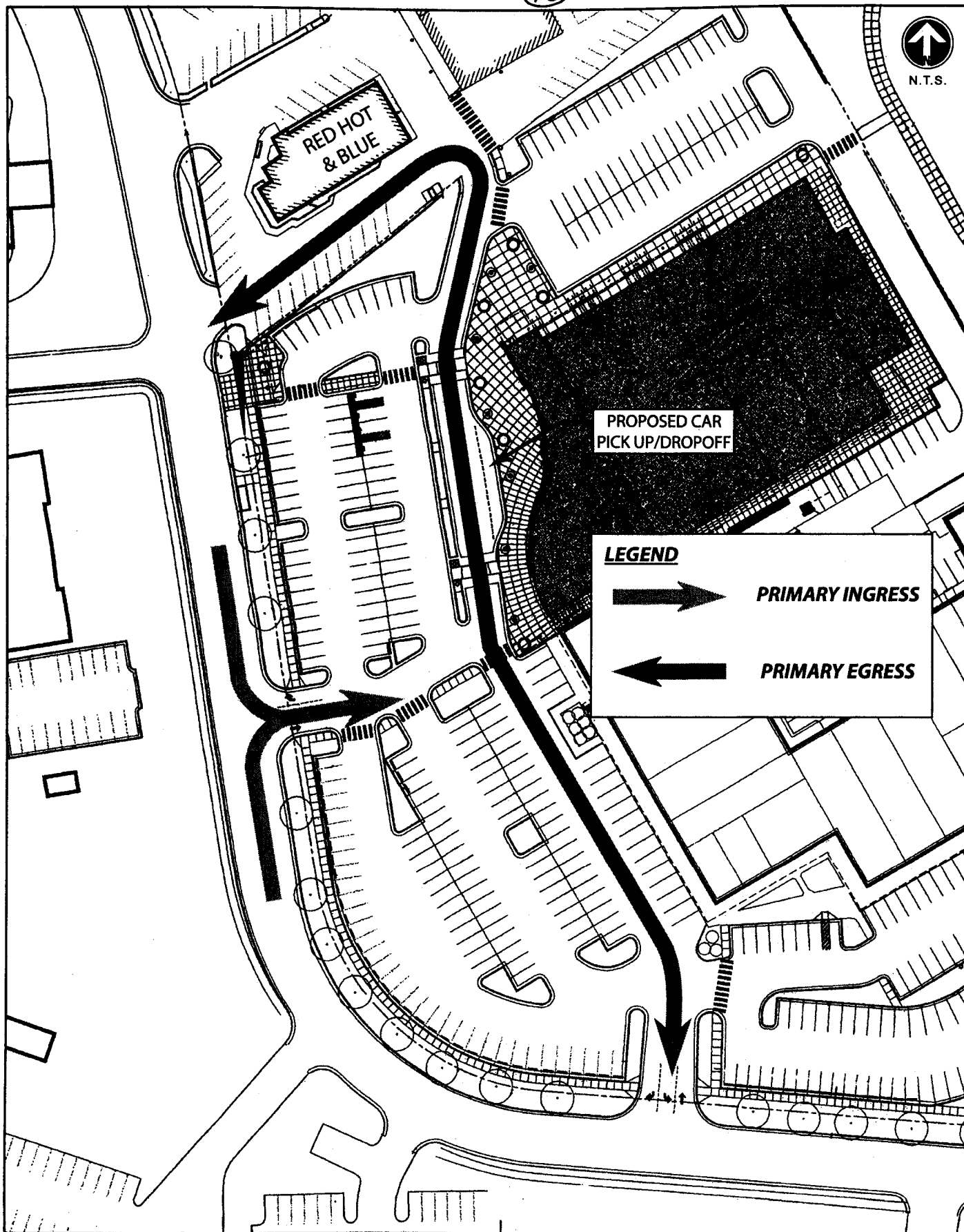
PROJECT:
VILLAGE PLAZA
TRAFFIC IMPACT ANALYSIS

