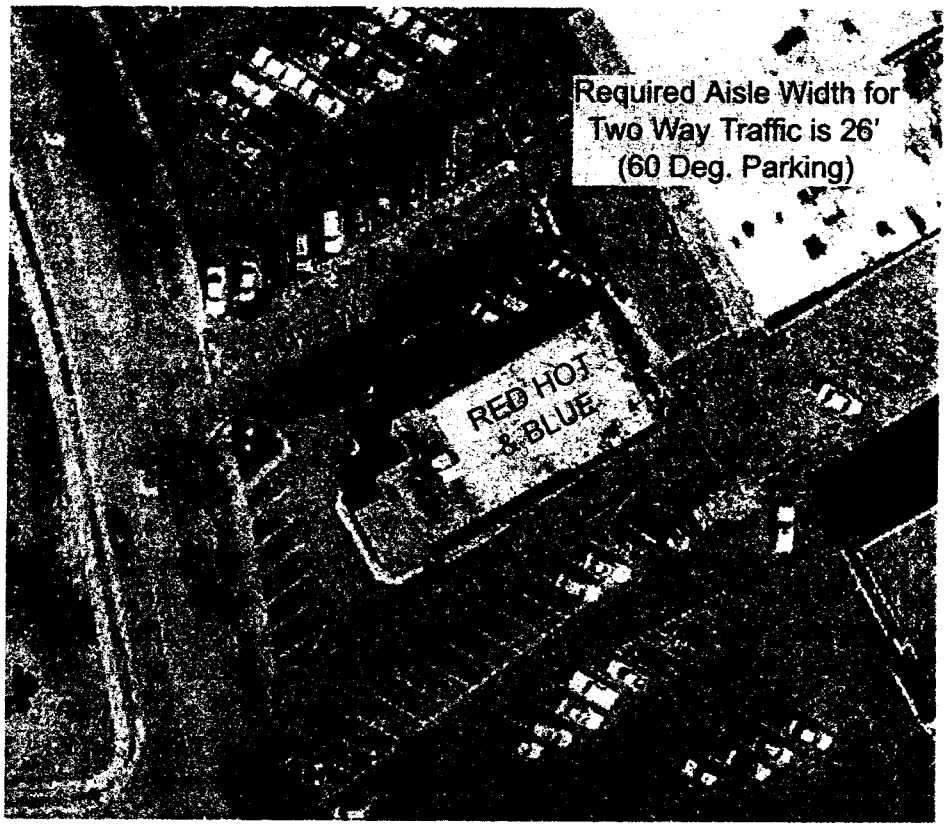
The width of Driveway D varies from Elliott Road to the rear of the Red Hot and Blue restaurant. It has a two-lane throat width where it connects to Elliott Road, but the driveway rapidly necks down to a single lane within about 50 feet (approx. 2 car lengths) of Elliott Road. Figure 19 shows the width of Driveway D measured at two critical points. At its narrowest point, driveway D is only 19.25 feet wide. If longer than average vehicles are parked in one of the angle parking spaces along the south side of this driveway or if a vehicle does not pull far enough into the parking space, this width is further reduced as shown in the photos above. According to Table 3 in the Institute of Transportation Engineers *Guidelines for Parking Facility Location and Design*, Driveway D needs to be a minimum of 21 feet wide along its entire length in order to permit two-way traffic flow with 60-degree angle parking along one side. Given that trucks use this driveway, a more desirable minimum width would be 26 feet, based on Table 2 of the same ITE document.

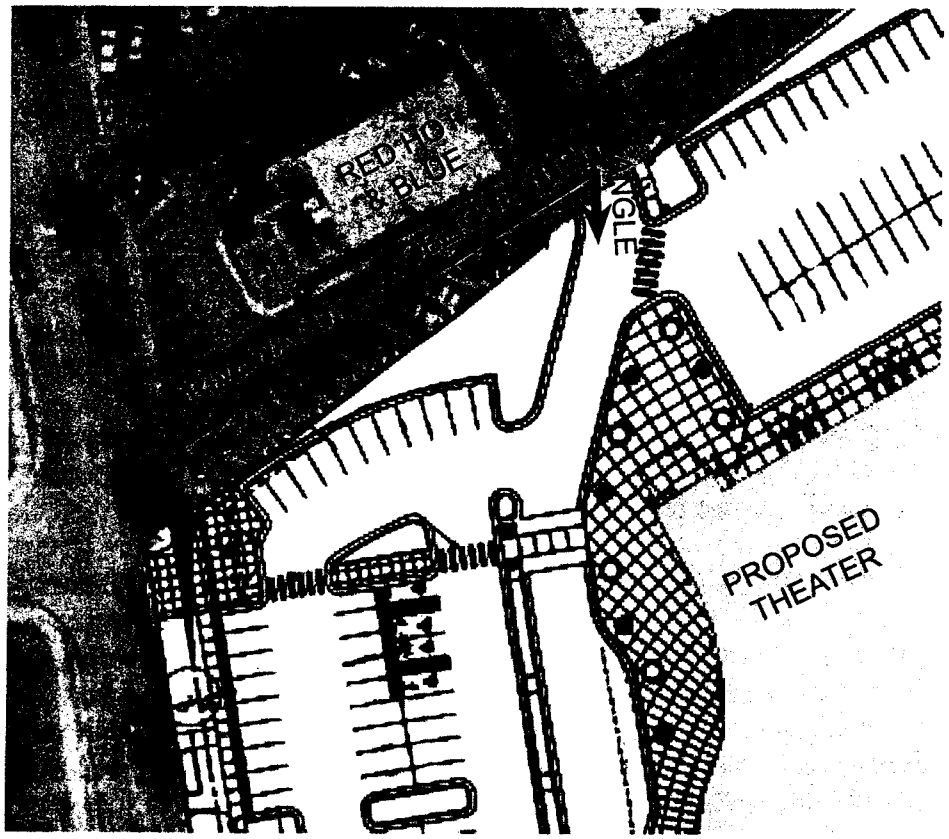
While the existing one-lane condition on Driveway D does not present severe problems when traffic volumes are relatively low as they are now, the problem and its effects on traffic flow and capacity will be magnified as traffic volumes increase due to the redevelopment of the theater. It is important to note that this bottleneck condition constrains the capacity of Driveway D. However, the intersection analyses procedures used to determine the Driveway D level of service both in this report and in the previous TIA by RS&H are incapable of taking this capacity constraint into account. In other words, the software used to assess the LOS for Driveway D simplistically "assumes" that it has two lanes (one in, one out) along its entire length and that traffic approaching and departing the intersection flows freely. It is also incapable of modeling the effects of parking maneuvers on traffic approaching Elliott Road on Driveway D. 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. This is especially true of analyses of higher volume background plus development traffic conditions.

The second circulation deficiency will be created by the proposed redevelopment of the theater property. 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 circulation aisle from the theater parking lot. The curb line is simply terminated at the point of intersection, creating a cusp, and resulting in the undesirable oblique angle right turn from Driveway D onto the theater property shown in Figure 19. Aside from being awkward to negotiate, the absence of an adequate corner radius will tend to 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.

Both the narrow width of Driveway D and the oblique angle turn could hinder access to the valuable parking spaces along the south side of Driveway D. If either entering or exiting traffic backs up more than a couple of car lengths, they will block access to these parking spaces. To remedy these problems and ensure proper traffic flow, Driveway D needs to be widened to an adequate two-way width and a corner radius (15-ft. minimum radius) needs to be constructed where the theater aisle intersects Driveway D. Improvements to Driveway D need to provide for truck movement to the rear of the Ginn & Company property from Driveway D.




N.T.S.




| | | | |
|---|---|---|---|
| PBSJ 1616 E. Millbrook Road-Suite 310 Raleigh, NC 27609 (919) 876-6888 | PROJECT: VILLAGE PLAZA TRAFFIC IMPACT ANALYSIS | DESCRIPTION: DRIVEWAY D GEOMETRIC DEFICIENCIES | Figure 19 |

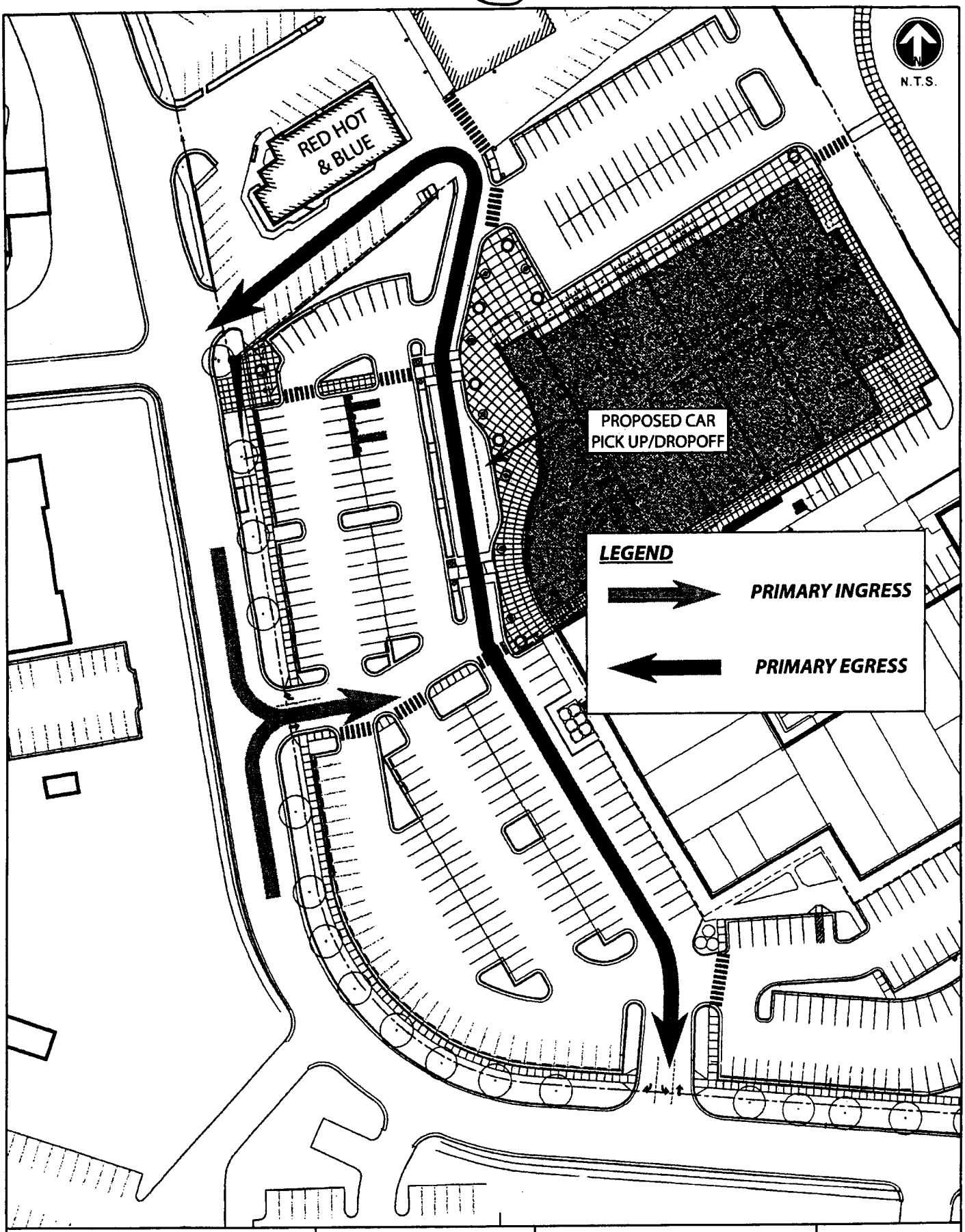
**Theater Drop-off/Pick-up Lane**

The other circulation concern is the alignment and orientation of the drop-off/pick-up lane in front of the proposed theater. As presently aligned, traffic that previously entered the site at Driveway B or C and pulled up along this lane would be aimed directly toward the Ginn & Company property. It would be the natural tendency of a motorist departing this drop-off/ pick-up lane to drive straight ahead and onto the Ginn & Company property, for it is the most clearly evident, direct path in his/her field of view. Although some motorists will, it is not reasonable to expect most motorists to turn left when exiting the drop-off/pick-up lane and circumnavigate their way back to Driveway B or C without being forced to do so. Following such a circuitous path to exit onto Elliott Road would be contrary to most drivers' desire to find the quickest and easiest way out, or at least what they perceive to be so. To get back to Driveways B and C, motorists would have to contend with traffic pulling into and out of parking spaces as well as traffic entering the theater site in search of parking.

Theater traffic exiting onto the Ginn & Company property would compound the already congested flow within the Ginn & Company parking lot in front of Whole Foods during peak periods. Improving Driveway D to provide a more clear and expeditious exit to Elliott Road could help prevent much of this traffic from traveling past Driveways D and E 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 20** shows how three driveways, Driveways B through D can facilitate theater traffic circulation by allowing separation of entering and exiting theater traffic. . Driveways B and D would provide an "escape route" by which theater patrons leaving the site could avoid the congestion around the theater box office and drop-off/pick-up lane. Similarly, traffic entering the site via Driveway C and traffic using the drop-off/pick-up lane would not be impeded as greatly by opposing traffic trying to leave the site. This pattern would be particularly beneficial between the early evening and late evening movie show times on Friday and Saturday night when large volumes of entering traffic overlap large volumes of exiting traffic. The spacing of the three driveway and their locations relative to the theater favor such a circulation pattern. Granted, some entering traffic will use Driveways B and D and some exiting traffic will use Driveway C, but establishing site ingress and egress points that encourage "natural" separation of large volumes of opposing traffic flows will provide more efficient circulation.




| | | | |
|---|---|---|---|
| PBSJ 1616 E. Millbrook Road-Suite 310 Raleigh, NC 27609 (919) 876-6888 | PROJECT: VILLAGE PLAZA TRAFFIC IMPACT ANALYSIS | DESCRIPTION: CIRCULATION OF ENTERING AND EXITING TRAFFIC WITH 3 DRIVEWAYS | Figure 20 |

# VII. PARKING

## Background

Stipulation 2 of the Chapel Hill Town Council Resolution to approve the Special Use Permit requires the co-applicants (i.e., Eastern Federal and Mark Properties) to provide a minimum of 490 parking spaces between their adjoining properties. 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. While the total of 484 spaces is 6 short of the 490-space minimum, Stipulation 2 does permit a slight decrease in the number of spaces provided in order to accommodate pedestrian crosswalks/walkways between the Elliott Road sidewalk and the shopping center buildings. The 484 parking spaces proposed for the redevelopment of the Eastern Federal property as a 10-screen multiplex theater is slightly less the total number of spaces that existed prior to demolition of the former 5-screen theater. According to the original RS&H TIA, there were approximately 497 parking spaces on the co-applicants properties originally. **Table 21** summarizes the distribution of the proposed parking spaces as related to the new theater and the Mark Properties shopping center.

**Table 21**
**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) | 62 | **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.

The 490 parking spaces required for the SUP is substantially less than the sum of the parking required for the proposed 10-screen theater and the adjacent shopping center individually. This difference is due the Town's application of the concept of "shared parking." The Urban Land Institute (ULI) defines shared parking as "parking space that can be used to serve two or more individual land uses without conflict or encroachment," *Shared Parking*, ULI-the Urban Land Institute, 1983, p. 3. In order for shared parking reductions to be considered,

either the peak parking demands for the land uses that share parking must occur at different times or the land uses must be of the type that have common patrons--that is, the same patron occupies a single parking space to visit both land uses.

There are no standardized reduction factors for parking shared by movie theaters and shopping centers. Guidelines and procedures for determining the percentage of shared parking are well documented, but each locale is left to determine if they will allow shared parking reductions and, if so, what magnitude. Neighboring municipalities vary in their treatment of shared parking for theaters that adjoin shopping centers. The Town of Cary may permit as much as a 35% reduction for shared parking when spaces are within 500 feet of primary land uses they serve. The City of Raleigh only allows reductions for shared parking when there is no overlap in the operating hours of the adjacent land uses (i.e., the businesses are not open at the same time). The Town of Chapel Hill Code of Ordinances allows, subject to certification by the Town Manager, a maximum reduction of 50% for shared parking for certain sites, including ones with a movie theater and a shopping center. This 50% shared parking reduction was permitted by the Town for the proposed theater redevelopment.

The original TIA did not examine the parking situation for the proposed theater redevelopment in detail. It merely performed only a cursory, mathematical comparison of the number of spaces proposed versus the number of spaces required by the Town of Chapel Hill, less the shared parking. While this simple check is an important first step, it does not assure that the shared parking spaces will 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. It is not sufficient to simply have the correct number of parking spaces unless the spaces will actually be available when needed and the vacant spaces are located where they are needed.

The original TIA did not examine the parking demands of the existing land uses versus the parking demands of the proposed theater to verify that shared parking would be available and viable for this redevelopment project; it only assumed that it would be. 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)?**

Answering those two questions is vital to justify the reduction for shared parking and to determine if the parking for the theater will be adequate as proposed. The procedures used to analyze the parking situation and the findings are discussed in the paragraphs that follow.

### Theater Parking Requirements

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 exclusively for the use of theater patrons. The

total number of parking spaces that the theater will need to have access to during peak theater periods remains the same.

Based on Town of Chapel Hill Code of Ordinances, one parking space is required for every four theater seats. Therefore, for the proposed 1600-seat theater, 400 parking spaces need to be provided, either on the theater property or on a combination of the theater property and an adjacent property. For comparison, PBS&J generated parking using the Institute of Transportation Engineers (ITE) *Parking Generation*, Second Edition. According to this ITE manual, a 1600-seat theater needs 416 - 478 spaces on a Saturday, depending upon whether one uses the average rate or the fitted curve equation. The Chapel Hill rate of one parking space for every four theater seats is a common rate used by many practitioners and municipalities. Therefore, a peak theater parking space demand of 400 spaces will be used to evaluate the adequacy of the parking supply for the proposed theater.

Based on the site plan for the proposed theater redevelopment, only 118 (30%) of the 400 parking spaces needed to accommodate the peak parking demand will be provided on the theater 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 parking spaces on an adjacent property appears very unusual.

PBS&J conducted on-site inventories (i.e., counts) of "non-shared" parking spaces at each of five multiplex theaters located in Raleigh, Cary and Garner. Only the spaces that could clearly be classified as non-shared through visual inspection were counted. Non-shared spaces were those within the readily apparent boundaries of the theater property/parcel as delineated by physical features such as raised islands, circulatory roadways, and the forward projection of theater building faces. They also had to be in lots that did not border the front of another business. In addition, only parking spaces located in front of the theater or on its sides were counted; no spaces located at the rear of the building were counted.

**Table 22** shows the number of non-shared spaces counted at each of these theaters along with a computed per screen rate of non-shared parking spaces for each. The table also compares these rates with those of the proposed 10-screen Village Plaza multiplex theater. It is interesting to note that applying the lowest observed rate per screen to the proposed 10-screen Village Plaza theater would indicate that there should be at least 321 parking spaces provided on the Eastern Federal property instead of only 118. Although the exact number of non-shared spaces that should be provided is unclear, 118 does appear be very low number for a theater of this size by comparison. The most important question to answer is whether or not Mark Properties alone can absorb the theater parking in excess of these 118 spaces. That is, will 282 spaces actually be available out of the 366 proposed for the Mark Properties shopping center parking lot during the peak theater periods? To answer that question, the current utilization of the existing Mark Properties parking during the peak theater traffic periods must be examined.

**Table 22**
**Comparison of Non-Shared Parking Spaces at Local Multiplex Theaters**

| Theater Name, Owner and *Location* | Non-shared Parking Spaces | Number of Movie Screens | Non-shared Parking Spaces per Screen | Non-Shared Spaces for a 10-Screen Theater Using Observed Rates |
|---|---|---|---|---|
| Carmike 15<br>Carmike Cinemas<br>*Raleigh* | 651 | 15 | 43.40 | 434 |
| Crossroads 20<br>Consolidated Theaters<br>*Cary* | 1037 | 20 | 51.85 | 519 |
| Garner Towne Square 10<br>United Artists Theaters<br>*Garner* | 716 | 10 | 71.60 | 716 |
| Movies at Brier Creek<br>Eastern Federal Theaters<br>*Raleigh* | 527 | 14 | 37.64 | 376 |
| Raleigh Grand Cinema<br>Consolidated Theaters<br>*Raleigh* | 514 | 16 | 32.13 | 321 |
| ***AVERAGE*** | ***689*** | ***15*** | ***42.32*** | ***473.84*** |
| Proposed Village Plaza Stadium 10<br>Eastern Federal Theaters<br>*Chapel Hill* | 118 | 10 | 11.8 | |

- Based on parking lot inventories conducted by PBS&J in February 2004
- Non-shared spaces are those clearly associated with the theater and no other fronting business and which are contained within readily apparent theater property/parcel boundaries.
- Number of spaces for proposed Village Plaza Stadium 10 taken from 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

### Current Usage of Existing Shopping Center Parking

In order to determine the usage of the adjoining shopping center parking lots and their peak parking periods specifically, PBS&J conducted parking occupancy surveys of parking spaces on the properties owned by Ginn & Company, Little and Cloniger and the Triangle V II. These surveys also included the small number of spaces that are still accessible on the Eastern Federal property. A parking occupancy survey is an actual count of the occupied parking spaces during a selected time interval, which was every 30 minutes for these surveys. The first step is the development of a parking inventory map for use in recording occupied spaces. The parking inventory map of all existing parking spaces was developed from existing site plans and surveys of the properties as well as from field observations of existing conditions.

The parking occupancy surveys were performed during all four of the Friday and Saturday time periods that ITE identifies as critical traffic periods for multiplex movie theater operations. The dates and times of the parking occupancy surveys were as follows:

- 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

The data was compiled into a spreadsheet for analysis of occupancy rates, to determine the peak parking periods and to determine the number of spaces available (unoccupied) during each time period. The spreadsheet that summarizes all of the data is provided in the Appendix. Data was analyzed for each property owner as well as for the combined study area. **Table 23** summarizes the peak 30-minute periods and their occupancy rate for Mark Properties, Ginn & Company and the entire study area. The data for Mark Properties is the critical information because it is the Mark Properties parking lots that must be able to absorb the majority of theater parking per the SUP.

**Table 23**
**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% |

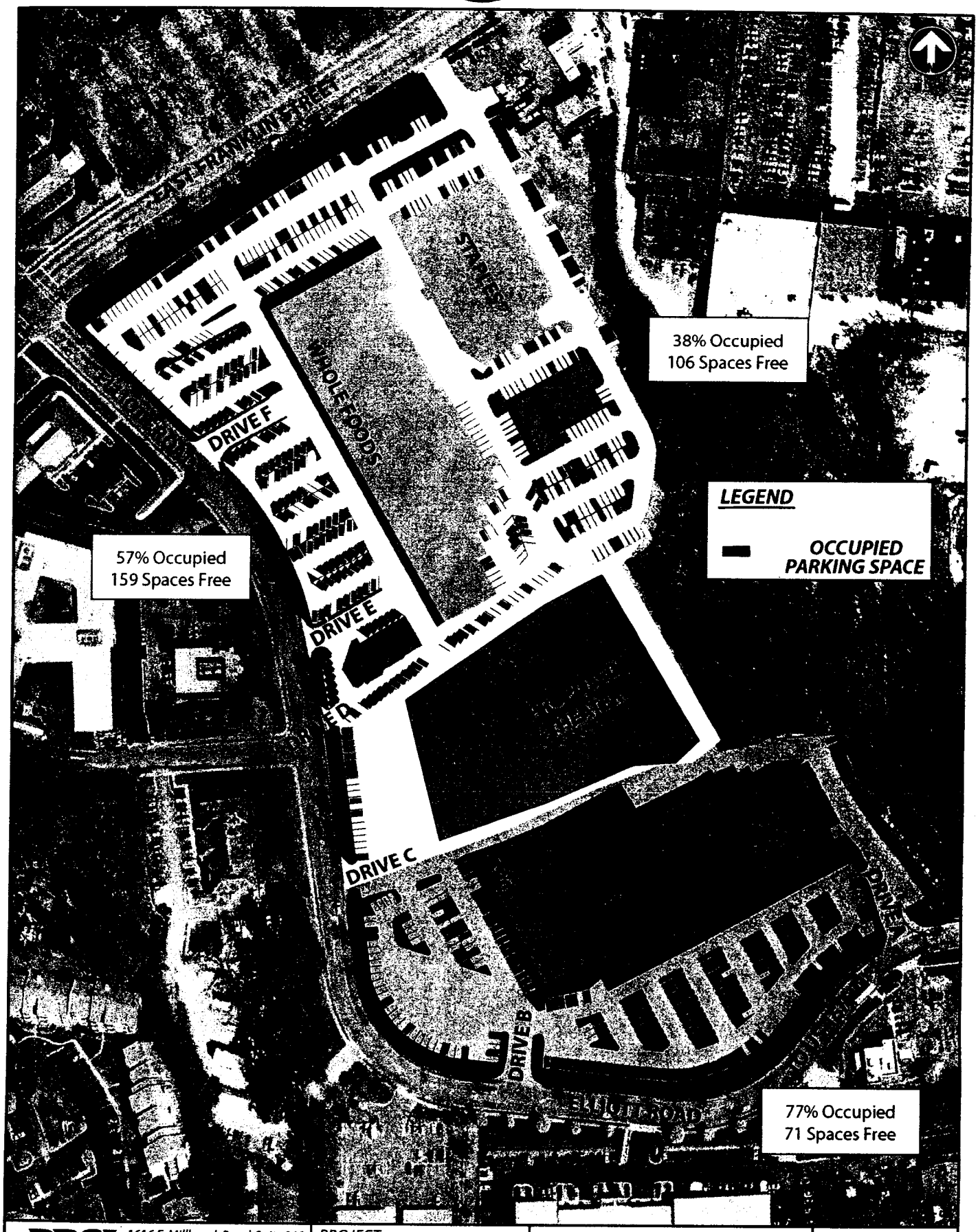
The key observation from the table above is that the Mark Properties parking peaks at the same time that parking for the proposed multiplex theater will peak on Friday night. The proposed multiplex theater parking will peak between 6:00 pm and 10:00 pm, which overlaps the peak parking occupancy of the Mark Properties shopping center between 7:00 pm and 7:30 pm. In addition, the peak half hour of Mark Properties will coincide with the traditional theater show times around the 7:00 hour. Such concurrent peak parking usage appears to violate one of the conditions for taking a 50% reduction in parking spaces prescribed in the Town of Chapel Hill Code of Ordinances related to shared parking. The Town Code 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). Occupancy in the Mark Properties parking lot from 5:30 pm to 7:00 pm on Friday is only slightly less (72% - 74%) than the peak value (77%), and occupancy for the next half hour from 7:30 pm to 8:00 pm only drops to 71%.

**Figures 21 through 23** illustrate the parking spaces occupied during each of the Mark Properties peak parking periods identified in **Table 23.**

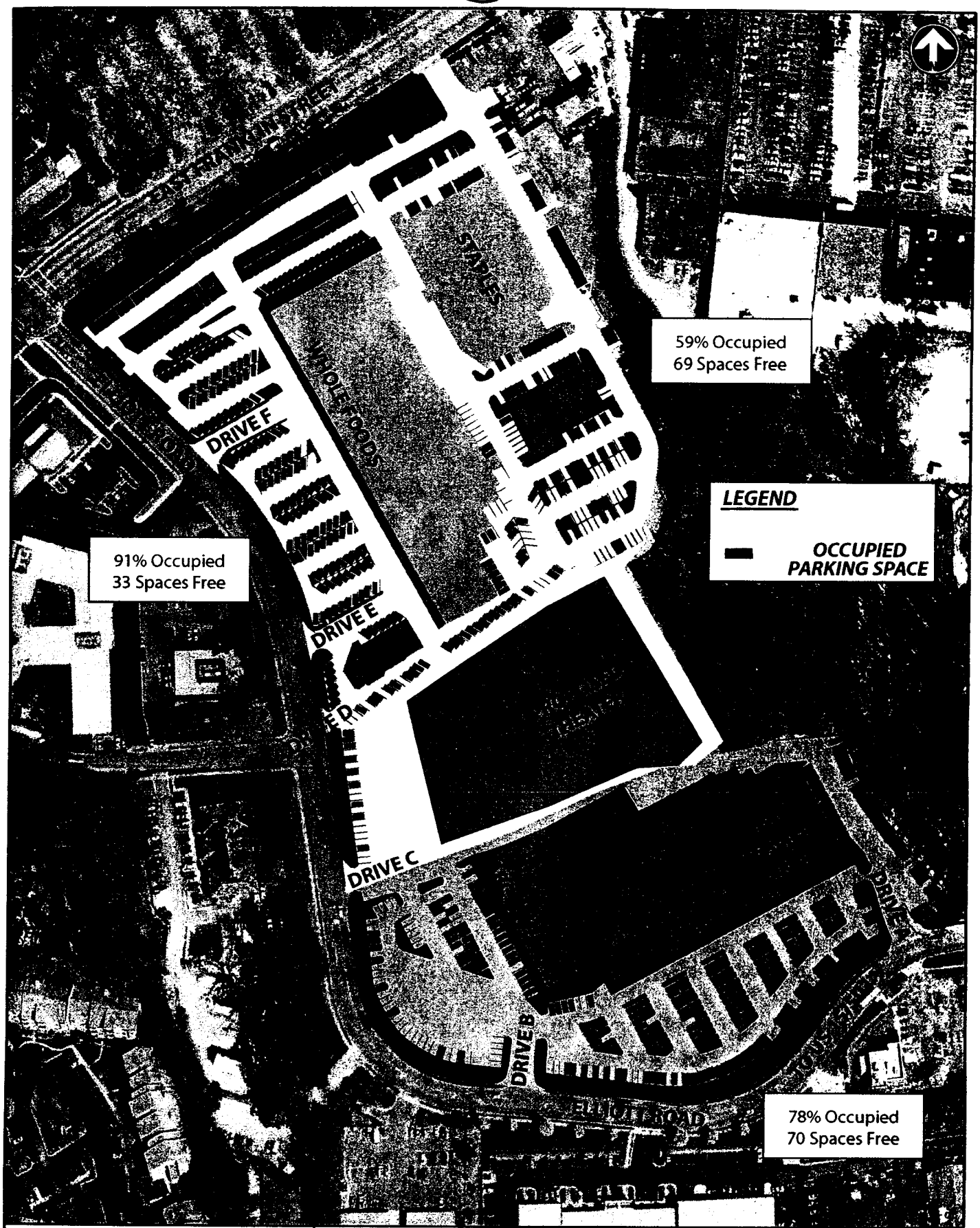
Determining the peak occupancy period alone is not the primary concern. The critical issue is whether or not there will be 282 spaces (i.e., the balance of the 400 theater spaces needed) available for theater parkers in the Mark Properties parking lots during peak theater operations. Based on a review of the survey data, there will not be enough unoccupied parking spaces in the Mark Properties lots to accommodate all of the theater parking needed during peak periods. In fact, there were not 282 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 was short some 191 to 211 spaces between 5:30 pm and 8:00 pm on Friday based on the current configuration of the lot.

Using the proposed reconfiguration of the Mark Properties lot, which increases the total number of spaces to 366, reduces but does not alleviate this theater parking shortfall. The shortage still exists during all of the surveyed periods and a substantial deficit of 138 to 158 spaces persists on Friday between 5:30 pm and 8:00 pm. A shortage of similar magnitude will exist during the Saturday midday between 12:30 pm and 2:00 pm, which would coincide with matinees at the theater. **Figures 24 through 26** provide a graphical illustration of the theater parking deficit expected in the Mark Properties parking lot based upon both the existing and proposed configurations of the lot.

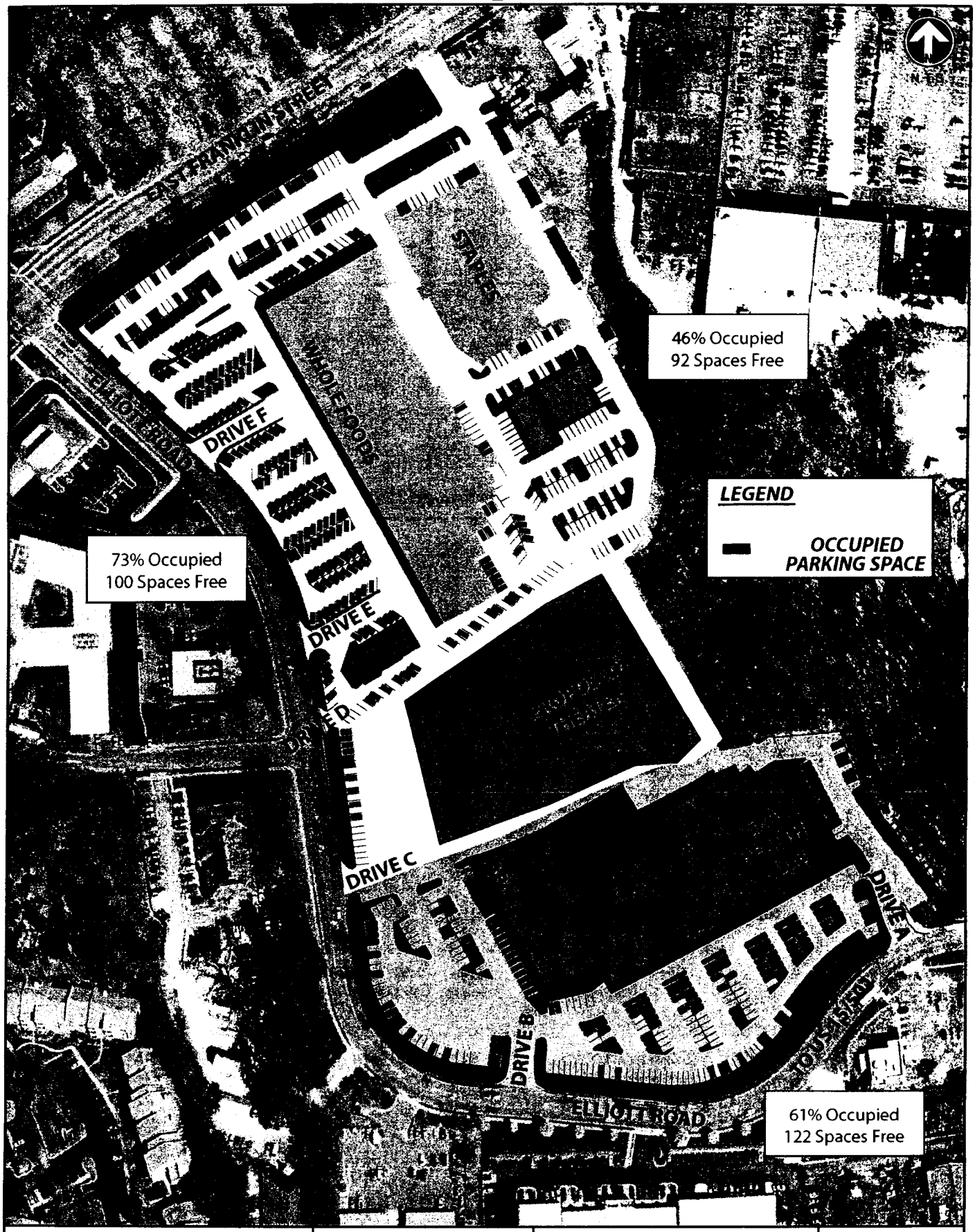
This shortfall in the Mark Properties lot will cause theater parkers to search for available parking in other nearby lots. Hence, the Ginn & Company parking lot will be at risk of encroachment by theater patrons given the lot's close proximity to the theater. The parking occupancy surveys revealed that the Ginn & Company spaces closest to the theater, that is, those in front of Whole Foods and around Red Hot and Blue, remained near full occupancy until between 8:00-8:30 pm on Friday and from late morning until between 7:30-8:00 pm on Saturday. Even if there was a cross-access agreement between Eastern Federal and Ginn & Company that permitted theater usage of the Ginn & Company lots, there would not be enough spaces within the Whole Foods lot to absorb the overflow from Eastern Federal and Mark Properties. The Ginn & Company lot could not begin to absorb theater parkers without displacing patrons of Whole Foods and Red Hot and Blue until after 8:30 pm on Friday and 8:00 pm on Saturday.




| | | | |
|---|---|---|---|
| PBSJ 1616 E. Millbrook Road-Suite 310 Raleigh, NC 27609 (919) 876-6888 | PROJECT: VILLAGE PLAZA TRAFFIC IMPACT ANALYSIS | DESCRIPTION: EXISTING PARKING OCCUPANCY FRIDAY 7:00 PM-7:30 PM | Figure 21 |




| | | | |
|---|---|---|---|
| PBSJ 1616 E. Millbrook Road-Suite 310 Raleigh, NC 27609 (919) 876-6888 | PROJECT: VILLAGE PLAZA TRAFFIC IMPACT ANALYSIS | DESCRIPTION: EXISTING PARKING OCCUPANCY SATURDAY 1:00 PM-1:30 PM | FIGURE 22 |




| | | | |
|---|---|---|---|
| PBSJ 1616 E. Millbrook Road-Suite 310 Raleigh, NC 27609 (919) 876-6888 | PROJECT: VILLAGE PLAZA TRAFFIC IMPACT ANALYSIS | DESCRIPTION: EXISTING PARKING OCCUPANCY SATURDAY 5:00 PM-5:30 PM | FIGURE 23 |

**Figure 24 Friday Evening Theater Parking Deficit in Mark Properties Lot**

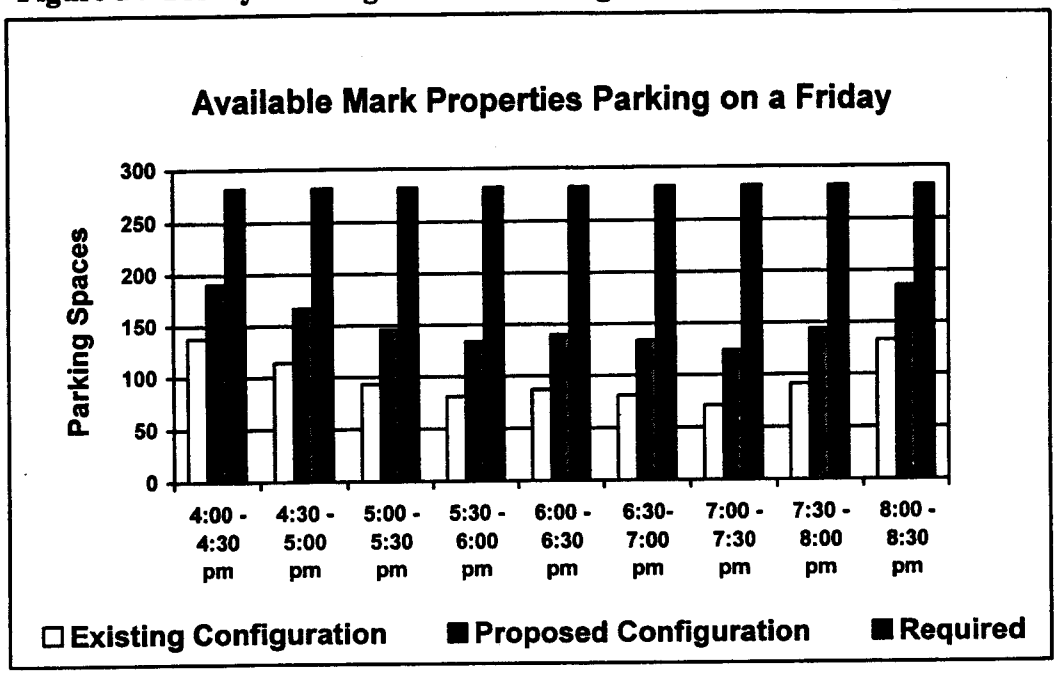
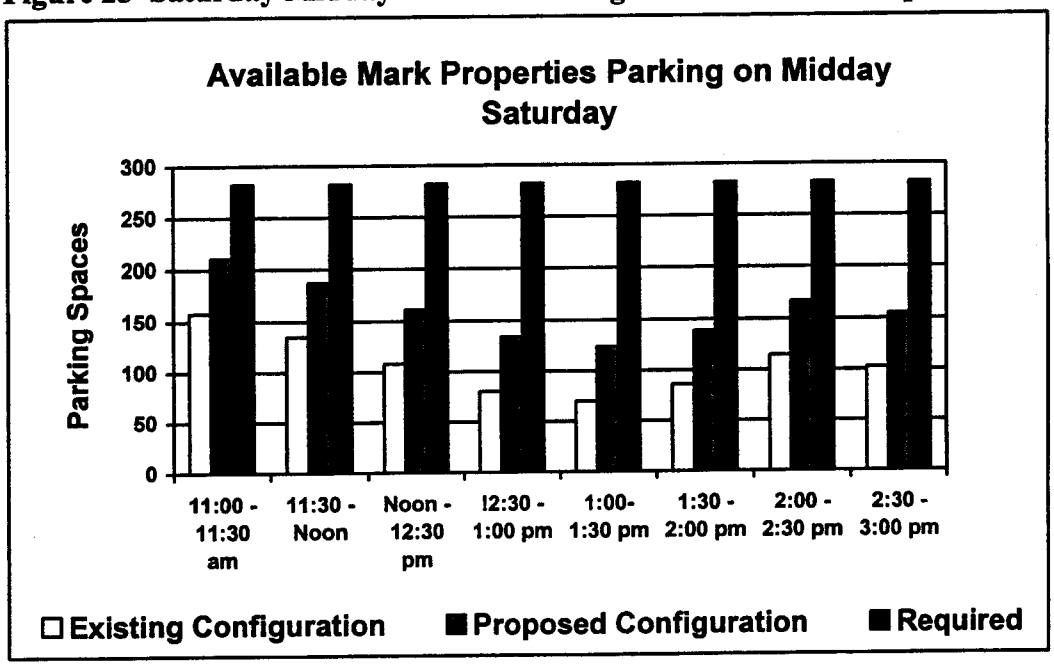


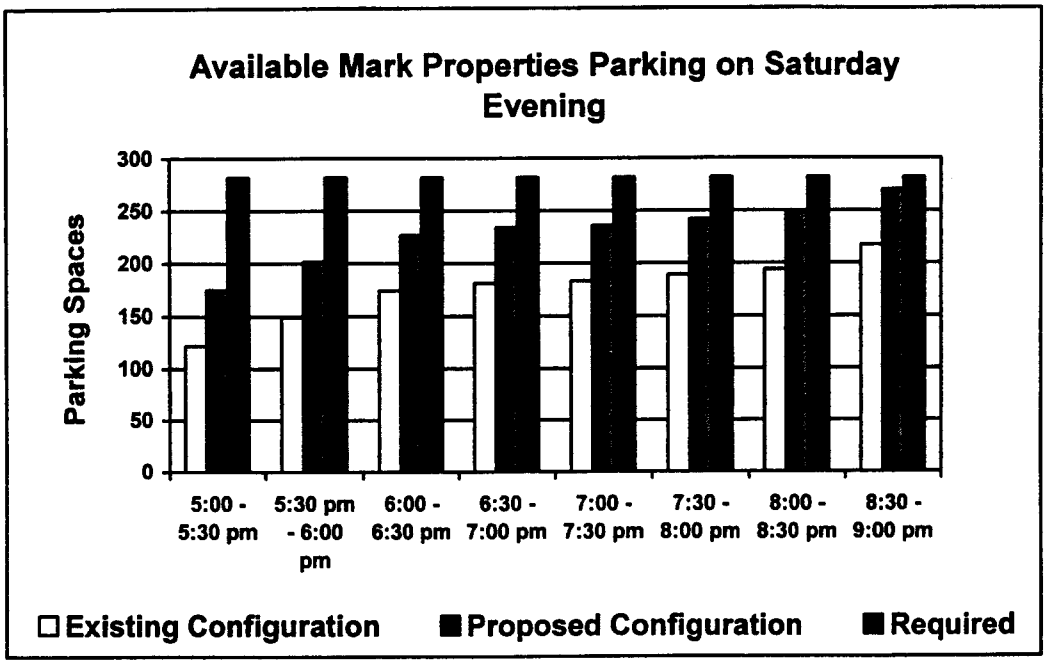

**Figure 25 Saturday Midday Theater Parking Deficit in Mark Properties Lot**






PBSJ

**Figure 26 Saturday Evening Theater Parking Deficit in Mark Properties Lot**




**Proximity of Available Parking to Theater**

Not only must parking spaces be available to theater patrons when they need them, they must also be located in reasonable proximity to the theater and be located in places where the typical theater patron would find them desirable to use. Simply having the correct number of parking spaces on a given site is no good if those spaces are not located within a reasonable walking distance from the theater. This point is echoed in two highly respected traffic engineering reference books:

> "If walking distance were not a factor, then there would be no parking problem in any city, for space can always be found by walking far enough," *Traffic Engineering: Theory and Practice*, Louis J. Pignataro, p. 265.
>
> "It is unrealistic to credit spaces beyond a reasonable walking distance towards meeting total parking requirements," *Parking*, Robert A.Weant and Herbert S. Levinson, 1990, Eno Foundation for Transportation, p. 36.
>
> "Walking distance between parking space and nearest pedestrian entrance to the traffic generator is the principal criteria for assessing parking site proximity," *Parking*, Robert A.Weant and Herbert S. Levinson, 1990, Eno Foundation for Transportation, p. 127.

Acceptable walking distances for shopping centers in suburban areas can vary between 300 feet and 600 feet depending on the locale and the person walking. A review of multiple reference documents concerning parking location and design suggests that a reasonable maximum average walking distance that most parkers would find acceptable in a suburban shopping center is 500 feet. A sampling of information from some of these resources is provided below.

- The average walking distance of a person destined for shopping in a city with a population of 100,000-250,000 is 539 feet. (*Traffic Engineering: Theory and Practice*, by Louis J. Pignataro, Table 16-7, p. 265)
- The average walking distances for an urban population of 100,000 - 250,000, is 470 feet for shopping, 390 feet for personal business and 500 feet for work. (*The Parking Handbook for Small Communities*, by John D. Edwards, 1994, the Institute of Tranportation Engineers, Table 4.3, page 58)
- "All parking spaces (except employee parking and spaces provided for overflow seasonal parking) should be within 400 feet of building entrances," *Parking*, Robert A.Weant and Herbert S. Levinson, 1990, Eno Foundation for Transportation, p. 150.
- "Some cities specify an exact distance (typically a figure between 300 and 600 feet), while other cities vary the distance by land use or district," *Parking*, Robert A.Weant and Herbert S. Levinson, 1990, Eno Foundation for Transportation, p. 38.