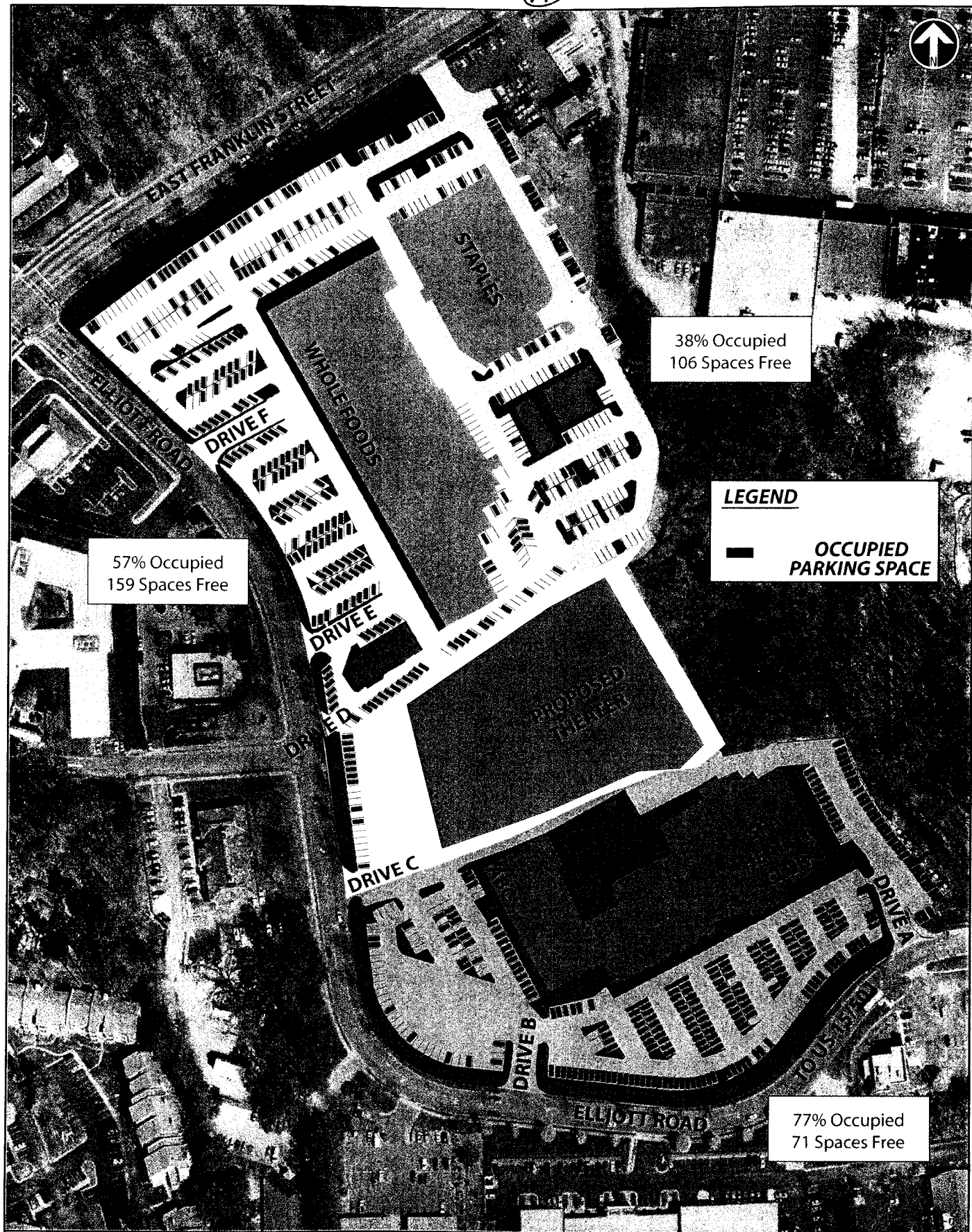
DESCRIPTION:
VICINITY MAP

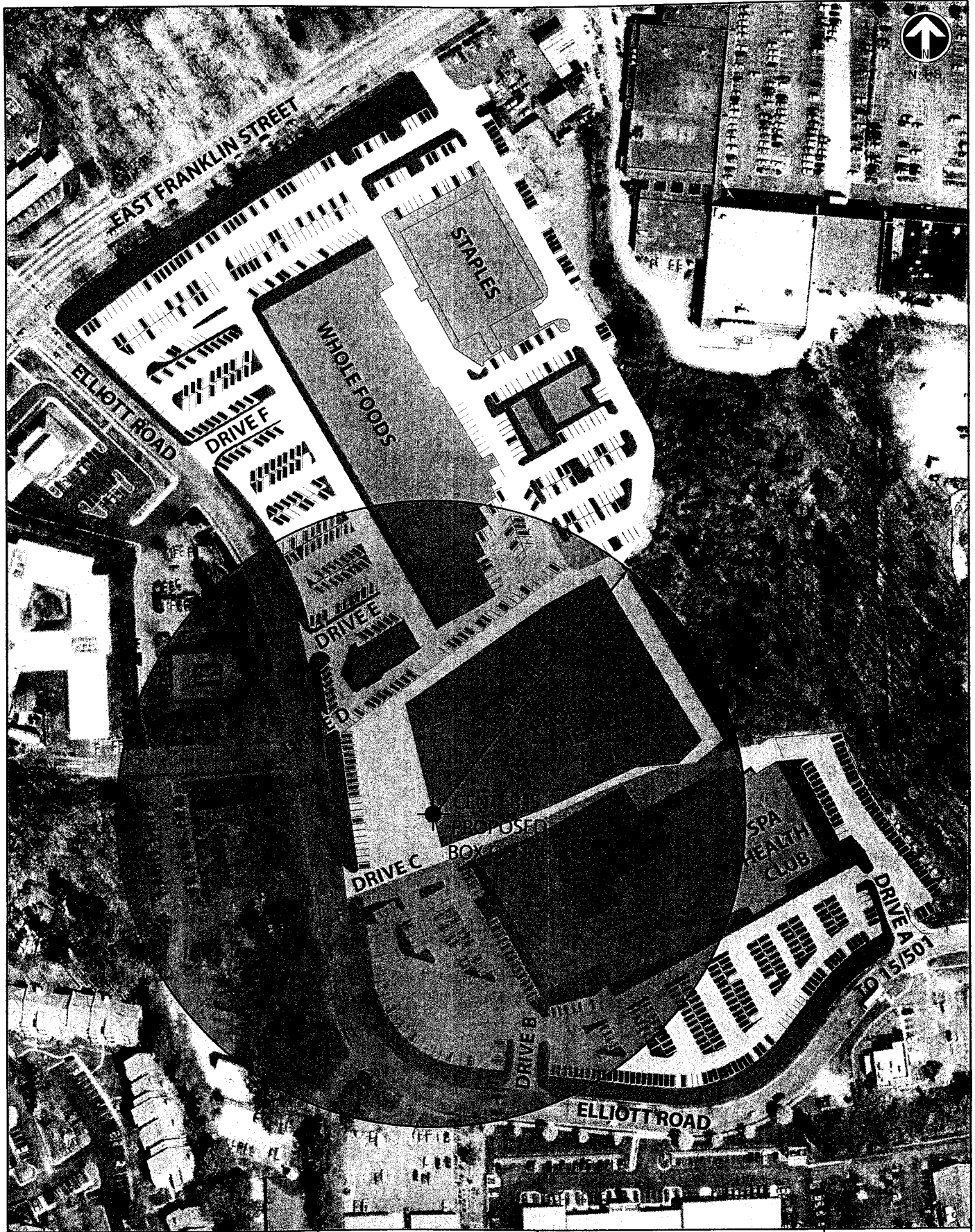
Figure E1



 <p>1616 E. Millbrook Road-Suite 310 Raleigh, NC 27609 (919) 876-6888</p>	<p>PROJECT: VILLAGE PLAZA TRAFFIC IMPACT ANALYSIS</p>	<p>DESCRIPTION: SITE LOCATION</p>	<p>Figure E2</p>
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1616 E. Millbrook Road-Suite 310
Raleigh, NC 27609
(919) 876-6888

PROJECT:
VILLAGE PLAZA
TRAFFIC IMPACT ANALYSIS

DESCRIPTION:
500' Walking Distance with Critical Parking
FRIDAY 7:00 PM-7:30 PM

Figure E6