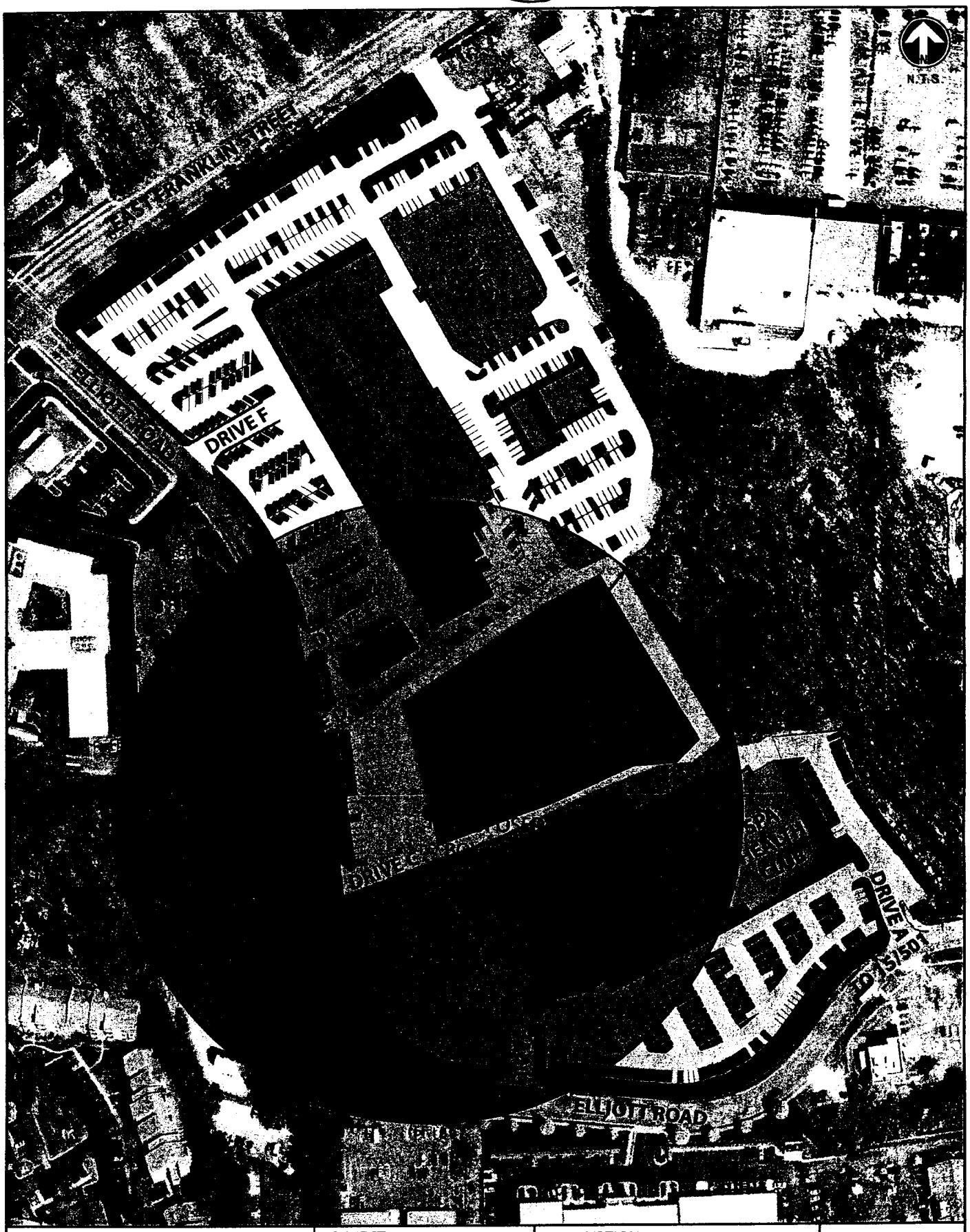
To test whether the available parking for theater patrons in the Mark Properties and Eastern Federal lots will be located within an acceptable walking distance of the theater, PBS&J superimposed a 500-foot radius, centered on the proposed box office window, onto the peak parking occupancy illustrations shown previously shown in **Figures 21 through 23**. The resulting **Figures 27 through 29** show that nearly half of the Mark Properties parking spaces fall beyond this 500-foot walking distance.

These figures also show that a large number of spaces on the adjoining Ginn & Company property fall within this desirable 500-foot walking distance to the theater. Given the proximity of these Ginn & Company spaces to the theater and the fact that they are much closer to the theater than many spaces in the Mark Properties lot, theater parkers are quite likely to attempt to park on the Ginn & Company property. Such encroachment would be detrimental to commerce within the Ginn & Company shopping center since they are experiencing such high occupancy. The spaces in the Whole Foods lot typically turnover within one hour or less, whereas a theater patron would occupy the space for two or more hours. The comparatively frequent turnover of the Whole Foods lot would provide ample opportunity for theater patrons to occupy spaces in this lot.

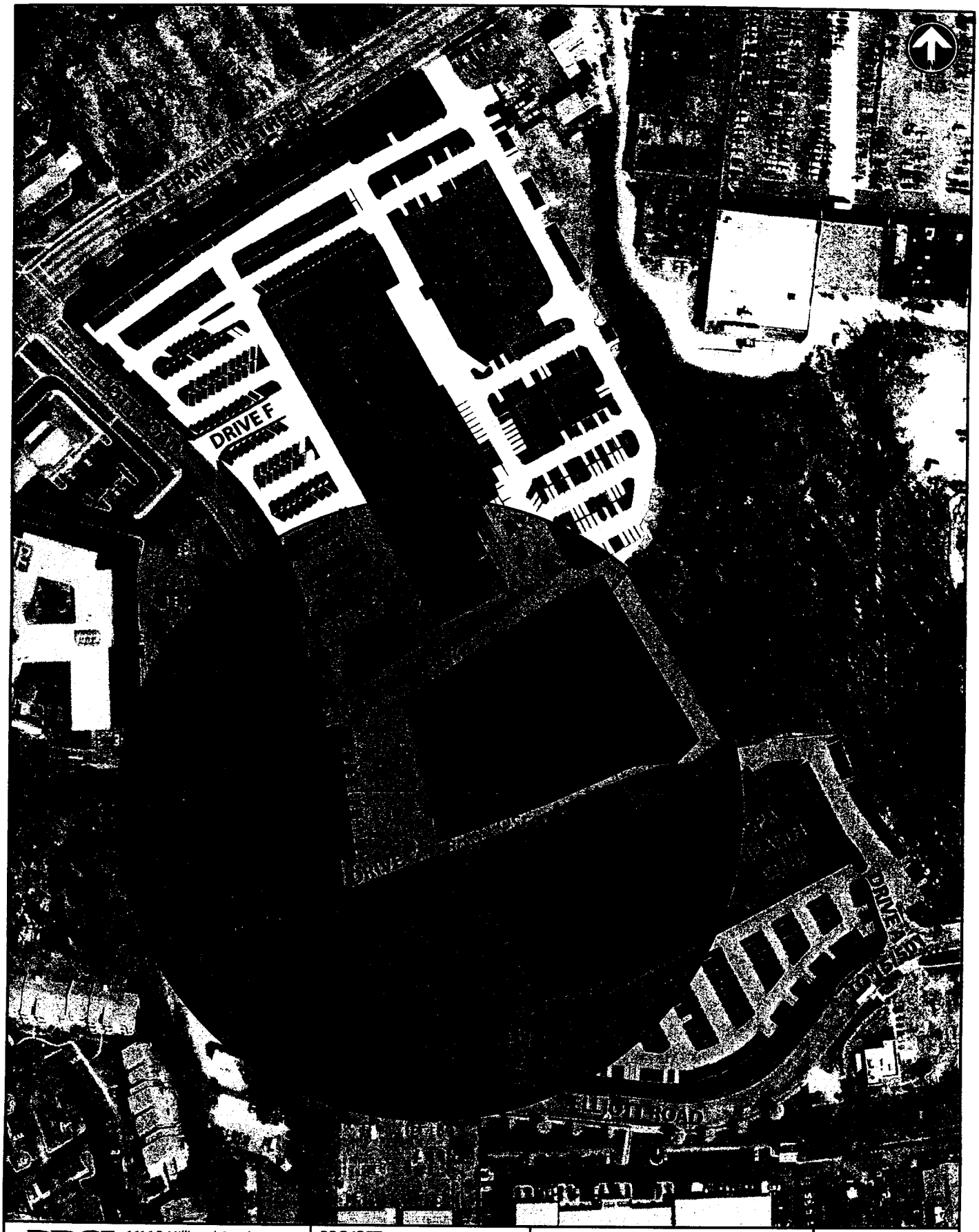
It is also important to note that the theater (i.e., the destination) will not be visible from the majority of the parking spaces in the Mark Properties lot. "Parking sites that provide a view of the destination are preferred since this serves to orient the walker and shorten the perceived walking distance," *Parking*, Robert A.Weant and Herbert S. Levinson, 1990, Eno Foundation for Transportation, p. 128. By contrast, the theater will be in clear view of many Ginn & Company spaces, which will increase encroachment pressures.

Lastly, although the 33 parking spaces proposed for the service/delivery/refuse area behind the Mark Properties shopping center are within the acceptable walking distance, there is some question about how much they would be used. There are perceived security risks of parking at the rear of buildings after dark, particularly when this is the site of trash dumpsters

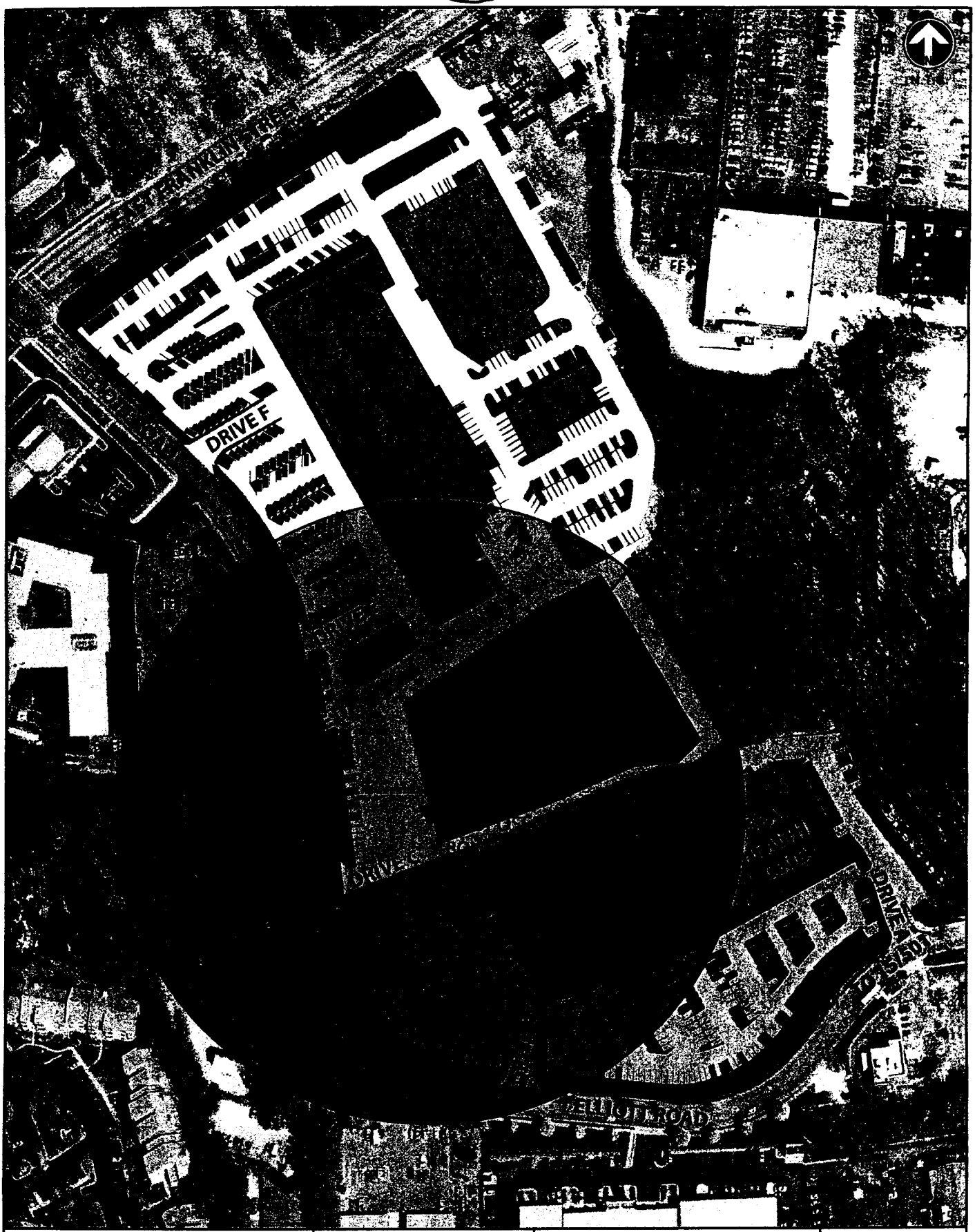
and compactors. In addition, the existence of these spaces and how to get to them will not be readily apparent to theater patrons.




| | | | |
|---|---|---|---|
| PBSJ 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 27 |




| | | | |
|---|---|---|---|
| PBSJ 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 Saturday 1:00 PM-1:30 PM | FIGURE 28 |




| | | | |
|---|---|---|---|
| PBSJ 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 Saturday 5:00 PM-5:30 PM | FIGURE 29 |

**Conclusions of Parking Analysis**

1. A total of 400 parking spaces will be needed for theater patrons at peak theater times. The Eastern Federal property will provide 118 of these spaces, so the Mark Properties parking lot will have to supply the remaining 282 parking spaces as shared parking spaces.

2. The parking occupancy surveys show that 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 due to the high usage of spaces by businesses within the Mark Properties shopping center.

3. The parking occupancy surveys reveal that 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. By contrast, the Chapel Hill 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.

4. About one-half of the Mark Properties parking spaces are beyond an acceptable walking distance from the theater, and their location relative to the theater does not favor usage by theater patrons.

5. 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 most of the Mark Properties parking spaces. Their proximity puts them at risk of encroachment by theater patrons.

6. There will not enough unused parking spaces in the Ginn & Company lot in front of Whole Foods and around Red Hot and Blue to absorb encroaching theater parkers without displacing Ginn & Company patrons until after 8:30 pm on Friday and after 8:00 pm on Saturday.

7. Even with the reconfiguration of the Mark Properties parking to 366 spaces, the parking occupancy surveys show that there will be a parking deficit during all of the 12.5 hours surveyed on Friday and Saturday, based on the 282 spaces needed.

8. The critical parking period is Friday evening between 5:00 pm and 8:00 pm followed by the second most critical period during midday on Saturday between noon and 3:00 pm.

# VIII. 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 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. It would also provide for some of the occasional higher than average theater traffic conditions cited above as well as the uncertainties about the true capacity of the existing driveway. 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 LOS C expected in 2006 without the theater would be maintained. Driveway D would still drop to LOS E during the Friday peak hour of Elliott Road (i.e., 4:00 pm - 6:00 pm), even with these improvements. However, the delays on Driveway D would be much closer to the expected 2006 delays during this period without the

theater. The Institute of Transportation Engineers cites the following benefits of providing two exiting lanes as required by the SUP:

> "When outbound left and right turns are to be permitted at an unsignalized driveway, separate egress lanes should be considered for each movement because the left-turn capacity will be very low, even with moderate through volumes. The separate lanes will greatly reduce the delays to right-turning traffic,"*Traffic Access and Impact Studies for Site Development*, Institute of Transportation Engineers, p. 35.

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 20 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 SUP. It appears unlikely that the driveway can be realigned to intersect Elliott Road near 90 degrees without adversely impacting the already limited parking supply on the Eastern Federal property. However, it appears that the driveway could be shifted southward using its present bearing to align the south curb on Driveway D with the curved projection of the south curb on the fourth intersection leg on the opposite side of Elliott Road. It also may not be possible to maintain the existing angle parking along the south side of Driveway D when the improvements are made. However, there appears to be some potential for offsetting a loss of these spaces by reconfiguring the parking along the north and west sides of Red Hot and Blue in conjunction with possibly modifying or closing Driveway E. Restricting movements at or eliminating Driveway E altogether would enhance the access management along Elliott Road, but such measures should only be implemented in conjunction with the required improvements to Driveway D.

Since Driveway D is a truck entrance, any realignment of Driveway D needs to maintain a smooth, easy to negotiate path to the rear of the Ginn & Company property for trucks. In addition, the width of the entering lane should be no less than 12 feet to accommodate these

trucks. Furthermore, any new alignment of Driveway D needs to maintain cross-access traffic flow between the Staples shopping center and Elliott Road via Driveway D.

**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 fro 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, even after reconfiguration of the parking lot as proposed. The resulting theater parking deficit is due to the high usage of the Mark Properties parking spaces by businesses within the Mark Properties shopping center at the same times that theater parking needs are at their greatest. 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 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. By contrast, many of the parking spaces on the Ginn & Company property in front of Whole Foods and around Red Hot and Blue are within this acceptable walking distance. Because of the closer proximity of these Ginn and Company parking spaces to the theater when compared with many of the Mark Properties spaces, theater parkers are likely to encroach upon the Ginn & Company parking lot. Such encroachment would displace patrons of and have adverse impacts on businesses within the Ginn & Company shopping center since the lot in front of Whole Foods is nearly full until 8:00 pm on Fridays and Saturdays.

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 Friday night conditions. "Parking

requirements for shared parking in multi-use facilities should be determined on the maximum total parking demand occurring at any given time," *Parking*, Robert A. Weant and Herbert S. Levinson, 1990, Eno Foundation for Transportation, p.44. 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.

# IX. APPENDIX

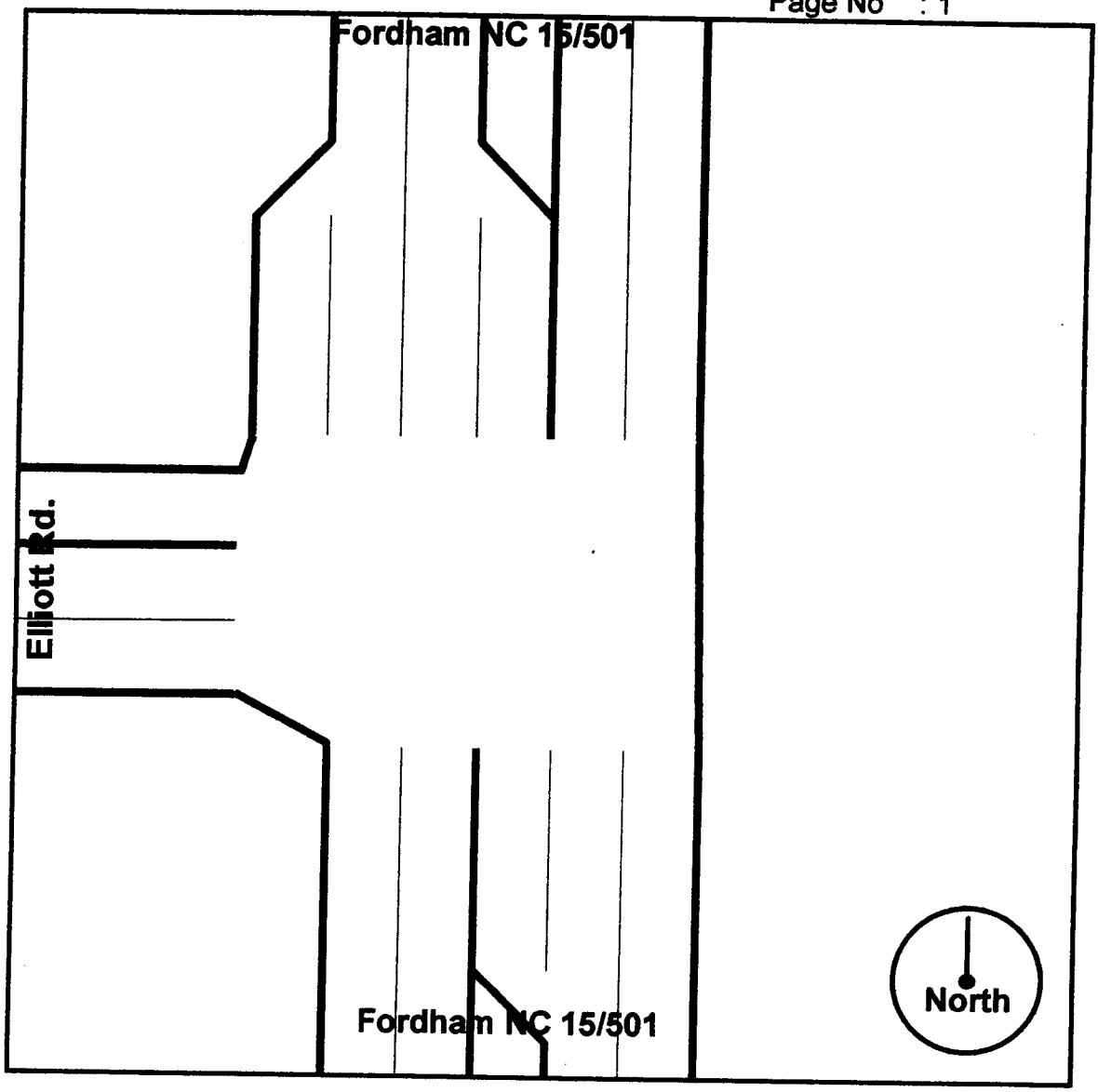
# IX. APPENDIX

- February 2004 Intersection Turning Movement Counts for Elliott Road
- Trip Generation Worksheets
- Figure A1: Approximate Travel Distances for Entering and Exiting Theater Traffic
- Figure A2: Key to HCS Analysis Approach Directions
- Intersection Analyses
  - Existing (2004) Conditions
  - 2006 Background Conditions
  - Scenario 1 Conditions
  - Scenario 2 Conditions
  - Scenario 3 Conditions
  - Scenario 4 Conditions
- Summary of Parking Occupancy Surveys

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

260

File Name : Fordham-Elliott-Friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(261)

File Name : Fordham-Elliott-Friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1

Groups Printed- All Vehicles

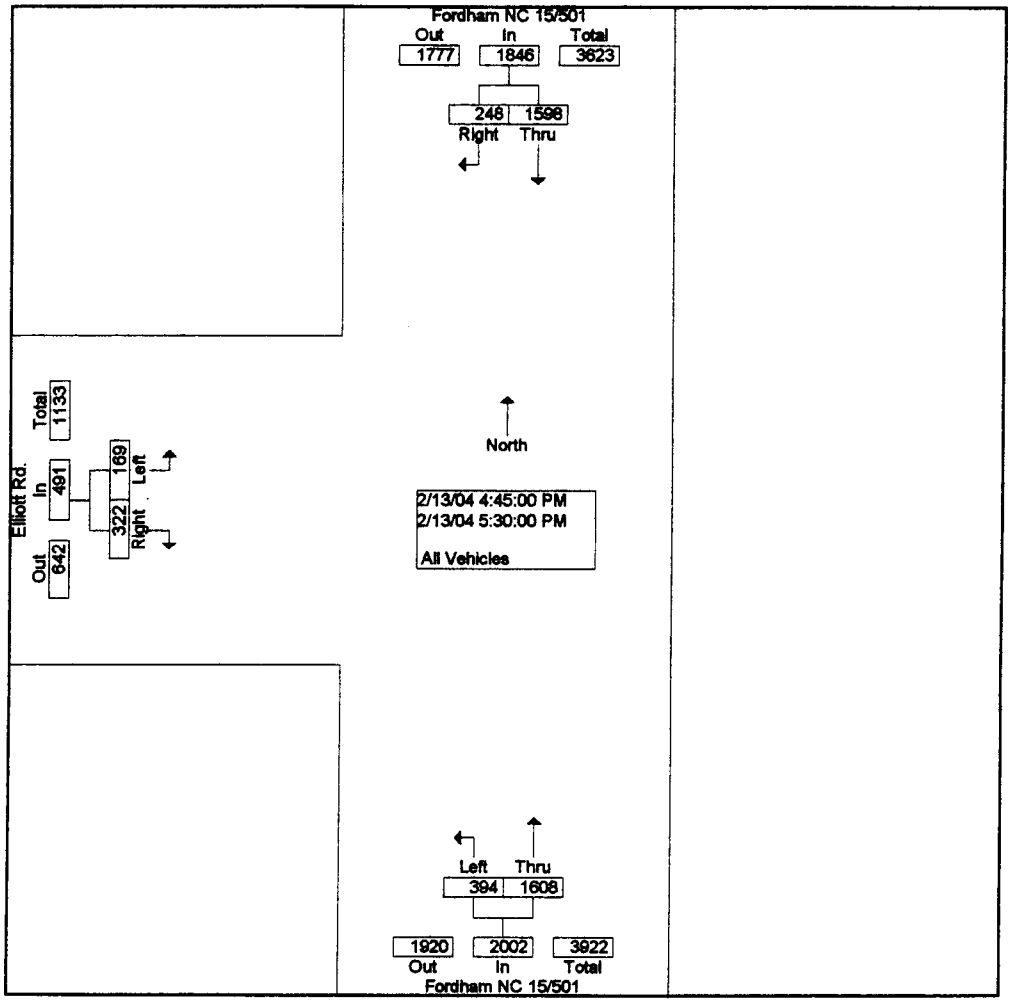
| | Fordham NC 15/501 Southbound | | | Fordham NC 15/501 Northbound | | | Elliott Rd. Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| 04:00 PM | 2 | 302 | 55 | 84 | 405 | 0 | 30 | 0 | 62 | 940 |
| 04:15 PM | 3 | 325 | 49 | 73 | 422 | 0 | 31 | 0 | 70 | 973 |
| 04:30 PM | 1 | 375 | 61 | 75 | 342 | 0 | 28 | 0 | 75 | 957 |
| 04:45 PM | 11 | 456 | 40 | 118 | 358 | 0 | 38 | 0 | 80 | 1101 |
| Total | 17 | 1458 | 205 | 350 | 1527 | 0 | 127 | 0 | 287 | 3971 |
| 05:00 PM | 8 | 375 | 71 | 89 | 401 | 0 | 43 | 0 | 80 | 1067 |
| 05:15 PM | 3 | 378 | 74 | 96 | 398 | 0 | 53 | 0 | 73 | 1075 |
| 05:30 PM | 2 | 389 | 63 | 91 | 451 | 0 | 35 | 0 | 89 | 1120 |
| 05:45 PM | 5 | 391 | 55 | 71 | 462 | 0 | 34 | 0 | 61 | 1079 |
| Total | 18 | 1533 | 263 | 347 | 1712 | 0 | 165 | 0 | 303 | 4341 |
| Grand Total | 35 | 2991 | 468 | 697 | 3239 | 0 | 292 | 0 | 590 | 8312 |
| Apprch % | 1.0 | 85.6 | 13.4 | 17.7 | 82.3 | 0.0 | 33.1 | 0.0 | 66.9 | |
| Total % | 0.4 | 36.0 | 5.6 | 8.4 | 39.0 | 0.0 | 3.5 | 0.0 | 7.1 | |

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(262)

File Name : Fordham-Elliott-Friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1

| | Fordham NC 15/501 Southbound | | | | | Fordham NC 15/501 Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | |
| Intersection | 04:45 PM | | | | | | | | | | | | | |
| Volume | 24 | 1598 | 248 | 1870 | 0 | 394 | 1608 | 0 | 2002 | 169 | 0 | 322 | 491 | 4363 |
| Percent | 1.3 | 85.5 | 13.3 | | | 19.7 | 80.3 | 0.0 | | 34.4 | 0.0 | 65.6 | | |
| 05:30 Volume | 2 | 389 | 63 | 454 | 0 | 91 | 451 | 0 | 542 | 35 | 0 | 89 | 124 | 1120 |
| Peak Factor | | | | | | | | | | | | | | 0.974 |
| High Int. | 04:45 PM | | | | 3:45:00 PM | 05:30 PM | | | | 05:15 PM | | | | |
| Volume | 11 | 456 | 40 | 507 | 0 | 91 | 451 | 0 | 542 | 53 | 0 | 73 | 126 | |
| Peak Factor | | | | 0.922 | | | | | 0.923 | | | | 0.974 | |



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(263)

File Name : Fordham-Elliott-Saturday
Site Code : 00000000
Start Date : 02/14/2004
Page No : 1

Groups Printed- All Vehicles

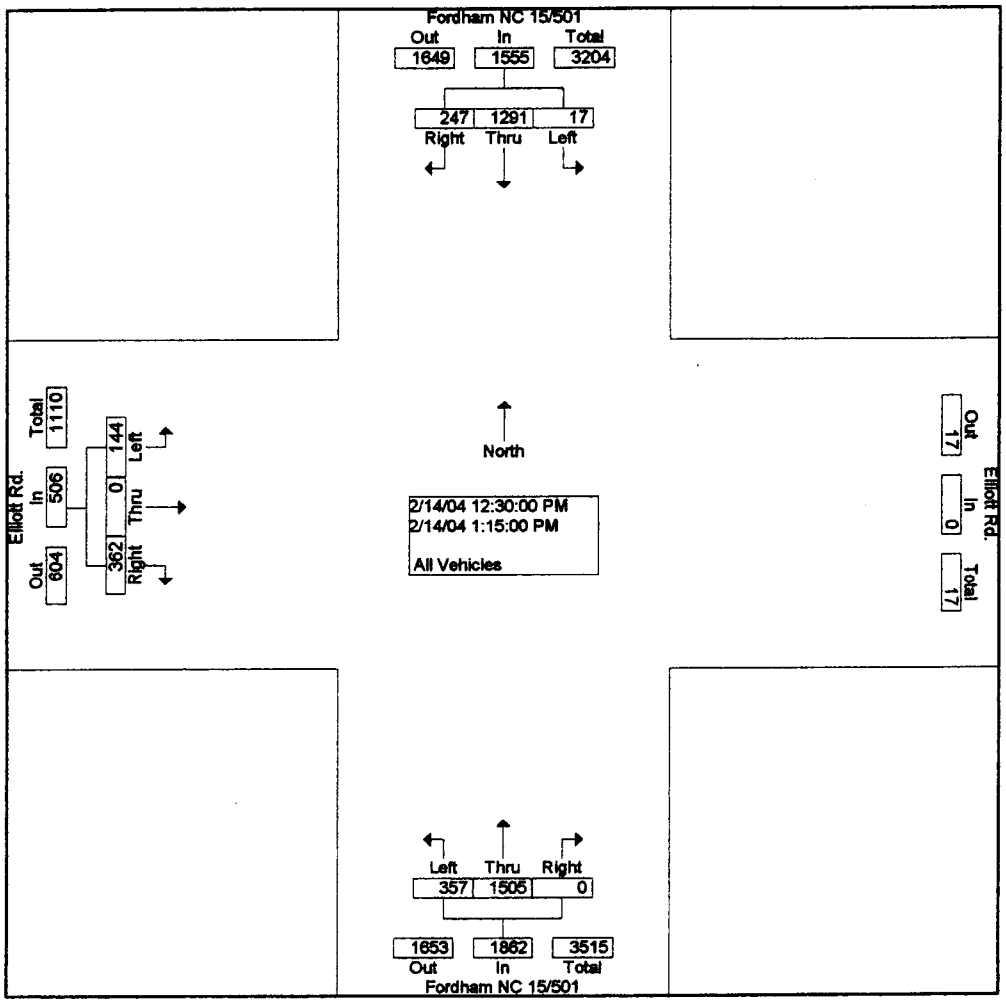
| | Fordham NC 15/501 Southbound | | | Fordham NC 15/501 Northbound | | | Elliott Rd. Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| 11:00 AM | 2 | 237 | 46 | 47 | 270 | 0 | 42 | 0 | 63 | 707 |
| 11:15 AM | 2 | 277 | 54 | 90 | 288 | 0 | 27 | 0 | 63 | 801 |
| 11:30 AM | 3 | 283 | 45 | 61 | 286 | 0 | 32 | 0 | 76 | 786 |
| 11:45 AM | 8 | 329 | 57 | 68 | 301 | 0 | 28 | 0 | 91 | 882 |
| Total | 15 | 1126 | 202 | 266 | 1145 | 0 | 129 | 0 | 293 | 3176 |
| 12:00 PM | 4 | 300 | 56 | 104 | 362 | 0 | 38 | 0 | 83 | 947 |
| 12:15 PM | 3 | 312 | 57 | 79 | 352 | 0 | 26 | 0 | 85 | 914 |
| 12:30 PM | 3 | 358 | 55 | 99 | 401 | 0 | 29 | 0 | 108 | 1053 |
| 12:45 PM | 6 | 311 | 61 | 97 | 384 | 0 | 35 | 0 | 86 | 980 |
| Total | 16 | 1281 | 229 | 379 | 1499 | 0 | 128 | 0 | 362 | 3894 |
| 01:00 PM | 5 | 311 | 61 | 72 | 355 | 0 | 49 | 0 | 80 | 933 |
| 01:15 PM | 3 | 311 | 70 | 89 | 365 | 0 | 31 | 0 | 88 | 957 |
| 01:30 PM | 6 | 307 | 73 | 74 | 331 | 0 | 42 | 0 | 95 | 928 |
| 01:45 PM | 5 | 333 | 57 | 60 | 338 | 0 | 34 | 0 | 92 | 919 |
| Total | 19 | 1262 | 261 | 295 | 1389 | 0 | 156 | 0 | 355 | 3737 |
| 02:00 PM | 3 | 292 | 51 | 60 | 326 | 0 | 54 | 0 | 108 | 894 |
| 02:15 PM | 4 | 312 | 47 | 69 | 311 | 0 | 41 | 0 | 88 | 872 |
| 02:30 PM | 4 | 308 | 48 | 63 | 320 | 0 | 34 | 0 | 99 | 876 |
| 02:45 PM | 4 | 341 | 63 | 75 | 340 | 0 | 30 | 0 | 78 | 931 |
| Total | 15 | 1253 | 209 | 267 | 1297 | 0 | 159 | 0 | 373 | 3573 |
| 05:00 PM | 3 | 365 | 39 | 70 | 264 | 0 | 32 | 0 | 95 | 868 |
| 05:15 PM | 3 | 358 | 48 | 59 | 311 | 0 | 25 | 0 | 86 | 890 |
| 05:30 PM | 3 | 331 | 30 | 80 | 244 | 0 | 29 | 0 | 70 | 787 |
| 05:45 PM | 1 | 301 | 30 | 55 | 235 | 0 | 23 | 0 | 68 | 713 |
| Total | 10 | 1355 | 147 | 264 | 1054 | 0 | 109 | 0 | 319 | 3258 |
| 06:00 PM | 2 | 281 | 36 | 64 | 245 | 0 | 30 | 0 | 76 | 734 |
| 06:15 PM | 4 | 234 | 40 | 65 | 319 | 0 | 14 | 0 | 81 | 757 |
| 06:30 PM | 4 | 288 | 44 | 50 | 267 | 0 | 28 | 0 | 85 | 766 |
| 06:45 PM | 5 | 248 | 30 | 64 | 246 | 0 | 29 | 0 | 70 | 692 |
| Total | 15 | 1051 | 150 | 243 | 1077 | 0 | 101 | 0 | 312 | 2949 |
| 07:00 PM | 1 | 201 | 22 | 40 | 212 | 0 | 27 | 0 | 49 | 552 |
| 07:15 PM | 8 | 235 | 18 | 61 | 287 | 0 | 23 | 0 | 57 | 689 |
| 07:30 PM | 0 | 207 | 20 | 56 | 203 | 0 | 21 | 0 | 74 | 581 |
| 07:45 PM | 1 | 193 | 25 | 38 | 193 | 0 | 26 | 0 | 41 | 517 |
| Total | 10 | 836 | 85 | 195 | 895 | 0 | 97 | 0 | 221 | 2339 |
| 08:00 PM | 3 | 203 | 21 | 38 | 196 | 0 | 34 | 0 | 42 | 537 |
| 08:15 PM | 0 | 179 | 20 | 37 | 258 | 0 | 16 | 0 | 35 | 545 |
| 08:30 PM | 1 | 165 | 31 | 49 | 297 | 0 | 24 | 0 | 23 | 590 |
| 08:45 PM | 3 | 152 | 12 | 37 | 367 | 0 | 27 | 0 | 29 | 627 |
| Total | 7 | 699 | 84 | 161 | 1118 | 0 | 101 | 0 | 129 | 2299 |
| Grand Total | 107 | 8863 | 1367 | 2070 | 9474 | 0 | 980 | 0 | 2364 | 25225 |
| Apprch % | 1.0 | 85.7 | 13.2 | 17.9 | 82.1 | 0.0 | 29.3 | 0.0 | 70.7 | |
| Total % | 0.4 | 35.1 | 5.4 | 8.2 | 37.6 | 0.0 | 3.9 | 0.0 | 9.4 | |

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(264)

File Name : Fordham-Elliott-Saturday
Site Code : 00000000
Start Date : 02/14/2004
Page No : 1

| | Fordham NC 15/501 Southbound | | | | | Fordham NC 15/501 Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 11:00 AM to 03:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | |
| Intersection | 12:30 PM | | | | | | | | | | | | | |
| Volume | 17 | 1291 | 247 | 1555 | 0 | 357 | 1505 | 0 | 1862 | 144 | 0 | 362 | 506 | 3923 |
| Percent | 1.1 | 83.0 | 15.9 | | | 19.2 | 80.8 | 0.0 | | 28.5 | 0.0 | 71.5 | | |
| 12:30 Volume | 3 | 358 | 55 | 416 | 0 | 99 | 401 | 0 | 500 | 29 | 0 | 108 | 137 | 1053 |
| Peak Factor | | | | | | | | | | | | | | 0.931 |
| High Int. | 12:30 PM | | | | 10:45:00 AM | 12:30 PM | | | | 12:30 PM | | | | |
| Volume | 3 | 358 | 55 | 416 | 0 | 99 | 401 | 0 | 500 | 29 | 0 | 108 | 137 | |
| Peak Factor | | | | 0.934 | | | | | 0.931 | | | | 0.923 | |

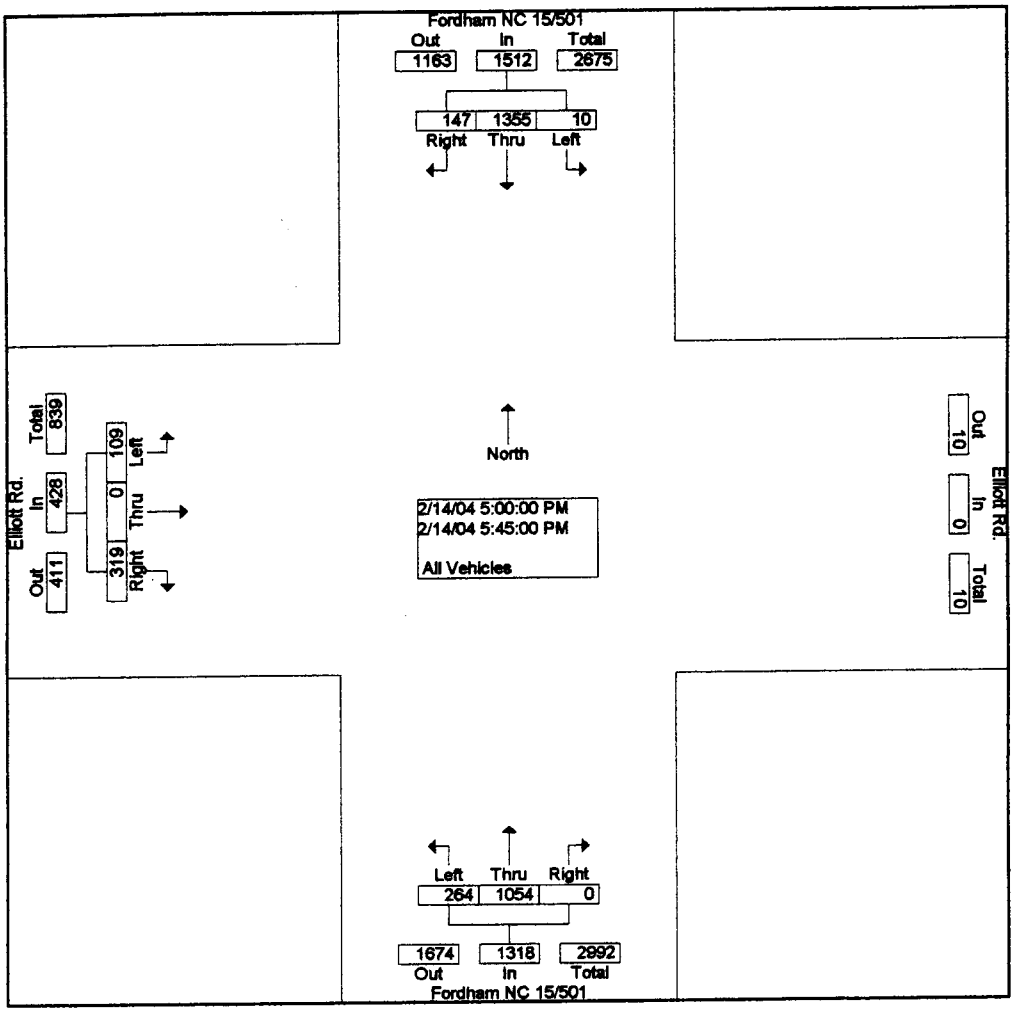


Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(265)

File Name : Fordham-Elliott-Saturday
Site Code : 00000000
Start Date : 02/14/2004
Page No : 1

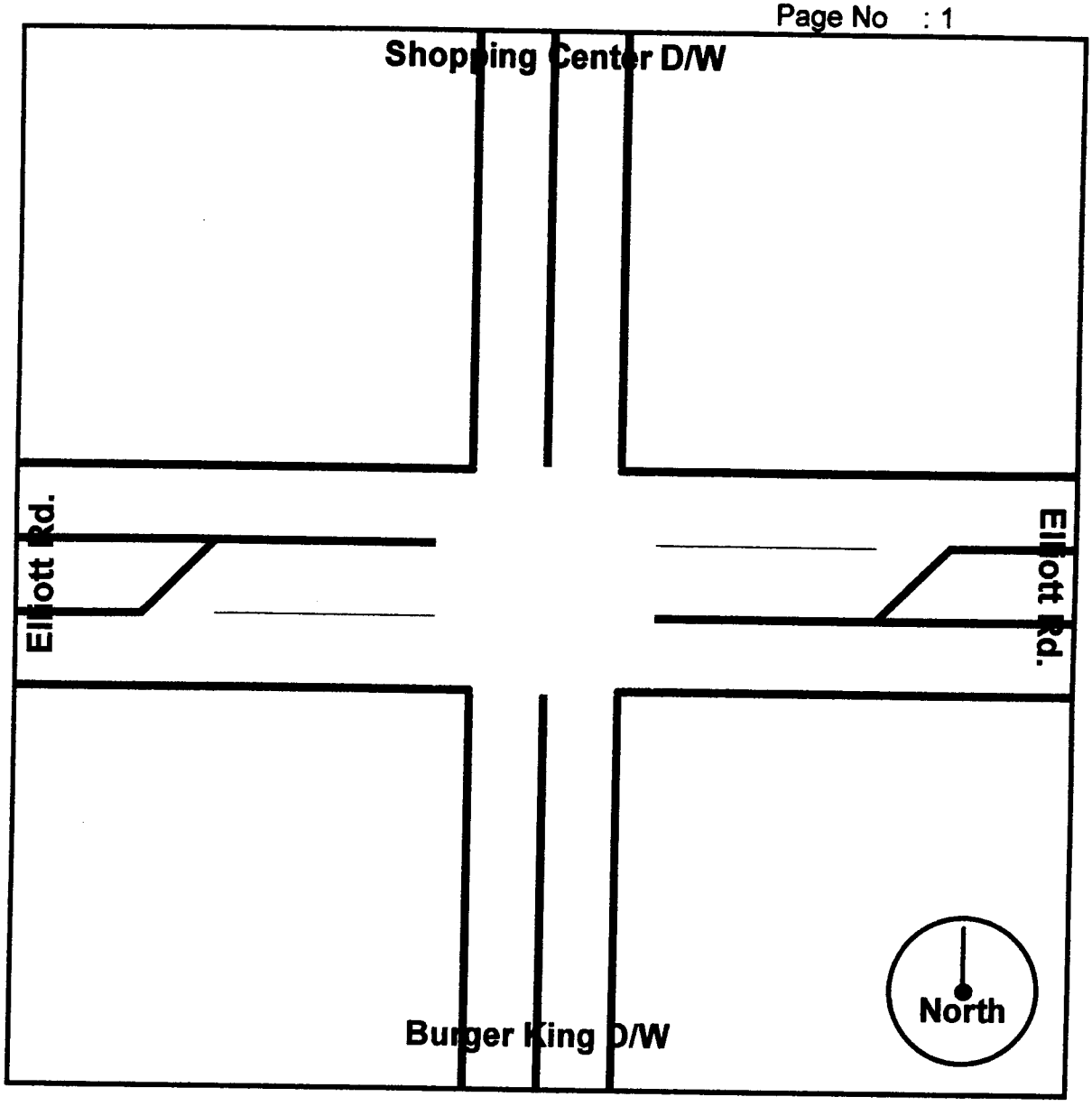
| | Fordham NC 15/501 Southbound | | | | | Fordham NC 15/501 Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 05:00 PM to 08:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | |
| Intersection | 05:00 PM | | | | | | | | | | | | | |
| Volume | 10 | 1355 | 147 | 1512 | 0 | 264 | 1054 | 0 | 1318 | 109 | 0 | 319 | 428 | 3258 |
| Percent | 0.7 | 89.6 | 9.7 | | | 20.0 | 80.0 | 0.0 | | 25.5 | 0.0 | 74.5 | | |
| 05:15 Volume | 3 | 358 | 48 | 409 | 0 | 59 | 311 | 0 | 370 | 25 | 0 | 86 | 111 | 890 |
| Peak Factor | | | | | | | | | | | | | | 0.915 |
| High Int. | 05:15 PM | | | | | 05:15 PM | | | | 05:00 PM | | | | |
| Volume | 3 | 358 | 48 | 409 | 0 | 59 | 311 | 0 | 370 | 32 | 0 | 95 | 127 | |
| Peak Factor | | | | 0.924 | | | | | 0.891 | | | | 0.843 | |



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(266)

File Name : elliott-entrance6-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(267)

File Name : elliott-entrance6-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1

Groups Printed- All Vehicles

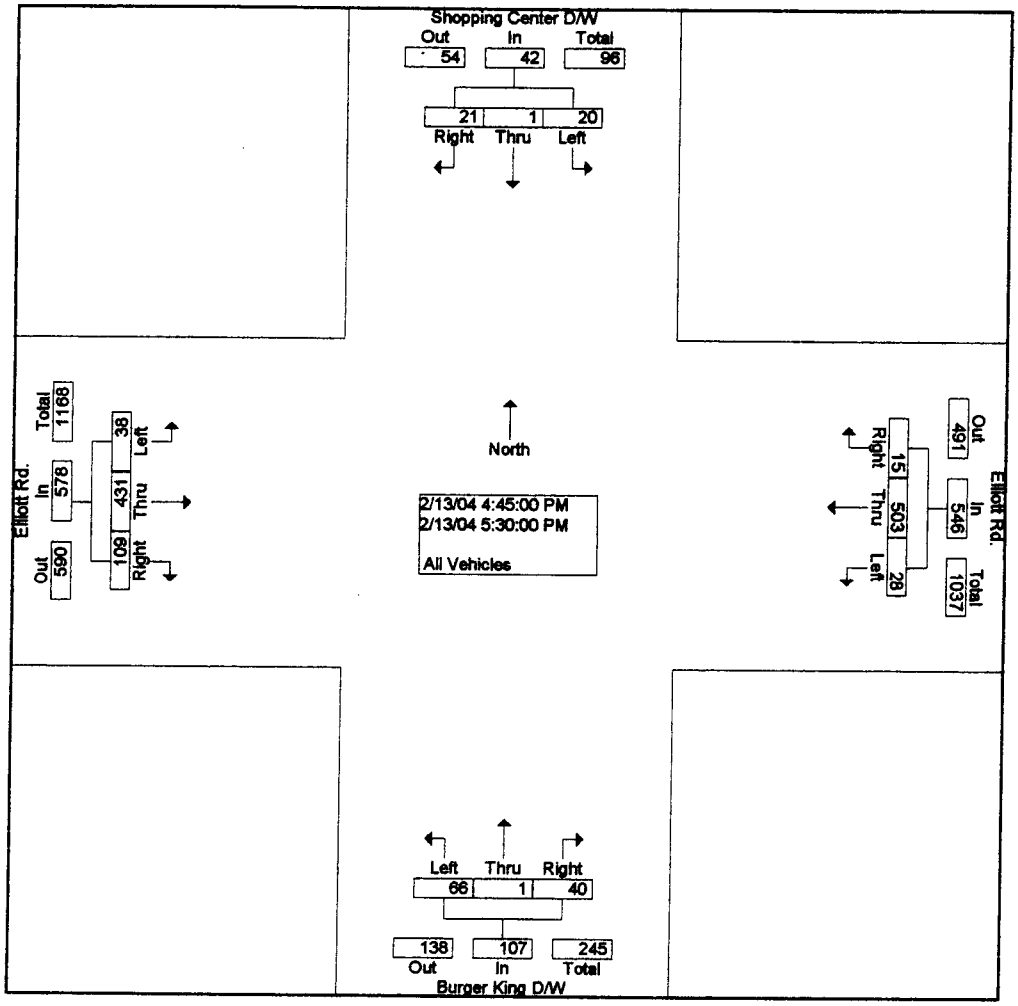
| | Shopping Center D/W Southbound | | | Elliott Rd. Westbound | | | Burger King D/W Northbound | | | Elliott Rd. Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 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 | |
| 04:00 PM | 2 | 0 | 9 | 4 | 104 | 7 | 15 | 0 | 6 | 7 | 84 | 41 | 279 |
| 04:15 PM | 4 | 0 | 7 | 6 | 87 | 6 | 24 | 0 | 3 | 1 | 94 | 21 | 253 |
| 04:30 PM | 2 | 1 | 9 | 6 | 102 | 3 | 18 | 1 | 5 | 3 | 96 | 29 | 275 |
| 04:45 PM | 7 | 0 | 2 | 5 | 134 | 3 | 14 | 1 | 13 | 7 | 98 | 19 | 303 |
| Total | 15 | 1 | 27 | 21 | 427 | 19 | 71 | 2 | 27 | 18 | 372 | 110 | 1110 |
| 05:00 PM | 4 | 0 | 6 | 6 | 128 | 1 | 16 | 0 | 7 | 16 | 112 | 30 | 326 |
| 05:15 PM | 3 | 0 | 6 | 8 | 129 | 7 | 17 | 0 | 8 | 6 | 115 | 35 | 334 |
| 05:30 PM | 6 | 1 | 7 | 9 | 112 | 4 | 19 | 0 | 12 | 9 | 106 | 25 | 310 |
| 05:45 PM | 5 | 0 | 5 | 6 | 85 | 7 | 20 | 0 | 3 | 9 | 87 | 17 | 244 |
| Total | 18 | 1 | 24 | 29 | 454 | 19 | 72 | 0 | 30 | 40 | 420 | 107 | 1214 |
| Grand Total | 33 | 2 | 51 | 50 | 881 | 38 | 143 | 2 | 57 | 58 | 792 | 217 | 2324 |
| Apprch % | 38.4 | 2.3 | 59.3 | 5.2 | 90.9 | 3.9 | 70.8 | 1.0 | 28.2 | 5.4 | 74.2 | 20.3 | |
| Total % | 1.4 | 0.1 | 2.2 | 2.2 | 37.9 | 1.6 | 6.2 | 0.1 | 2.5 | 2.5 | 34.1 | 9.3 | |

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(268)

File Name : elliott-entrance6-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1

| | Shopping Center D/W Southbound | | | | Elliott Rd. Westbound | | | | Burger King D/W Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection 04:45 PM | | | | | | | | | | | | | | | | | |
| Volume | 20 | 1 | 21 | 42 | 28 | 503 | 15 | 546 | 66 | 1 | 40 | 107 | 38 | 431 | 109 | 578 | 1273 |
| Percent | 47.6 | 2.4 | 50.0 | | 5.1 | 92.1 | 2.7 | | 61.7 | 0.9 | 37.4 | | 6.6 | 74.6 | 18.9 | | |
| 05:15 Volume | 3 | 0 | 6 | 9 | 8 | 129 | 7 | 144 | 17 | 0 | 8 | 25 | 6 | 115 | 35 | 156 | 334 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.953 |
| High Int. | 05:30 PM | | | | 05:15 PM | | | | 05:30 PM | | | | 05:00 PM | | | | |
| Volume | 6 | 1 | 7 | 14 | 8 | 129 | 7 | 144 | 19 | 0 | 12 | 31 | 16 | 112 | 30 | 158 | |
| Peak Factor | | | | 0.750 | | | | 0.948 | | | | 0.863 | | | | 0.915 | |



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(269)

File Name : elliott-entrance6-saturday
Site Code : 00000000
Start Date : 02/14/2004
Page No : 1

Groups Printed- All Vehicles

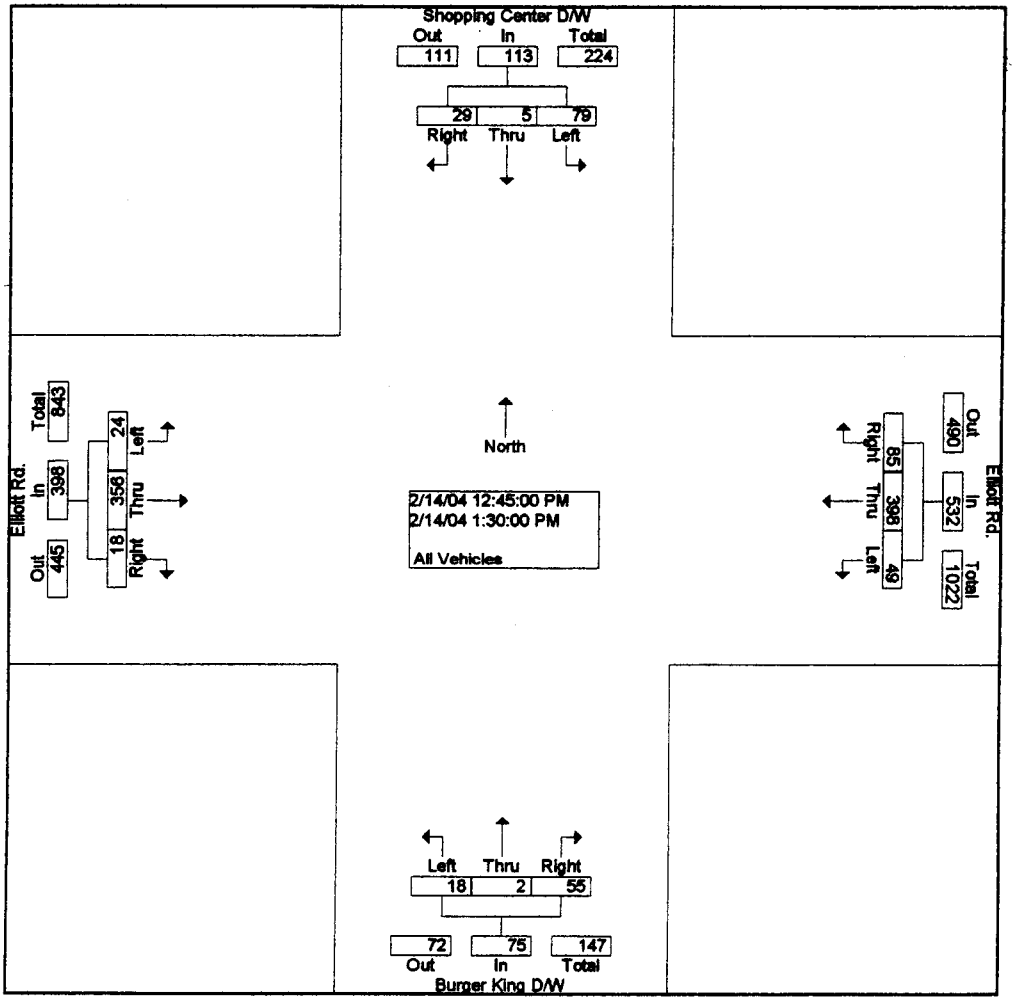
| | Shopping Center D/W Southbound | | | Elliott Rd. Westbound | | | Burger King D/W Northbound | | | Elliott Rd. Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 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 | |
| 11:00 AM | 19 | 1 | 6 | 7 | 99 | 18 | 4 | 1 | 5 | 4 | 78 | 5 | 247 |
| 11:15 AM | 15 | 1 | 5 | 4 | 91 | 21 | 0 | 0 | 8 | 7 | 76 | 5 | 233 |
| 11:30 AM | 22 | 1 | 6 | 8 | 72 | 21 | 2 | 0 | 8 | 8 | 83 | 5 | 236 |
| 11:45 AM | 13 | 0 | 6 | 10 | 94 | 37 | 5 | 0 | 12 | 9 | 91 | 5 | 282 |
| Total | 69 | 3 | 23 | 29 | 356 | 97 | 11 | 1 | 33 | 28 | 328 | 20 | 998 |
| 12:00 PM | 19 | 3 | 3 | 9 | 98 | 25 | 1 | 1 | 13 | 8 | 99 | 6 | 285 |
| 12:15 PM | 15 | 1 | 7 | 11 | 99 | 23 | 3 | 2 | 12 | 6 | 75 | 8 | 262 |
| 12:30 PM | 25 | 1 | 1 | 12 | 93 | 25 | 3 | 0 | 10 | 8 | 87 | 4 | 269 |
| 12:45 PM | 19 | 1 | 7 | 19 | 91 | 24 | 2 | 0 | 15 | 8 | 90 | 4 | 280 |
| Total | 78 | 6 | 18 | 51 | 381 | 97 | 9 | 3 | 50 | 30 | 351 | 22 | 1096 |
| 01:00 PM | 18 | 1 | 7 | 12 | 93 | 21 | 9 | 2 | 13 | 4 | 95 | 1 | 276 |
| 01:15 PM | 25 | 2 | 7 | 12 | 109 | 17 | 2 | 0 | 14 | 2 | 75 | 9 | 274 |
| 01:30 PM | 17 | 1 | 8 | 6 | 105 | 23 | 5 | 0 | 13 | 10 | 96 | 4 | 288 |
| 01:45 PM | 23 | 0 | 9 | 12 | 84 | 14 | 7 | 0 | 7 | 1 | 108 | 9 | 274 |
| Total | 83 | 4 | 31 | 42 | 391 | 75 | 23 | 2 | 47 | 17 | 374 | 23 | 1112 |
| 02:00 PM | 27 | 0 | 6 | 2 | 80 | 17 | 7 | 0 | 18 | 8 | 102 | 11 | 278 |
| 02:15 PM | 16 | 0 | 4 | 8 | 81 | 23 | 8 | 1 | 9 | 8 | 82 | 7 | 247 |
| 02:30 PM | 16 | 1 | 4 | 5 | 85 | 17 | 7 | 0 | 14 | 4 | 89 | 9 | 251 |
| 02:45 PM | 20 | 1 | 3 | 6 | 103 | 14 | 2 | 0 | 12 | 7 | 77 | 3 | 248 |
| Total | 79 | 2 | 17 | 21 | 349 | 71 | 24 | 1 | 53 | 27 | 350 | 30 | 1024 |
| 05:00 PM | 15 | 0 | 5 | 9 | 72 | 15 | 1 | 0 | 3 | 4 | 95 | 2 | 221 |
| 05:15 PM | 20 | 0 | 5 | 5 | 81 | 19 | 2 | 2 | 9 | 3 | 82 | 2 | 230 |
| 05:30 PM | 20 | 0 | 8 | 1 | 69 | 13 | 1 | 0 | 3 | 4 | 70 | 0 | 189 |
| 05:45 PM | 16 | 0 | 6 | 7 | 63 | 12 | 2 | 0 | 4 | 4 | 64 | 3 | 181 |
| Total | 71 | 0 | 24 | 22 | 285 | 59 | 6 | 2 | 19 | 15 | 311 | 7 | 821 |
| 06:00 PM | 25 | 1 | 3 | 6 | 75 | 15 | 3 | 0 | 5 | 3 | 84 | 2 | 222 |
| 06:15 PM | 15 | 0 | 1 | 2 | 65 | 10 | 3 | 1 | 1 | 3 | 62 | 4 | 167 |
| 06:30 PM | 16 | 2 | 3 | 6 | 73 | 12 | 0 | 2 | 7 | 1 | 68 | 4 | 194 |
| 06:45 PM | 12 | 0 | 3 | 5 | 35 | 8 | 0 | 0 | 4 | 3 | 44 | 2 | 116 |
| Total | 68 | 3 | 10 | 19 | 248 | 45 | 6 | 3 | 17 | 10 | 258 | 12 | 699 |
| 07:00 PM | 9 | 0 | 1 | 3 | 51 | 6 | 1 | 0 | 7 | 2 | 62 | 3 | 145 |
| 07:15 PM | 11 | 0 | 1 | 4 | 45 | 11 | 2 | 1 | 3 | 2 | 59 | 1 | 140 |
| 07:30 PM | 11 | 0 | 4 | 5 | 36 | 11 | 3 | 0 | 3 | 2 | 54 | 2 | 131 |
| 07:45 PM | 10 | 0 | 6 | 4 | 46 | 9 | 2 | 0 | 2 | 4 | 54 | 2 | 139 |
| Total | 41 | 0 | 12 | 16 | 178 | 37 | 8 | 1 | 15 | 10 | 229 | 8 | 555 |
| 08:00 PM | 12 | 1 | 5 | 3 | 33 | 4 | 0 | 1 | 5 | 3 | 43 | 1 | 111 |
| 08:15 PM | 15 | 0 | 3 | 3 | 34 | 12 | 1 | 0 | 4 | 1 | 35 | 0 | 108 |
| 08:30 PM | 11 | 0 | 4 | 5 | 44 | 7 | 1 | 0 | 7 | 9 | 33 | 1 | 122 |
| 08:45 PM | 8 | 2 | 0 | 5 | 29 | 6 | 0 | 0 | 2 | 0 | 40 | 0 | 92 |
| Total | 46 | 3 | 12 | 16 | 140 | 29 | 2 | 1 | 18 | 13 | 151 | 2 | 433 |
| Grand Total | 535 | 21 | 147 | 216 | 2328 | 510 | 89 | 14 | 252 | 150 | 2352 | 124 | 6738 |
| Apprch % | 76.1 | 3.0 | 20.9 | 7.1 | 76.2 | 16.7 | 25.1 | 3.9 | 71.0 | 5.7 | 89.6 | 4.7 | |
| Total % | 7.9 | 0.3 | 2.2 | 3.2 | 34.6 | 7.6 | 1.3 | 0.2 | 3.7 | 2.2 | 34.9 | 1.8 | |

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(270)

File Name : elliott-entrance6-saturday
Site Code : 00000000
Start Date : 02/14/2004


| | Shopping Center D/W Southbound | | | | Elliott Rd. Westbound | | | | Burger King D/W Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 11:00 AM to 03:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 12:45 PM | | | | | | | | | | | | | | | | |
| Volume | 79 | 5 | 29 | 113 | 49 | 398 | 85 | 532 | 18 | 2 | 55 | 75 | 24 | 356 | 18 | 398 | 1118 |
| Percent | 69.9 | 4.4 | 25.7 | | 9.2 | 74.8 | 16.0 | | 24.0 | 2.7 | 73.3 | | 6.0 | 89.4 | 4.5 | | |
| 01:30 Volume | 17 | 1 | 8 | 26 | 6 | 105 | 23 | 134 | 5 | 0 | 13 | 18 | 10 | 96 | 4 | 110 | 288 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.970 |
| High Int. | 01:15 PM | | | | 01:15 PM | | | | 01:00 PM | | | | 01:30 PM | | | | |
| Volume | 25 | 2 | 7 | 34 | 12 | 109 | 17 | 138 | 9 | 2 | 13 | 24 | 10 | 96 | 4 | 110 | |
| Peak Factor | | | | 0.831 | | | | 0.964 | | | | 0.781 | | | | 0.905 | |

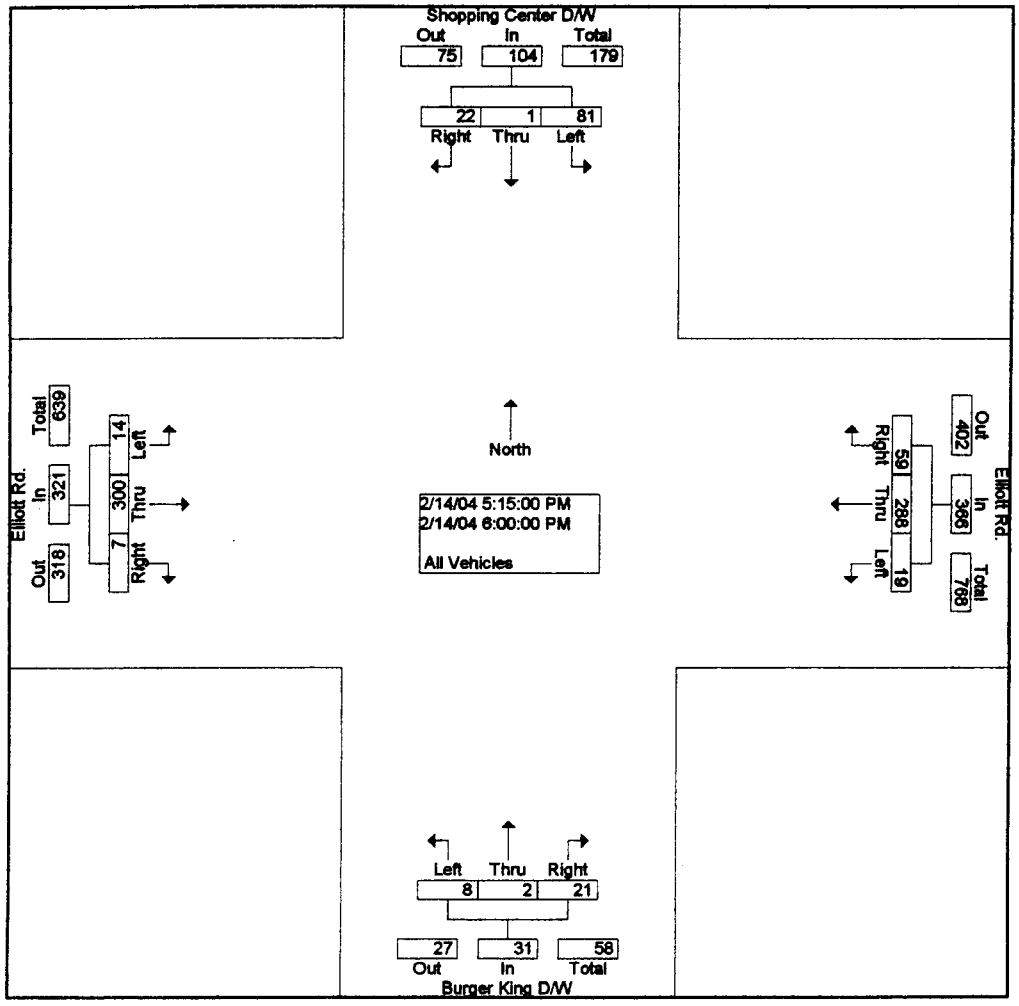


Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(271)

File Name : elliott-entrance6-saturday
Site Code : 00000000
Start Date : 02/14/2004
Page No : 1

| | Shopping Center D/W Southbound | | | | Elliott Rd. Westbound | | | | Burger King D/W Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 05:00 PM to 08:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection 05:15 PM | | | | | | | | | | | | | | | | | |
| Volume | 81 | 1 | 22 | 104 | 19 | 288 | 59 | 366 | 8 | 2 | 21 | 31 | 14 | 300 | 7 | 321 | 822 |
| Percent | 77.9 | 1.0 | 21.2 | | 5.2 | 78.7 | 16.1 | | 25.8 | 6.5 | 67.7 | | 4.4 | 93.5 | 2.2 | | |
| 05:15 Volume | 20 | 0 | 5 | 25 | 5 | 81 | 19 | 105 | 2 | 2 | 9 | 13 | 3 | 82 | 2 | 87 | 230 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.893 |
| High Int. | 06:00 PM | | | | 05:15 PM | | | | 05:15 PM | | | | 06:00 PM | | | | |
| Volume | 25 | 1 | 3 | 29 | 5 | 81 | 19 | 105 | 2 | 2 | 9 | 13 | 3 | 84 | 2 | 89 | |
| Peak Factor | | | | 0.897 | | | | 0.871 | | | | 0.596 | | | | 0.902 | |

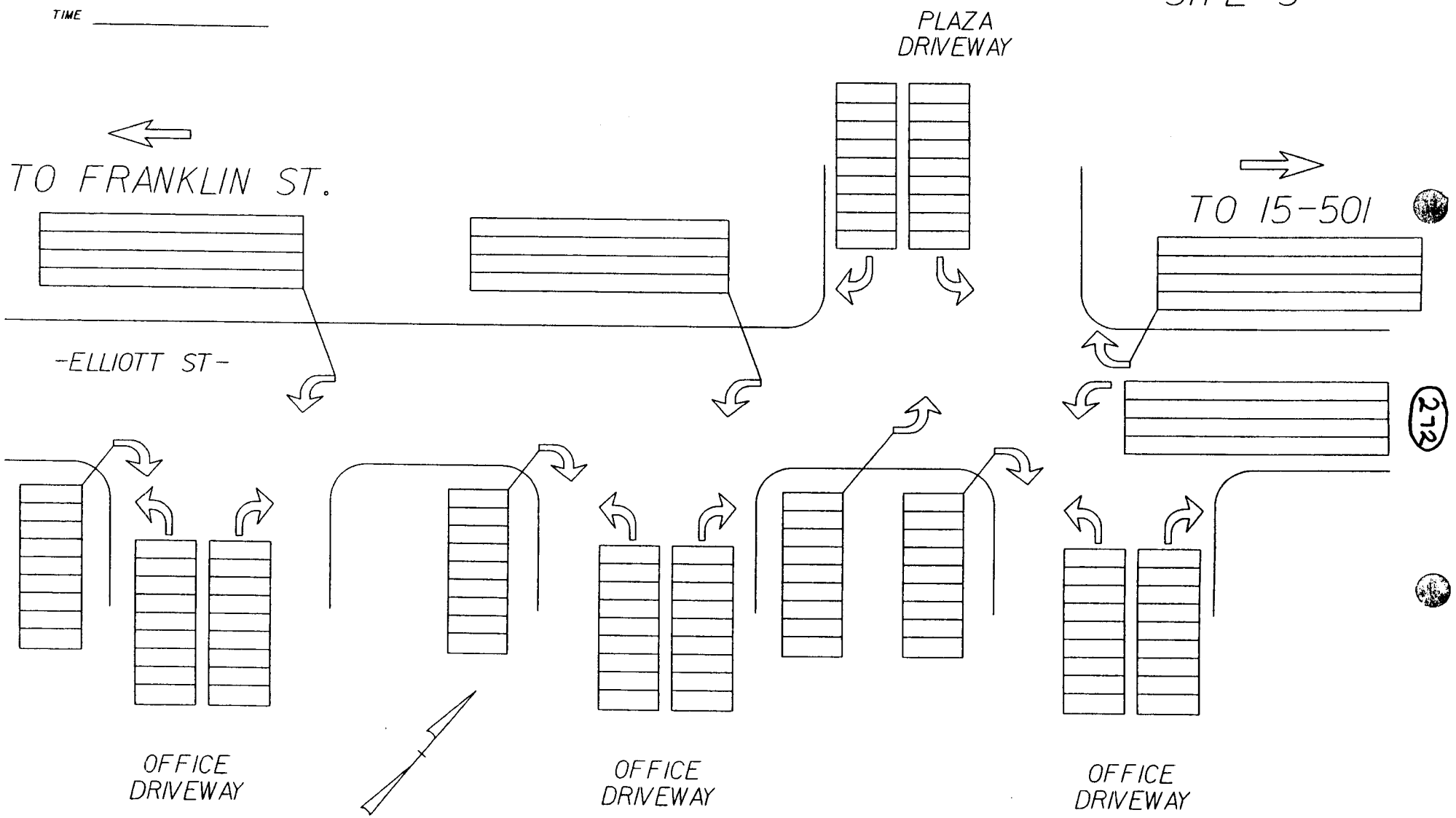


NAME _____

DATE _____

TIME _____

SITE 3



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

273

File Name : elliott-entrance5-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1

Groups Printed- All Vehicles

| | Entrance 5 Southbound | | | | Daycare Driveway Westbound | | | | Retail Driveway Northbound | | | | Galleria Plaza Driveway Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left In | Right In | Left Out | Right Out | Left In | Right In | Left Out | Right Out | Left In | Right In | Left Out | Right Out | Left In | Right In | Left Out | Right Out | 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 | |
| 04:00 PM | 5 | 12 | 8 | 12 | 1 | 1 | 1 | 1 | 0 | 0 | 2 | 3 | 4 | 5 | 10 | 8 | 73 |
| 04:15 PM | 5 | 14 | 20 | 8 | 0 | 1 | 0 | 1 | 2 | 2 | 0 | 2 | 9 | 8 | 9 | 15 | 96 |
| 04:30 PM | 9 | 10 | 13 | 6 | 0 | 3 | 1 | 5 | 1 | 1 | 1 | 1 | 13 | 5 | 9 | 9 | 87 |
| 04:45 PM | 2 | 16 | 20 | 4 | 2 | 1 | 1 | 4 | 0 | 0 | 0 | 2 | 10 | 10 | 11 | 18 | 101 |
| Total | 21 | 52 | 61 | 30 | 3 | 6 | 3 | 11 | 3 | 3 | 3 | 8 | 36 | 28 | 39 | 50 | 357 |
| 05:00 PM | 8 | 12 | 15 | 12 | 3 | 1 | 2 | 0 | 1 | 1 | 2 | 7 | 14 | 8 | 10 | 15 | 111 |
| 05:15 PM | 3 | 17 | 15 | 7 | 9 | 1 | 4 | 4 | 1 | 2 | 1 | 4 | 10 | 10 | 8 | 6 | 102 |
| 05:30 PM | 11 | 20 | 16 | 9 | 2 | 5 | 4 | 9 | 1 | 1 | 1 | 2 | 10 | 7 | 7 | 10 | 115 |
| 05:45 PM | 11 | 20 | 17 | 18 | 1 | 8 | 3 | 5 | 0 | 3 | 1 | 0 | 6 | 5 | 10 | 1 | 109 |
| Total | 33 | 69 | 63 | 46 | 15 | 15 | 13 | 18 | 3 | 7 | 5 | 13 | 40 | 30 | 35 | 32 | 437 |
| Grand Total | 54 | 121 | 124 | 76 | 18 | 21 | 16 | 29 | 6 | 10 | 8 | 21 | 76 | 58 | 74 | 82 | 794 |
| Apprch % | 14.4 | 32.3 | 33.1 | 20.3 | 21.4 | 25.0 | 19.0 | 34.5 | 13.3 | 22.2 | 17.8 | 46.7 | 26.2 | 20.0 | 25.5 | 28.3 | |
| Total % | 6.8 | 15.2 | 15.6 | 9.6 | 2.3 | 2.6 | 2.0 | 3.7 | 0.8 | 1.3 | 1.0 | 2.6 | 9.6 | 7.3 | 9.3 | 10.3 | |

Directions (soutbound, northbound, eastbound and westbound) do not apply to driveway counts. Entrances are label as travelling eastbound from Franklin St. Entrance 5 is east of ABC store.

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(274)

File Name : elliott-entrance5-saturday
Site Code : 00000000
Start Date : 02/14/2004


Groups Printed- All Vehicles

| | Entrance 5 Southbound | | | Daycare Driveway Westbound | | | Retail Driveway Northbound | | | Galleria Plaza Driveway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left In | Right In | Left Out | Left In | Right In | Left Out | Left In | Right In | Left Out | Left In | Right In | Left Out | 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 | |
| 11:00 AM | 5 | 19 | 15 | 0 | 0 | 0 | 2 | 0 | 1 | 10 | 10 | 2 | 64 |
| 11:15 AM | 5 | 25 | 20 | 0 | 0 | 0 | 3 | 2 | 4 | 4 | 5 | 3 | 71 |
| 11:30 AM | 5 | 12 | 15 | 0 | 0 | 0 | 3 | 1 | 1 | 6 | 8 | 6 | 57 |
| 11:45 AM | 5 | 19 | 12 | 0 | 0 | 0 | 1 | 2 | 1 | 6 | 8 | 7 | 61 |
| Total | 20 | 75 | 62 | 0 | 0 | 0 | 9 | 5 | 7 | 26 | 31 | 18 | 253 |
| 12:00 PM | 6 | 19 | 19 | 0 | 0 | 0 | 4 | 4 | 0 | 7 | 12 | 6 | 77 |
| 12:15 PM | 5 | 20 | 22 | 0 | 0 | 0 | 5 | 1 | 2 | 8 | 12 | 6 | 81 |
| 12:30 PM | 6 | 18 | 21 | 0 | 0 | 0 | 4 | 1 | 3 | 9 | 5 | 9 | 76 |
| 12:45 PM | 12 | 19 | 15 | 0 | 0 | 0 | 0 | 3 | 2 | 8 | 8 | 8 | 75 |
| Total | 29 | 76 | 77 | 0 | 0 | 0 | 13 | 9 | 7 | 32 | 37 | 29 | 309 |
| 01:00 PM | 8 | 20 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 7 | 75 |
| 01:15 PM | 8 | 16 | 14 | 0 | 0 | 0 | 3 | 3 | 2 | 14 | 14 | 5 | 79 |
| 01:30 PM | 6 | 29 | 19 | 0 | 0 | 0 | 1 | 3 | 0 | 8 | 9 | 11 | 86 |
| 01:45 PM | 6 | 14 | 20 | 0 | 0 | 0 | 3 | 1 | 1 | 7 | 7 | 6 | 65 |
| Total | 28 | 79 | 79 | 0 | 0 | 0 | 7 | 7 | 3 | 36 | 37 | 29 | 305 |
| 02:00 PM | 2 | 16 | 16 | 0 | 0 | 0 | 3 | 2 | 3 | 13 | 9 | 6 | 70 |
| 02:15 PM | 3 | 23 | 18 | 0 | 0 | 0 | 1 | 1 | 0 | 6 | 3 | 8 | 63 |
| 02:30 PM | 6 | 12 | 19 | 0 | 0 | 0 | 0 | 4 | 1 | 5 | 5 | 5 | 57 |
| 02:45 PM | 8 | 16 | 13 | 0 | 0 | 0 | 1 | 0 | 0 | 11 | 6 | 9 | 64 |
| Total | 19 | 67 | 66 | 0 | 0 | 0 | 5 | 7 | 4 | 35 | 23 | 28 | 254 |
| *** BREAK *** | | | | | | | | | | | | | |
| 05:00 PM | 5 | 18 | 17 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 5 | 2 | 51 |
| 05:15 PM | 3 | 24 | 21 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 5 | 4 | 60 |
| 05:30 PM | 7 | 20 | 11 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 3 | 10 | 57 |
| 05:45 PM | 2 | 20 | 16 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 3 | 2 | 48 |
| Total | 17 | 82 | 65 | 0 | 0 | 0 | 1 | 4 | 2 | 11 | 16 | 18 | 216 |
| 06:00 PM | 11 | 16 | 18 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 7 | 58 |
| 06:15 PM | 8 | 19 | 16 | 0 | 0 | 0 | 0 | 0 | 3 | 9 | 3 | 2 | 60 |
| 06:30 PM | 6 | 21 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 4 | 60 |
| 06:45 PM | 10 | 14 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 6 | 54 |
| Total | 35 | 70 | 77 | 0 | 0 | 0 | 1 | 0 | 3 | 21 | 6 | 19 | 232 |
| 07:00 PM | 5 | 11 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 1 | 43 |
| 07:15 PM | 6 | 18 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 47 |
| 07:30 PM | 7 | 15 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 6 | 42 |
| 07:45 PM | 8 | 17 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 1 | 48 |
| Total | 26 | 61 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 5 | 9 | 180 |
| 08:00 PM | 10 | 9 | 12 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 3 | 4 | 43 |
| 08:15 PM | 2 | 9 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 30 |
| 08:30 PM | 3 | 11 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 5 | 38 |
| 08:45 PM | 4 | 7 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 30 |
| Total | 19 | 36 | 53 | 0 | 0 | 0 | 1 | 1 | 0 | 14 | 7 | 10 | 141 |
| Grand Total | 193 | 546 | 543 | 0 | 0 | 0 | 37 | 33 | 26 | 190 | 162 | 160 | 1890 |
| Apprch % | 15.1 | 42.6 | 42.4 | 0.0 | 0.0 | 0.0 | 38.5 | 34.4 | 27.1 | 37.1 | 31.6 | 31.3 | |
| Total % | 10.2 | 28.9 | 28.7 | 0.0 | 0.0 | 0.0 | 2.0 | 1.7 | 1.4 | 10.1 | 8.6 | 8.5 | |

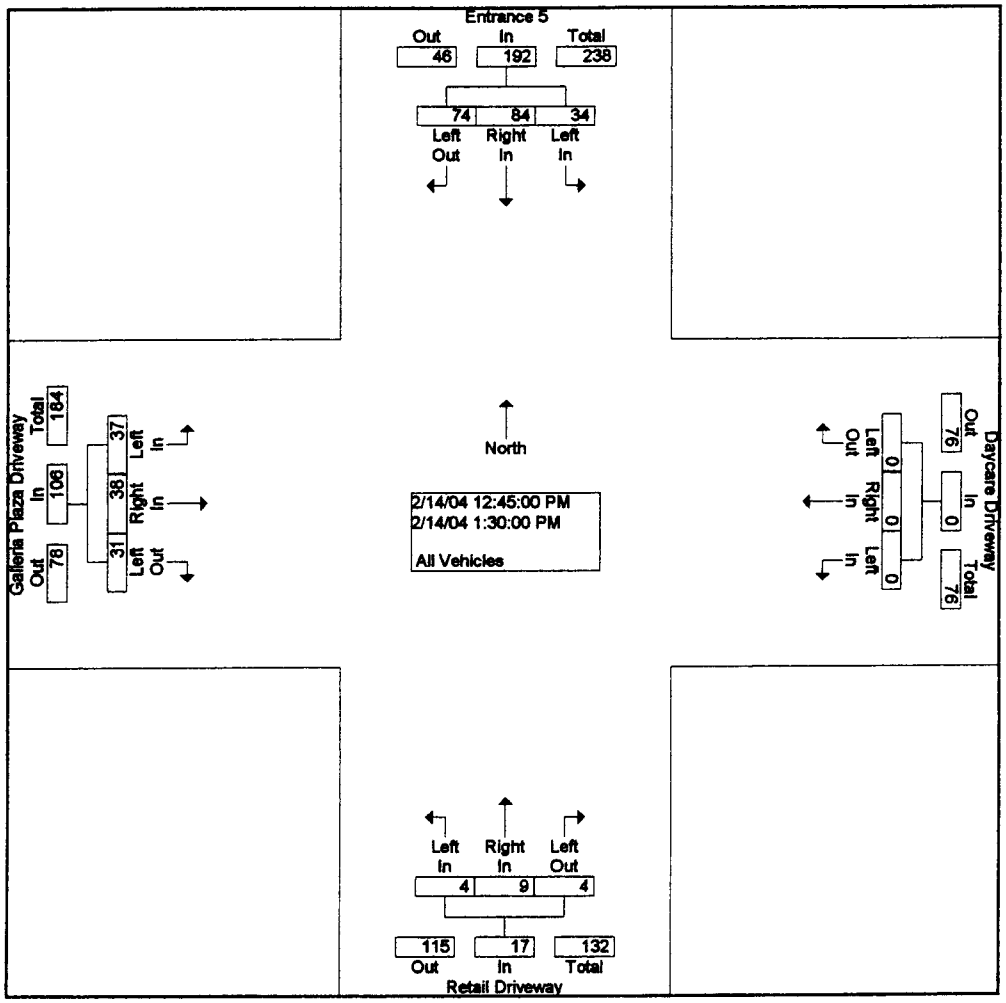
- Directions (soutbound, northbound, eastbound and westbound) do not apply to driveway counts. Entrances are label as travelling eastbound from Franklin St. Entrance 5 is east of ABC Store.

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

File Name : elliott-entrance5-saturday
Site Code : 00000000
Start Date : 02/14/2004
Page No : 1

276

| Start Time | Entrance 5 Southbound | | | | Daycare Driveway Westbound | | | | Retail Driveway Northbound | | | | Galleria Plaza Driveway Eastbound | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left In | Right In | Left Out | App. Total | Left In | Right In | Left Out | App. Total | Left In | Right In | Left Out | App. Total | Left In | Right In | Left Out | App. Total | |
| Peak Hour From 11:00 AM to 03:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection 12:45 PM | | | | | | | | | | | | | | | | | |
| Volume | 34 | 84 | 74 | 192 | 0 | 0 | 0 | 0 | 4 | 9 | 4 | 17 | 37 | 38 | 31 | 106 | 315 |
| Percent | 17.7 | 43.8 | 38.5 | | 0.0 | 0.0 | 0.0 | | 23.5 | 52.9 | 23.5 | | 34.9 | 35.8 | 29.2 | | |
| 01:30 Volume | 6 | 29 | 19 | 54 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 4 | 8 | 9 | 11 | 28 | 86 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.916 |
| High Int. 01:00 PM | | | | | 10:45:00 AM | | | | 01:15 PM | | | | 01:15 PM | | | | |
| Volume | 8 | 20 | 26 | 54 | 0 | 0 | 0 | 0 | 3 | 3 | 2 | 8 | 14 | 14 | 5 | 33 | |
| Peak Factor | | | | 0.889 | | | | | | | | 0.531 | | | | 0.803 | |



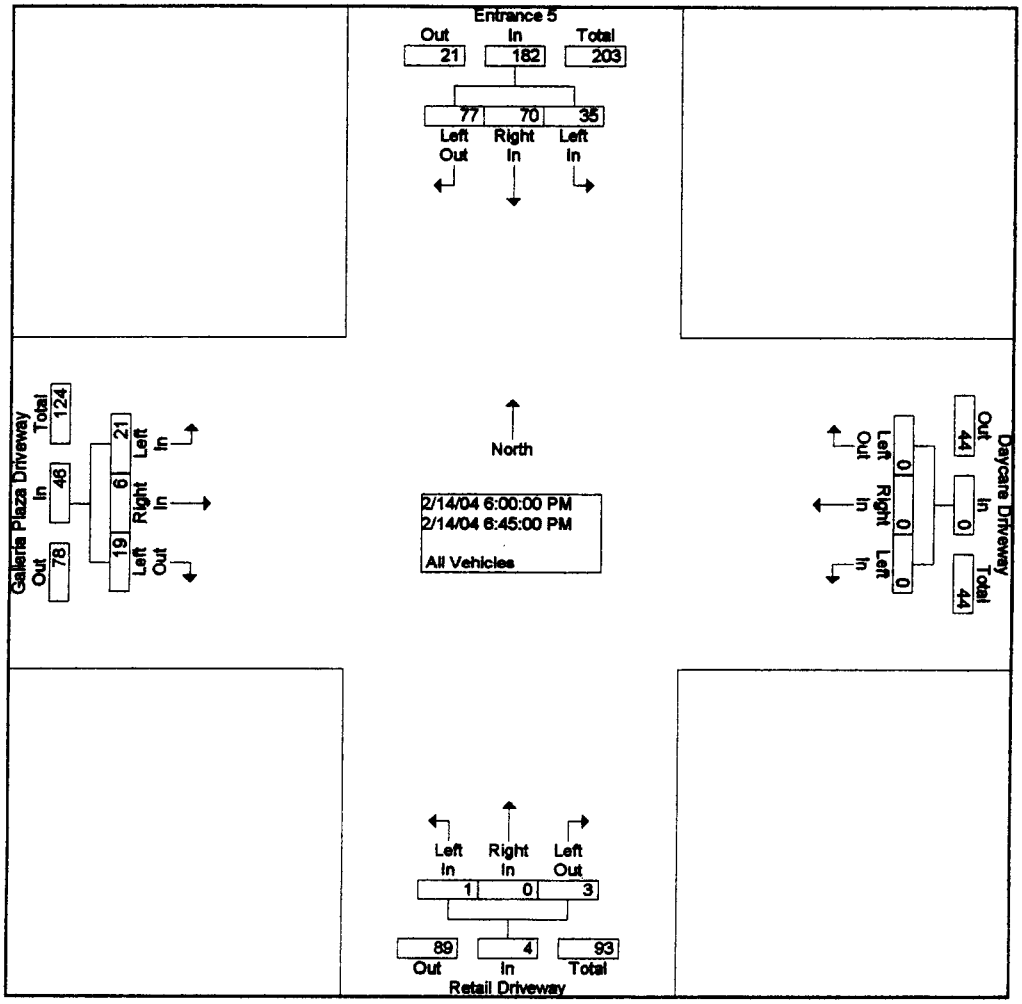

Directions (soutbound, northbound, eastbound and westbound) do not apply to driveway counts.
Entrances are label as travelling eastbound from Franklin St. Entrance 5 is east of ABC Store.

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

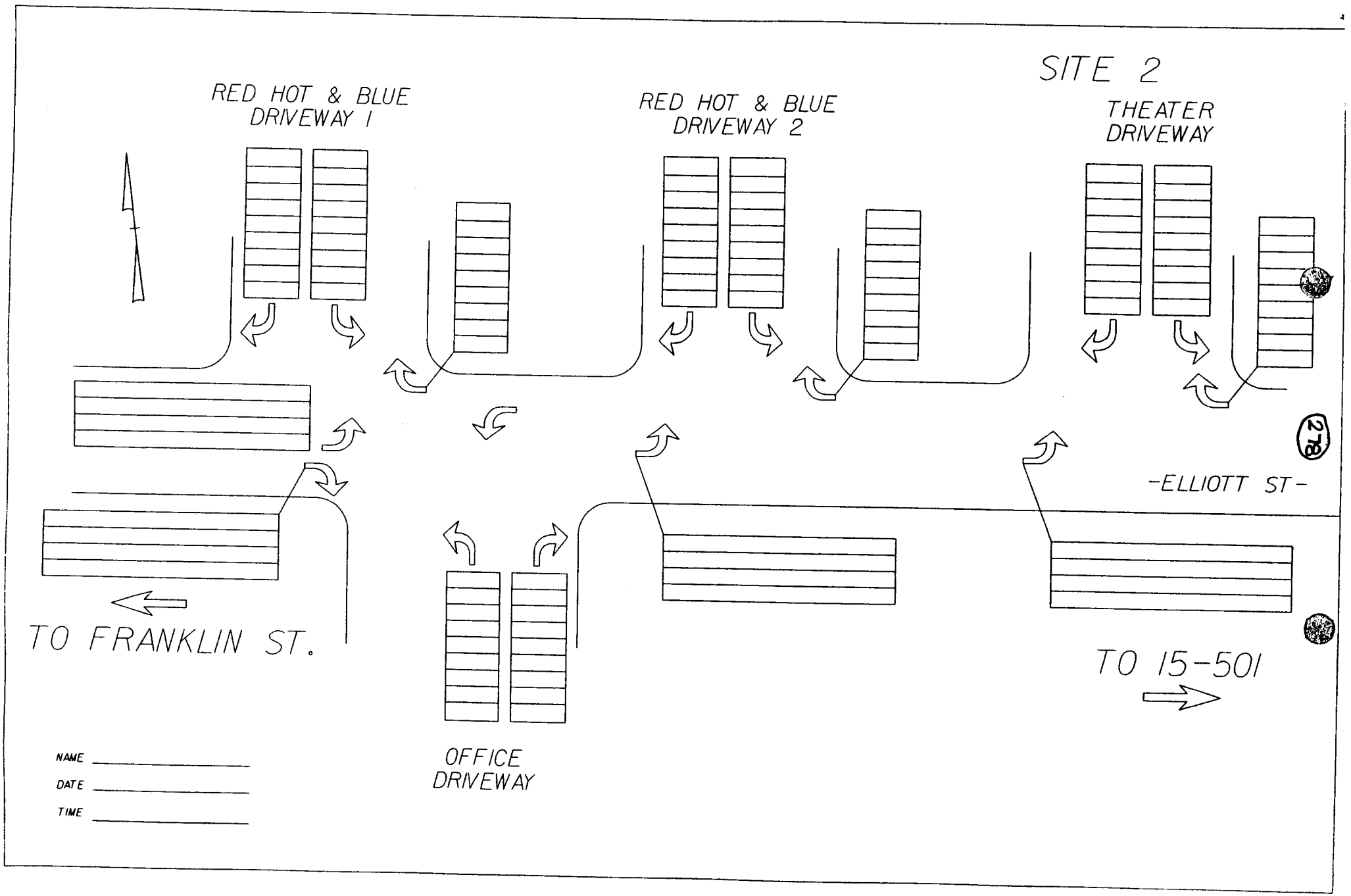
File Name : elliott-entrance5-saturday
Site Code : 00000000
Start Date : 02/14/2004
Page No : 1

277

| | Entrance 5 Southbound | | | | Daycare Driveway Westbound | | | | Retail Driveway Northbound | | | | Galleria Plaza Driveway Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left In | Right In | Left Out | App. Total | Left In | Right In | Left Out | App. Total | Left In | Right In | Left Out | App. Total | Left In | Right In | Left Out | App. Total | Int. Total |
| Peak Hour From 05:00 PM to 08:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 06:00 PM | | | | | | | | | | | | | | | | |
| Volume | 35 | 70 | 77 | 182 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 4 | 21 | 6 | 19 | 46 | 232 |
| Percent | 19.2 | 38.5 | 42.3 | | 0.0 | 0.0 | 0.0 | | 25.0 | 0.0 | 75.0 | | 45.7 | 13.0 | 41.3 | | |
| 06:30 Volume | 6 | 21 | 22 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 4 | 11 | 60 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.967 |
| High Int. | 06:30 PM | | | | | | | | 06:15 PM | | | | 06:15 PM | | | | |
| Volume | 6 | 21 | 22 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 9 | 3 | 2 | 14 | |
| Peak Factor | | | | 0.929 | | | | | | | | 0.333 | | | | 0.821 | |




Directions (soutbound, northbound, eastbound and westbound) do not apply to driveway counts. Entrances are label as travelling eastbound from Franklin St. Entrance 5 is east of ABC Store.


SITE 2
RED HOT & BLUE DRIVEWAY 1
RED HOT & BLUE DRIVEWAY 2
THEATER DRIVEWAY
-ELLIOTT ST-
TO FRANKLIN ST.
TO 15-501
OFFICE DRIVEWAY
NAME
DATE
TIME

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

File Name : elliott-entrance2-3-4-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1

279

Groups Printed- All Vehicles

| | Entrance 2 Southbound | | | | Entrance 3 Westbound | | | | Entrance 4 Northbound | | | | Office entrance Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left In | Right In | Left Out | Right Out | Left In | Right In | Left Out | Right Out | Left In | Right In | Left Out | Right Out | Left In | Right In | Left Out | Right Out | 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 | |
| 04:00 PM | 2 | 11 | 15 | 6 | 1 | 4 | 8 | 4 | 15 | 1 | 0 | 11 | 20 | 0 | 9 | 17 | 124 |
| 04:15 PM | 6 | 10 | 15 | 11 | 3 | 5 | 7 | 2 | 8 | 1 | 2 | 11 | 12 | 1 | 3 | 10 | 107 |
| 04:30 PM | 6 | 14 | 15 | 8 | 2 | 5 | 12 | 6 | 15 | 1 | 0 | 10 | 4 | 3 | 5 | 10 | 116 |
| 04:45 PM | 8 | 16 | 19 | 11 | 3 | 8 | 10 | 6 | 17 | 1 | 1 | 7 | 9 | 1 | 4 | 11 | 132 |
| Total | 22 | 51 | 64 | 36 | 9 | 22 | 37 | 18 | 55 | 4 | 3 | 39 | 45 | 5 | 21 | 48 | 479 |
| 05:00 PM | 12 | 17 | 29 | 11 | 4 | 3 | 18 | 5 | 19 | 6 | 4 | 10 | 11 | 2 | 5 | 10 | 166 |
| 05:15 PM | 6 | 15 | 26 | 3 | 8 | 7 | 16 | 9 | 10 | 1 | 0 | 13 | 16 | 4 | 6 | 10 | 150 |
| 05:30 PM | 17 | 11 | 19 | 3 | 3 | 11 | 11 | 8 | 15 | 2 | 1 | 11 | 10 | 1 | 11 | 11 | 145 |
| 05:45 PM | 7 | 14 | 23 | 5 | 1 | 7 | 13 | 6 | 31 | 3 | 4 | 17 | 3 | 2 | 1 | 9 | 146 |
| Total | 42 | 57 | 97 | 22 | 16 | 28 | 58 | 28 | 75 | 12 | 9 | 51 | 40 | 9 | 23 | 40 | 607 |
| Grand Total | 64 | 108 | 161 | 58 | 25 | 50 | 95 | 46 | 130 | 16 | 12 | 90 | 85 | 14 | 44 | 88 | 1086 |
| Apprch % | 16.4 | 27.6 | 41.2 | 14.8 | 11.6 | 23.1 | 44.0 | 21.3 | 52.4 | 6.5 | 4.8 | 36.3 | 36.8 | 6.1 | 19.0 | 38.1 | |
| Total % | 5.9 | 9.9 | 14.8 | 5.3 | 2.3 | 4.6 | 8.7 | 4.2 | 12.0 | 1.5 | 1.1 | 8.3 | 7.8 | 1.3 | 4.1 | 8.1 | |

Directions (soutbound, northbound, eastbound and westbound) do not apply to driveway counts. Entrances are label as travelling eastbound from Franklin St. Entrance 2 is Red Hot & Blue driveway 1. Entrance 3 is Red Hot & Blue Driveway 2. Entrance 4 is proposed theater driveway.

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025 File Name : elliott-entrance2-3-4-saturday
(704) 436-3817 Site Code : 00000000
(280) Start Date : 02/14/2004
Page No : 1

Groups Printed- All Vehicles

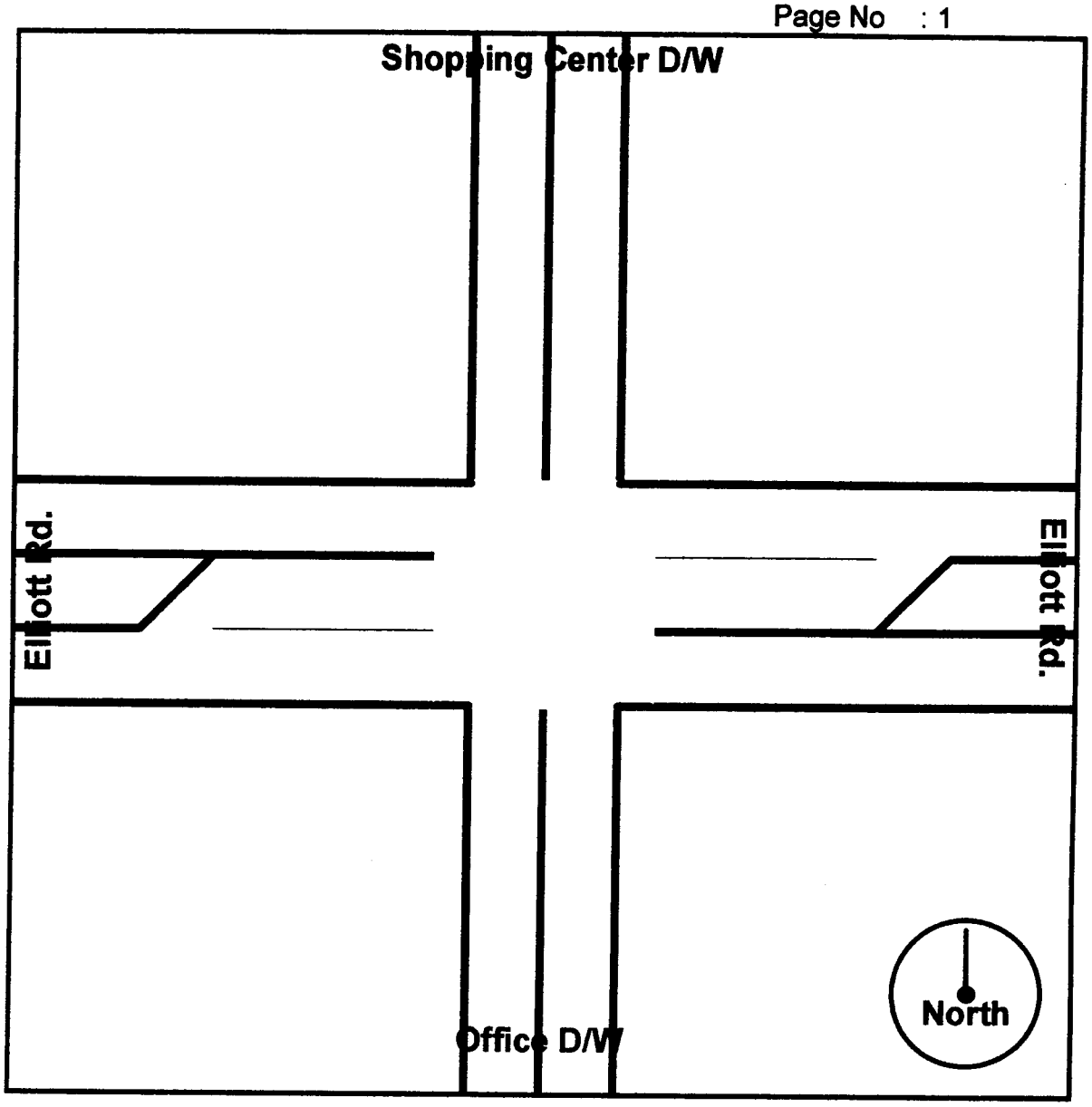
| | Entrance 2 Southbound | | | | Entrance 3 Westbound | | | | Entrance 4 Northbound | | | | Office entrance Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left In | Right In | Left Out | Right Out | Left In | Right In | Left Out | Right Out | Left In | Right In | Left Out | Right Out | Left In | Right In | Left Out | Right Out | 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 | |
| 11:00 AM | 6 | 17 | 19 | 5 | 2 | 8 | 8 | 5 | 12 | 2 | 1 | 9 | 5 | 0 | 1 | 4 | 104 |
| 11:15 AM | 5 | 30 | 17 | 7 | 0 | 5 | 3 | 6 | 12 | 3 | 2 | 16 | 3 | 0 | 0 | 1 | 110 |
| 11:30 AM | 3 | 17 | 17 | 10 | 0 | 4 | 10 | 6 | 17 | 1 | 1 | 8 | 2 | 0 | 1 | 2 | 99 |
| 11:45 AM | 6 | 22 | 23 | 7 | 3 | 8 | 15 | 8 | 16 | 2 | 0 | 14 | 5 | 0 | 1 | 6 | 136 |
| Total | 20 | 86 | 76 | 29 | 5 | 25 | 36 | 25 | 57 | 8 | 4 | 47 | 15 | 0 | 3 | 13 | 449 |
| 12:00 PM | 8 | 19 | 26 | 17 | 2 | 8 | 15 | 10 | 25 | 0 | 2 | 10 | 6 | 0 | 2 | 6 | 156 |
| 12:15 PM | 6 | 26 | 20 | 6 | 1 | 3 | 8 | 8 | 18 | 0 | 2 | 14 | 3 | 0 | 2 | 3 | 120 |
| 12:30 PM | 6 | 20 | 24 | 22 | 3 | 8 | 14 | 7 | 16 | 3 | 6 | 11 | 3 | 1 | 0 | 3 | 147 |
| 12:45 PM | 10 | 23 | 26 | 14 | 1 | 7 | 18 | 7 | 22 | 2 | 2 | 10 | 5 | 1 | 1 | 3 | 152 |
| Total | 30 | 88 | 96 | 59 | 7 | 26 | 55 | 32 | 81 | 5 | 12 | 45 | 17 | 2 | 5 | 15 | 575 |
| 01:00 PM | 4 | 20 | 17 | 11 | 2 | 2 | 15 | 6 | 23 | 1 | 3 | 16 | 1 | 1 | 0 | 4 | 126 |
| 01:15 PM | 18 | 23 | 25 | 8 | 1 | 6 | 14 | 14 | 24 | 2 | 3 | 11 | 4 | 1 | 2 | 2 | 158 |
| 01:30 PM | 12 | 26 | 19 | 19 | 3 | 4 | 21 | 12 | 19 | 2 | 4 | 18 | 4 | 0 | 2 | 1 | 166 |
| 01:45 PM | 7 | 15 | 21 | 15 | 3 | 2 | 24 | 11 | 23 | 0 | 1 | 13 | 1 | 0 | 1 | 3 | 140 |
| Total | 41 | 84 | 82 | 53 | 9 | 14 | 74 | 43 | 89 | 5 | 11 | 58 | 10 | 2 | 5 | 10 | 590 |
| 02:00 PM | 3 | 15 | 21 | 11 | 6 | 5 | 14 | 5 | 13 | 0 | 5 | 13 | 4 | 0 | 1 | 3 | 119 |
| 02:15 PM | 6 | 14 | 16 | 9 | 1 | 2 | 14 | 10 | 16 | 2 | 4 | 11 | 2 | 0 | 0 | 5 | 112 |
| 02:30 PM | 7 | 21 | 20 | 8 | 3 | 4 | 20 | 10 | 24 | 3 | 5 | 12 | 1 | 1 | 0 | 2 | 141 |
| 02:45 PM | 9 | 24 | 10 | 10 | 2 | 5 | 17 | 6 | 14 | 1 | 1 | 11 | 0 | 0 | 1 | 3 | 114 |
| Total | 25 | 74 | 67 | 38 | 12 | 16 | 65 | 31 | 67 | 6 | 15 | 47 | 7 | 1 | 2 | 13 | 486 |
| *** BREAK *** | | | | | | | | | | | | | | | | | |
| 05:00 PM | 4 | 15 | 19 | 8 | 0 | 2 | 13 | 4 | 21 | 3 | 2 | 19 | 2 | 0 | 1 | 4 | 117 |
| 05:15 PM | 4 | 9 | 23 | 5 | 0 | 5 | 2 | 1 | 18 | 2 | 0 | 19 | 5 | 1 | 1 | 1 | 96 |
| 05:30 PM | 9 | 11 | 11 | 10 | 0 | 12 | 10 | 5 | 24 | 0 | 4 | 15 | 1 | 0 | 2 | 3 | 117 |
| 05:45 PM | 6 | 13 | 13 | 8 | 1 | 2 | 8 | 4 | 11 | 1 | 2 | 10 | 3 | 0 | 1 | 0 | 83 |
| Total | 23 | 48 | 66 | 31 | 1 | 21 | 33 | 14 | 74 | 6 | 8 | 63 | 11 | 1 | 5 | 8 | 413 |
| 06:00 PM | 10 | 14 | 15 | 9 | 3 | 12 | 10 | 6 | 24 | 0 | 1 | 12 | 2 | 0 | 0 | 3 | 121 |
| 06:15 PM | 6 | 6 | 23 | 4 | 2 | 6 | 9 | 4 | 19 | 0 | 2 | 6 | 1 | 1 | 0 | 3 | 92 |
| 06:30 PM | 5 | 11 | 18 | 2 | 7 | 7 | 10 | 4 | 23 | 2 | 4 | 10 | 2 | 0 | 0 | 2 | 107 |
| 06:45 PM | 3 | 11 | 10 | 5 | 1 | 8 | 3 | 2 | 14 | 1 | 1 | 12 | 0 | 0 | 0 | 0 | 71 |
| Total | 24 | 42 | 66 | 20 | 13 | 33 | 32 | 16 | 80 | 3 | 8 | 40 | 5 | 1 | 0 | 8 | 391 |
| 07:00 PM | 5 | 6 | 11 | 3 | 1 | 6 | 1 | 3 | 16 | 3 | 2 | 11 | 4 | 1 | 0 | 4 | 77 |
| 07:15 PM | 3 | 7 | 14 | 6 | 3 | 2 | 7 | 1 | 9 | 0 | 2 | 8 | 0 | 0 | 0 | 1 | 63 |
| 07:30 PM | 1 | 6 | 10 | 7 | 1 | 3 | 6 | 2 | 21 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 64 |
| 07:45 PM | 3 | 4 | 9 | 8 | 1 | 2 | 4 | 2 | 11 | 1 | 3 | 7 | 1 | 0 | 0 | 3 | 59 |
| Total | 12 | 23 | 44 | 24 | 6 | 13 | 18 | 8 | 57 | 5 | 8 | 31 | 5 | 1 | 0 | 8 | 263 |
| 08:00 PM | 4 | 5 | 11 | 0 | 3 | 5 | 11 | 2 | 18 | 1 | 0 | 11 | 3 | 0 | 0 | 2 | 76 |
| 08:15 PM | 1 | 1 | 8 | 7 | 0 | 4 | 4 | 3 | 22 | 1 | 0 | 12 | 2 | 0 | 1 | 2 | 68 |
| 08:30 PM | 1 | 6 | 2 | 2 | 3 | 8 | 9 | 2 | 17 | 2 | 1 | 4 | 2 | 0 | 0 | 0 | 59 |
| 08:45 PM | 2 | 3 | 6 | 3 | 1 | 4 | 4 | 1 | 19 | 0 | 1 | 9 | 1 | 0 | 0 | 2 | 56 |
| Total | 8 | 15 | 27 | 12 | 7 | 21 | 28 | 8 | 76 | 4 | 2 | 36 | 8 | 0 | 1 | 6 | 259 |
| Grand Total | 183 | 460 | 524 | 266 | 60 | 169 | 341 | 177 | 581 | 42 | 68 | 367 | 78 | 8 | 21 | 81 | 3426 |
| Apprch % | 12.8 | 32.1 | 36.6 | 18.6 | 8.0 | 22.6 | 45.6 | 23.7 | 54.9 | 4.0 | 6.4 | 34.7 | 41.5 | 4.3 | 11.2 | 43.1 | |
| Total % | 5.3 | 13.4 | 15.3 | 7.8 | 1.8 | 4.9 | 10.0 | 5.2 | 17.0 | 1.2 | 2.0 | 10.7 | 2.3 | 0.2 | 0.6 | 2.4 | |

Directions (soutbound, northbound, eastbound and westbound) do not apply to driveway counts. Entrances are label as travelling eastbound from Franklin St. Entrance 2 is Red Hot & Blue driveway 1. Entrance 3 is Red Hot & Blue Driveway 2. Entrance 4 is proposed theater driveway.

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

282

File Name : elliott-entrance1-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

283

File Name : elliott-entrance1-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1

Groups Printed- All Vehicles

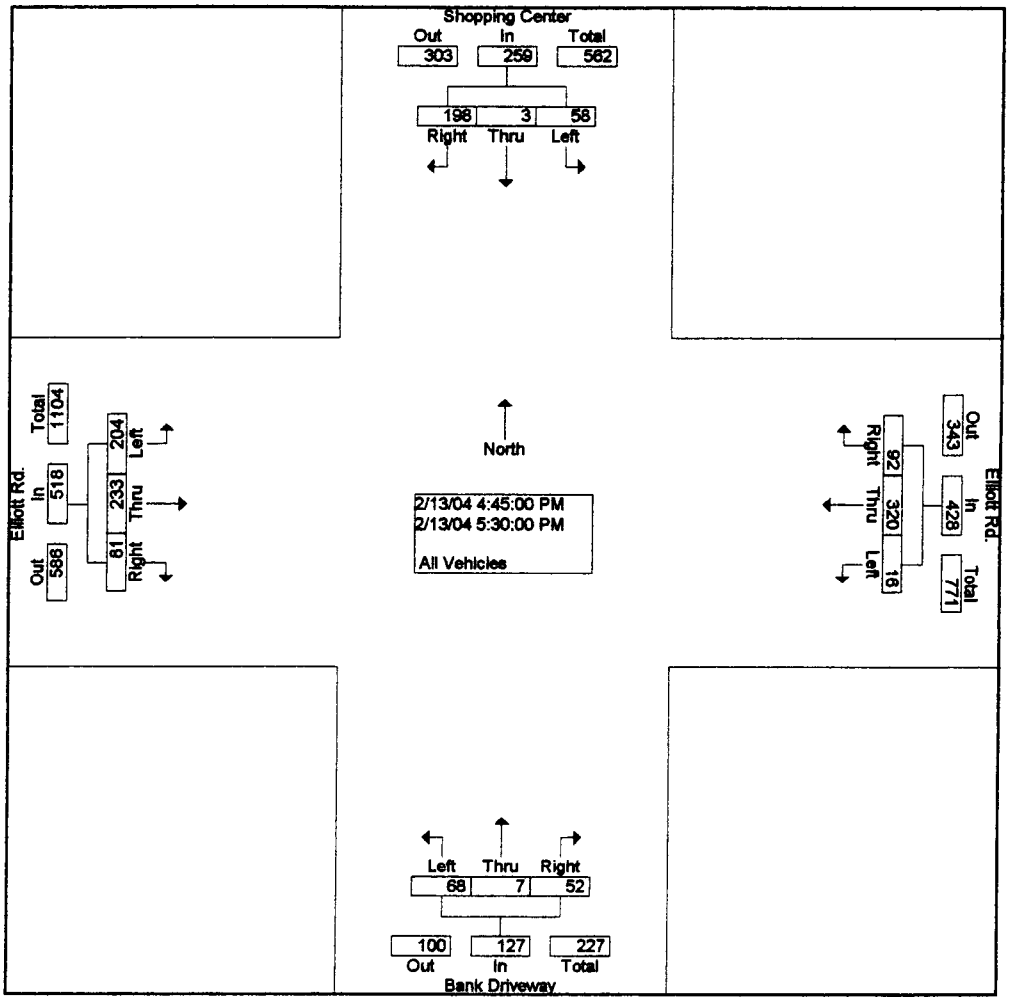
| | Shopping Center Southbound | | | Elliott Rd. Westbound | | | Bank Driveway Northbound | | | Elliott Rd. Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 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 | |
| 04:00 PM | 17 | 1 | 36 | 3 | 65 | 23 | 16 | 0 | 17 | 48 | 54 | 20 | 300 |
| 04:15 PM | 10 | 2 | 37 | 6 | 62 | 24 | 15 | 3 | 10 | 45 | 48 | 24 | 286 |
| 04:30 PM | 9 | 0 | 45 | 8 | 70 | 23 | 21 | 5 | 7 | 45 | 45 | 32 | 310 |
| 04:45 PM | 9 | 1 | 54 | 5 | 67 | 22 | 17 | 0 | 12 | 53 | 57 | 22 | 319 |
| Total | 45 | 4 | 172 | 22 | 264 | 92 | 69 | 8 | 46 | 191 | 204 | 98 | 1215 |
| 05:00 PM | 20 | 1 | 43 | 5 | 78 | 25 | 15 | 2 | 13 | 56 | 54 | 20 | 332 |
| 05:15 PM | 15 | 1 | 49 | 2 | 94 | 18 | 18 | 3 | 15 | 53 | 56 | 25 | 349 |
| 05:30 PM | 14 | 0 | 52 | 4 | 81 | 27 | 18 | 2 | 12 | 42 | 66 | 14 | 332 |
| 05:45 PM | 11 | 1 | 58 | 3 | 88 | 16 | 17 | 4 | 6 | 30 | 42 | 4 | 280 |
| Total | 60 | 3 | 202 | 14 | 341 | 86 | 68 | 11 | 46 | 181 | 218 | 63 | 1293 |
| Grand Total | 105 | 7 | 374 | 36 | 605 | 178 | 137 | 19 | 92 | 372 | 422 | 161 | 2508 |
| Apprch % | 21.6 | 1.4 | 77.0 | 4.4 | 73.9 | 21.7 | 55.2 | 7.7 | 37.1 | 39.0 | 44.2 | 16.9 | |
| Total % | 4.2 | 0.3 | 14.9 | 1.4 | 24.1 | 7.1 | 5.5 | 0.8 | 3.7 | 14.8 | 16.8 | 6.4 | |

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(284)

File Name : elliott-entrance1-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1

| | Shopping Center Southbound | | | | Elliott Rd. Westbound | | | | Bank Driveway Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection 04:45 PM | | | | | | | | | | | | | | | | | |
| Volume | 58 | 3 | 198 | 259 | 16 | 320 | 92 | 428 | 68 | 7 | 52 | 127 | 204 | 233 | 81 | 518 | 1332 |
| Percent | 22.4 | 1.2 | 76.4 | | 3.7 | 74.8 | 21.5 | | 53.5 | 5.5 | 40.9 | | 39.4 | 45.0 | 15.6 | | |
| 05:15 Volume | 15 | 1 | 49 | 65 | 2 | 94 | 18 | 114 | 18 | 3 | 15 | 36 | 53 | 56 | 25 | 134 | 349 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.954 |
| High Int. | 05:30 PM | | | | 05:15 PM | | | | 05:15 PM | | | | 05:15 PM | | | | |
| Volume | 14 | 0 | 52 | 66 | 2 | 94 | 18 | 114 | 18 | 3 | 15 | 36 | 53 | 56 | 25 | 134 | |
| Peak Factor | | | | 0.981 | | | | 0.939 | | | | 0.882 | | | | 0.966 | |



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(285)

File Name : elliott-entrance1-saturday
Site Code : 00000000
Start Date : 02/14/2004
Page No : 1

Groups Printed- All Vehicles

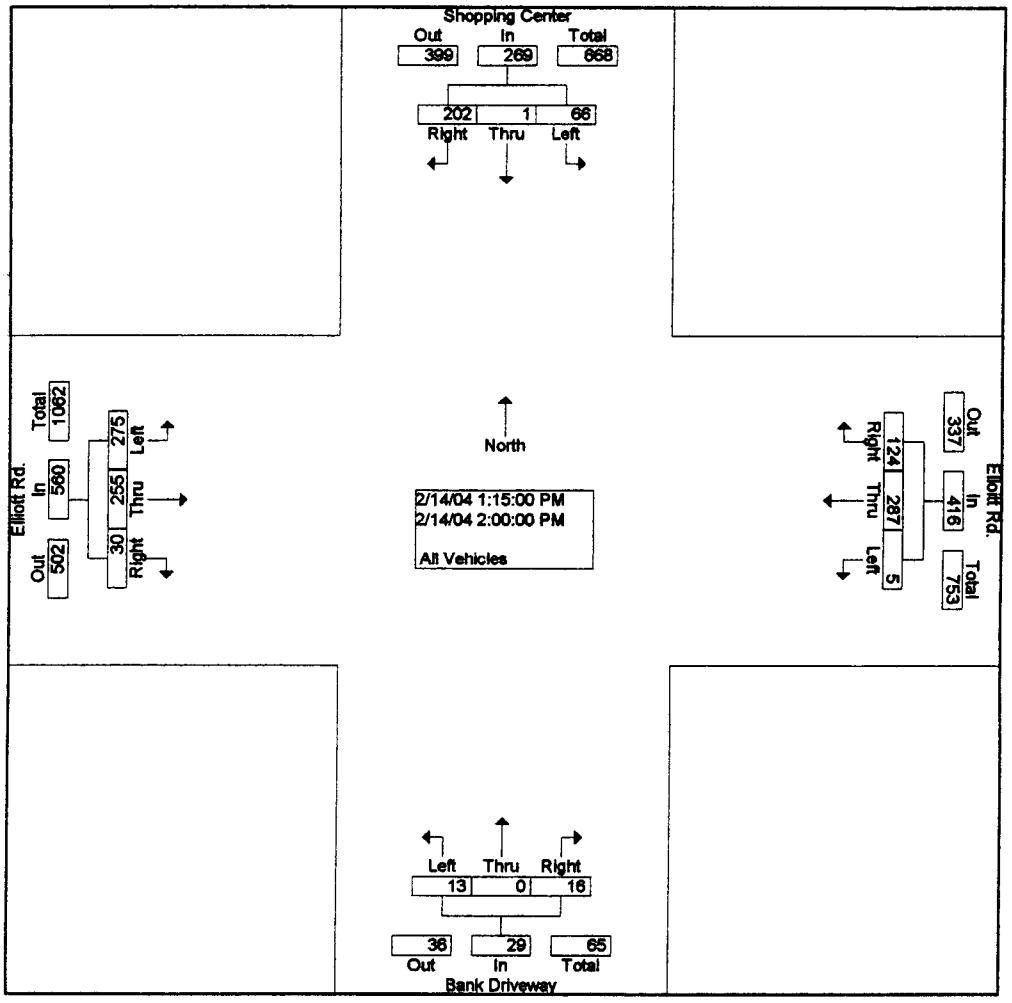
| | Shopping Center Southbound | | | Elloitt Rd. Westbound | | | Bank Driveway Northbound | | | Elliott Rd. Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 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 | |
| 11:00 AM | 27 | 1 | 31 | 1 | 43 | 22 | 0 | 0 | 4 | 54 | 49 | 6 | 238 |
| 11:15 AM | 21 | 0 | 40 | 0 | 49 | 29 | 7 | 2 | 2 | 58 | 41 | 9 | 258 |
| 11:30 AM | 26 | 2 | 41 | 4 | 50 | 20 | 3 | 2 | 6 | 45 | 55 | 7 | 261 |
| 11:45 AM | 21 | 0 | 48 | 1 | 68 | 16 | 5 | 2 | 2 | 44 | 61 | 7 | 275 |
| Total | 95 | 3 | 160 | 6 | 210 | 87 | 15 | 6 | 14 | 201 | 206 | 29 | 1032 |
| 12:00 PM | 24 | 0 | 35 | 2 | 59 | 35 | 5 | 0 | 2 | 56 | 71 | 7 | 296 |
| 12:15 PM | 21 | 1 | 43 | 2 | 55 | 33 | 5 | 1 | 2 | 64 | 51 | 7 | 285 |
| 12:30 PM | 20 | 1 | 51 | 2 | 59 | 30 | 2 | 0 | 2 | 60 | 46 | 6 | 279 |
| 12:45 PM | 15 | 0 | 36 | 0 | 65 | 30 | 2 | 1 | 5 | 70 | 64 | 3 | 291 |
| Total | 80 | 2 | 165 | 6 | 238 | 128 | 14 | 2 | 11 | 250 | 232 | 23 | 1151 |
| 01:00 PM | 20 | 0 | 49 | 1 | 70 | 28 | 2 | 2 | 5 | 60 | 49 | 6 | 292 |
| 01:15 PM | 10 | 0 | 49 | 0 | 64 | 44 | 6 | 0 | 1 | 67 | 72 | 9 | 322 |
| 01:30 PM | 20 | 0 | 57 | 2 | 85 | 32 | 3 | 0 | 6 | 65 | 63 | 5 | 338 |
| 01:45 PM | 13 | 1 | 50 | 2 | 77 | 28 | 3 | 0 | 4 | 72 | 61 | 8 | 319 |
| Total | 63 | 1 | 205 | 5 | 296 | 132 | 14 | 2 | 16 | 264 | 245 | 28 | 1271 |
| 02:00 PM | 23 | 0 | 46 | 1 | 61 | 20 | 1 | 0 | 5 | 71 | 59 | 8 | 295 |
| 02:15 PM | 19 | 1 | 57 | 3 | 55 | 25 | 5 | 3 | 2 | 61 | 56 | 3 | 290 |
| 02:30 PM | 25 | 1 | 47 | 4 | 55 | 32 | 5 | 1 | 4 | 56 | 46 | 6 | 282 |
| 02:45 PM | 16 | 1 | 56 | 2 | 61 | 25 | 1 | 0 | 0 | 39 | 48 | 1 | 250 |
| Total | 83 | 3 | 206 | 10 | 232 | 102 | 12 | 4 | 11 | 227 | 209 | 18 | 1117 |
| 05:00 PM | 22 | 1 | 53 | 0 | 51 | 26 | 1 | 1 | 5 | 55 | 53 | 7 | 275 |
| 05:15 PM | 18 | 0 | 59 | 4 | 52 | 18 | 4 | 0 | 2 | 51 | 42 | 3 | 253 |
| 05:30 PM | 15 | 0 | 41 | 0 | 68 | 21 | 5 | 0 | 4 | 46 | 48 | 10 | 258 |
| 05:45 PM | 21 | 0 | 49 | 2 | 38 | 23 | 3 | 0 | 4 | 36 | 28 | 5 | 209 |
| Total | 76 | 1 | 202 | 6 | 209 | 88 | 13 | 1 | 15 | 188 | 171 | 25 | 995 |
| 06:00 PM | 26 | 0 | 36 | 1 | 58 | 18 | 2 | 0 | 2 | 45 | 58 | 2 | 248 |
| 06:15 PM | 16 | 1 | 43 | 2 | 40 | 24 | 7 | 1 | 1 | 29 | 43 | 5 | 212 |
| 06:30 PM | 20 | 0 | 42 | 0 | 46 | 15 | 3 | 1 | 2 | 21 | 46 | 3 | 199 |
| 06:45 PM | 14 | 1 | 32 | 5 | 46 | 18 | 3 | 0 | 2 | 28 | 47 | 2 | 198 |
| Total | 76 | 2 | 153 | 8 | 190 | 75 | 15 | 2 | 7 | 123 | 194 | 12 | 857 |
| 07:00 PM | 14 | 0 | 38 | 1 | 28 | 13 | 7 | 0 | 4 | 26 | 36 | 8 | 175 |
| 07:15 PM | 17 | 0 | 42 | 0 | 38 | 9 | 1 | 0 | 0 | 20 | 33 | 1 | 161 |
| 07:30 PM | 17 | 0 | 25 | 1 | 37 | 10 | 1 | 1 | 0 | 22 | 32 | 3 | 149 |
| 07:45 PM | 11 | 0 | 23 | 1 | 38 | 11 | 4 | 1 | 1 | 13 | 31 | 3 | 137 |
| Total | 59 | 0 | 128 | 3 | 141 | 43 | 13 | 2 | 5 | 81 | 132 | 15 | 622 |
| 08:00 PM | 10 | 0 | 24 | 0 | 37 | 5 | 4 | 0 | 0 | 17 | 36 | 3 | 136 |
| 08:15 PM | 4 | 1 | 10 | 0 | 42 | 8 | 3 | 1 | 1 | 22 | 29 | 3 | 124 |
| 08:30 PM | 10 | 0 | 11 | 1 | 45 | 9 | 0 | 0 | 2 | 18 | 24 | 0 | 120 |
| 08:45 PM | 10 | 0 | 16 | 0 | 29 | 5 | 0 | 0 | 1 | 6 | 22 | 0 | 89 |
| Total | 34 | 1 | 61 | 1 | 153 | 27 | 7 | 1 | 4 | 63 | 111 | 6 | 469 |
| Grand Total | 566 | 13 | 1280 | 45 | 1669 | 682 | 103 | 20 | 83 | 1397 | 1500 | 156 | 7514 |
| Apprch % | 30.4 | 0.7 | 68.9 | 1.9 | 69.7 | 28.5 | 50.0 | 9.7 | 40.3 | 45.8 | 49.1 | 5.1 | |
| Total % | 7.5 | 0.2 | 17.0 | 0.6 | 22.2 | 9.1 | 1.4 | 0.3 | 1.1 | 18.6 | 20.0 | 2.1 | |

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

286

File Name : elliott-entrance1-saturday
Site Code : 00000000
Start Date : 02/14/2004


| | Shopping Center Southbound | | | | Elloitt Rd. Westbound | | | | Bank Driveway Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 11:00 AM to 03:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection 01:15 PM | | | | | | | | | | | | | | | | | |
| Volume | 66 | 1 | 202 | 269 | 5 | 287 | 124 | 416 | 13 | 0 | 16 | 29 | 275 | 255 | 30 | 560 | 1274 |
| Percent | 24.5 | 0.4 | 75.1 | | 1.2 | 69.0 | 29.8 | | 44.8 | 0.0 | 55.2 | | 49.1 | 45.5 | 5.4 | | |
| 01:30 Volume | 20 | 0 | 57 | 77 | 2 | 85 | 32 | 119 | 3 | 0 | 6 | 9 | 65 | 63 | 5 | 133 | 338 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.942 |
| High Int. | 01:30 PM | | | | 01:30 PM | | | | 01:30 PM | | | | 01:15 PM | | | | |
| Volume | 20 | 0 | 57 | 77 | 2 | 85 | 32 | 119 | 3 | 0 | 6 | 9 | 67 | 72 | 9 | 148 | |
| Peak Factor | | | | 0.873 | | | | 0.874 | | | | 0.806 | | | | 0.946 | |

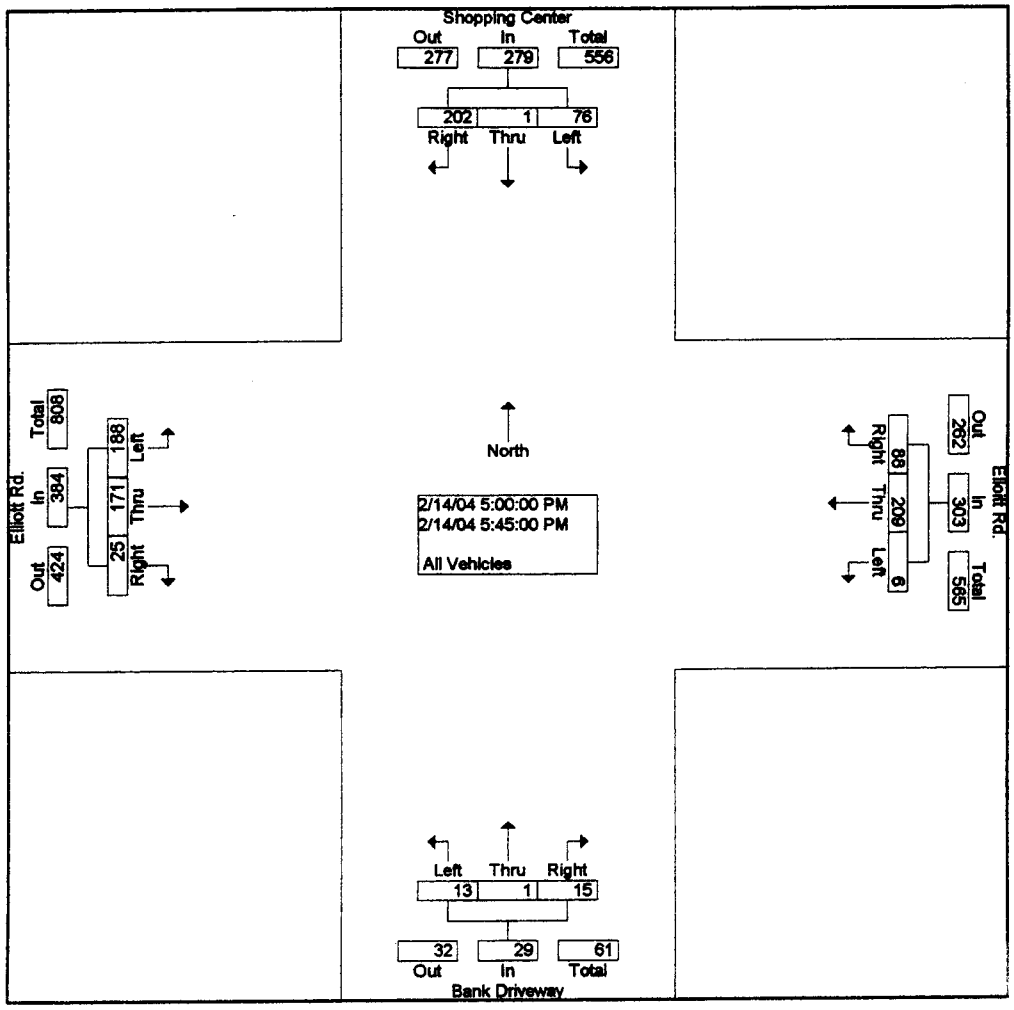


Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(287)

File Name : elliott-entrance1-saturday
Site Code : 00000000
Start Date : 02/14/2004
Page No : 1

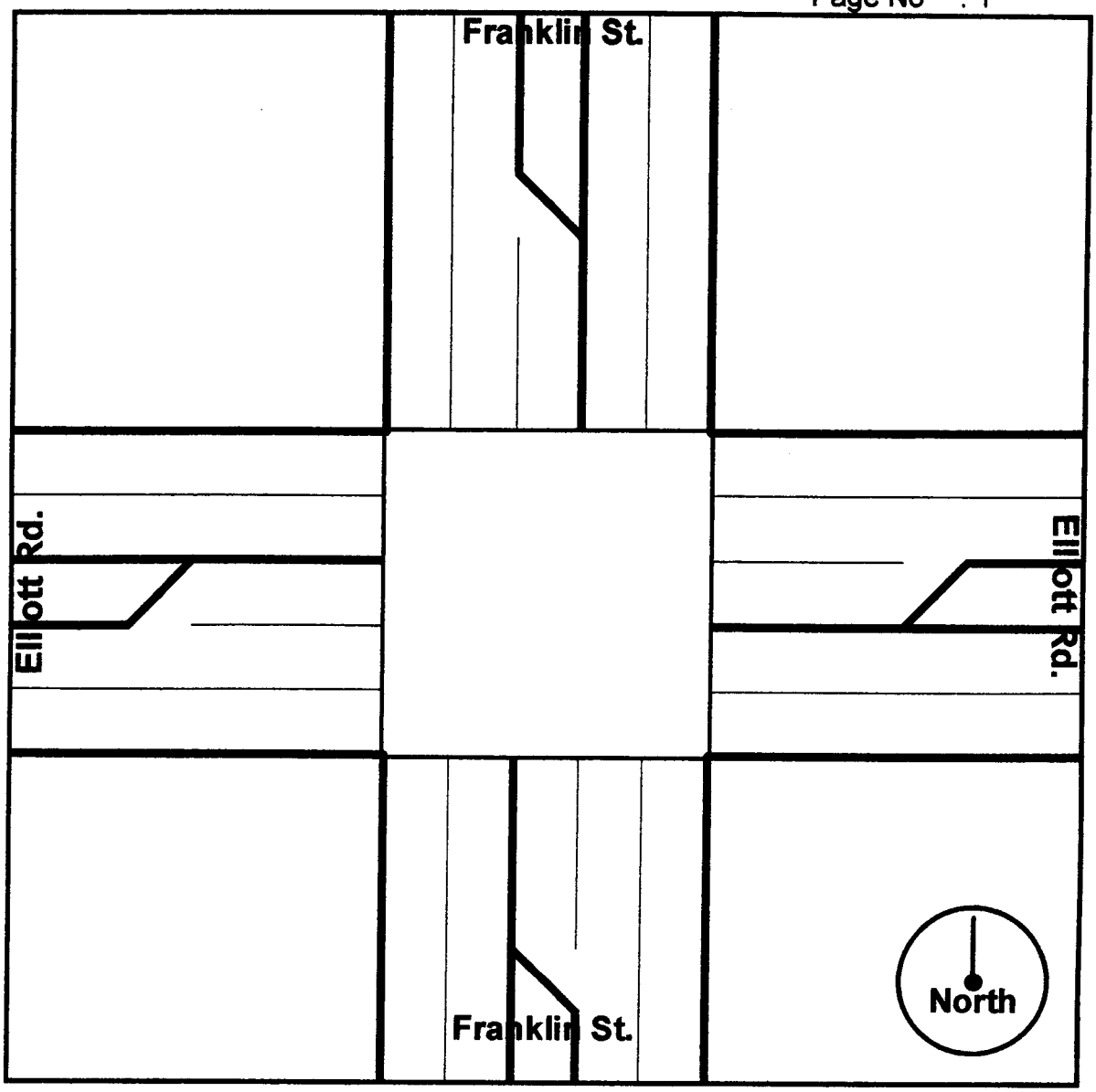
| | Shopping Center Southbound | | | | Elloitt Rd. Westbound | | | | Bank Driveway Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 05:00 PM to 08:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection 05:00 PM | | | | | | | | | | | | | | | | | |
| Volume | 76 | 1 | 202 | 279 | 6 | 209 | 88 | 303 | 13 | 1 | 15 | 29 | 188 | 171 | 25 | 384 | 995 |
| Percent | 27.2 | 0.4 | 72.4 | | 2.0 | 69.0 | 29.0 | | 44.8 | 3.4 | 51.7 | | 49.0 | 44.5 | 6.5 | | |
| 05:00 Volume | 22 | 1 | 53 | 76 | 0 | 51 | 26 | 77 | 1 | 1 | 5 | 7 | 55 | 53 | 7 | 115 | 275 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.905 |
| High Int. | 05:15 PM | | | | 05:30 PM | | | | 05:30 PM | | | | 05:00 PM | | | | |
| Volume | 18 | 0 | 59 | 77 | 0 | 68 | 21 | 89 | 5 | 0 | 4 | 9 | 55 | 53 | 7 | 115 | |
| Peak Factor | | | | 0.906 | | | | 0.851 | | | | 0.806 | | | | 0.835 | |



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

288

File Name : elliott-franklin-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

289

File Name : elliott-franklin-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1

Groups Printed- All Vehicles

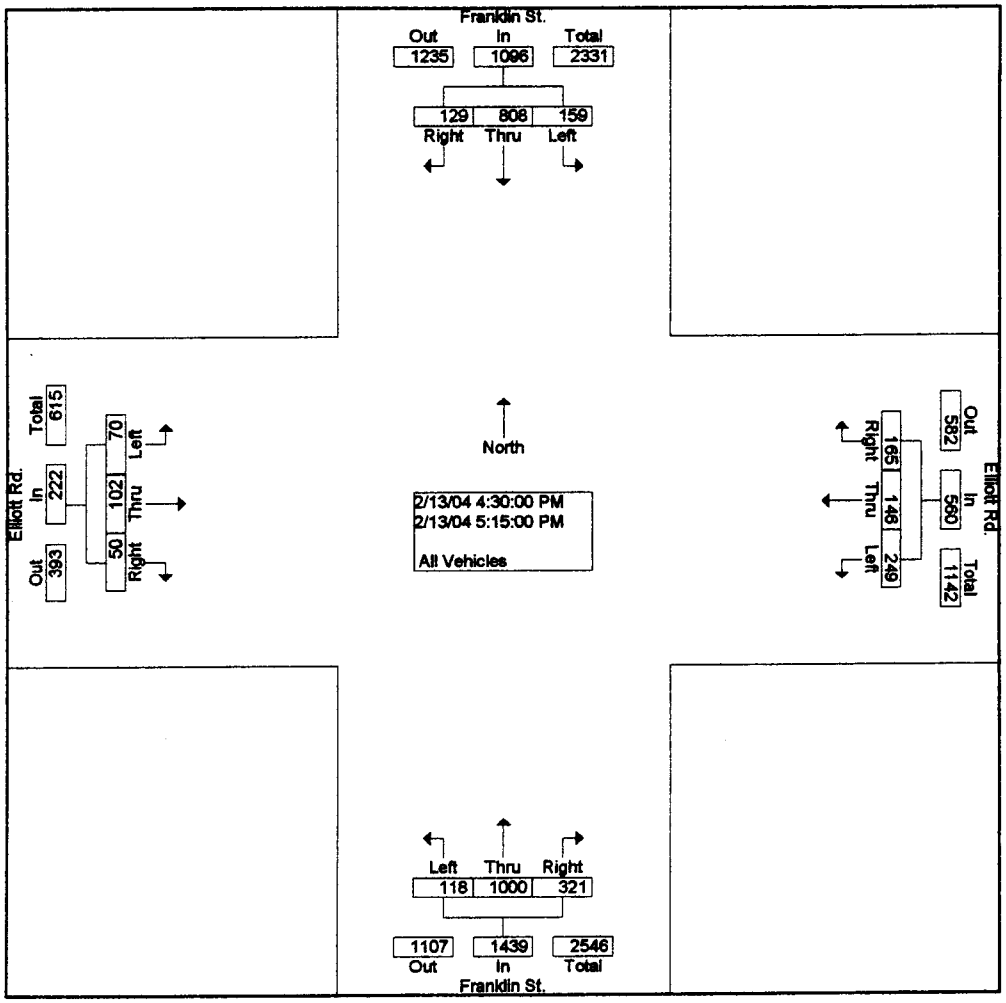
| | Franklin St. Southbound | | | Elliott Rd. Westbound | | | Franklin St. Northbound | | | Elliott Rd. Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| 04:00 PM | 30 | 209 | 16 | 60 | 26 | 33 | 23 | 235 | 73 | 22 | 25 | 13 | 765 |
| 04:15 PM | 33 | 189 | 33 | 52 | 35 | 25 | 22 | 252 | 78 | 19 | 18 | 21 | 777 |
| 04:30 PM | 33 | 192 | 28 | 58 | 32 | 48 | 25 | 243 | 73 | 19 | 32 | 10 | 793 |
| 04:45 PM | 36 | 183 | 32 | 57 | 41 | 39 | 20 | 250 | 74 | 23 | 32 | 18 | 805 |
| Total | 132 | 773 | 109 | 227 | 134 | 145 | 90 | 980 | 298 | 83 | 107 | 62 | 3140 |
| 05:00 PM | 36 | 208 | 37 | 71 | 34 | 36 | 48 | 251 | 93 | 19 | 18 | 6 | 857 |
| 05:15 PM | 54 | 225 | 32 | 63 | 39 | 42 | 25 | 256 | 81 | 9 | 20 | 16 | 862 |
| 05:30 PM | 35 | 182 | 28 | 69 | 44 | 38 | 18 | 234 | 80 | 19 | 25 | 16 | 788 |
| 05:45 PM | 50 | 194 | 25 | 70 | 33 | 44 | 22 | 258 | 65 | 19 | 17 | 12 | 809 |
| Total | 175 | 809 | 122 | 273 | 150 | 160 | 113 | 999 | 319 | 66 | 80 | 50 | 3316 |
| Grand Total | 307 | 1582 | 231 | 500 | 284 | 305 | 203 | 1979 | 617 | 149 | 187 | 112 | 6456 |
| Apprch % | 14.5 | 74.6 | 10.9 | 45.9 | 26.1 | 28.0 | 7.3 | 70.7 | 22.0 | 33.3 | 41.7 | 25.0 | |
| Total % | 4.8 | 24.5 | 3.6 | 7.7 | 4.4 | 4.7 | 3.1 | 30.7 | 9.6 | 2.3 | 2.9 | 1.7 | |

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(290)

File Name : elliott-franklin-friday
Site Code : 00000000
Start Date : 02/13/2004
Page No : 1

| | Franklin St. Southbound | | | | Elliott Rd. Westbound | | | | Franklin St. Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection 04:30 PM | | | | | | | | | | | | | | | | | |
| Volume | 159 | 808 | 129 | 1096 | 249 | 146 | 165 | 560 | 118 | 1000 | 321 | 1439 | 70 | 102 | 50 | 222 | 3317 |
| Percent | 14.5 | 73.7 | 11.8 | | 44.5 | 26.1 | 29.5 | | 8.2 | 69.5 | 22.3 | | 31.5 | 45.9 | 22.5 | | |
| 05:15 Volume | 54 | 225 | 32 | 311 | 63 | 39 | 42 | 144 | 25 | 256 | 81 | 362 | 9 | 20 | 16 | 45 | 862 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.962 |
| High Int. | 05:15 PM | | | | 05:15 PM | | | | 05:00 PM | | | | 04:45 PM | | | | |
| Volume | 54 | 225 | 32 | 311 | 63 | 39 | 42 | 144 | 48 | 251 | 93 | 392 | 23 | 32 | 18 | 73 | |
| Peak Factor | | | | 0.881 | | | | 0.972 | | | | 0.918 | | | | 0.760 | |



Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(291)

File Name : elliott-franklin-saturday
Site Code : 00000000
Start Date : 02/14/2004


Groups Printed- All Vehicles

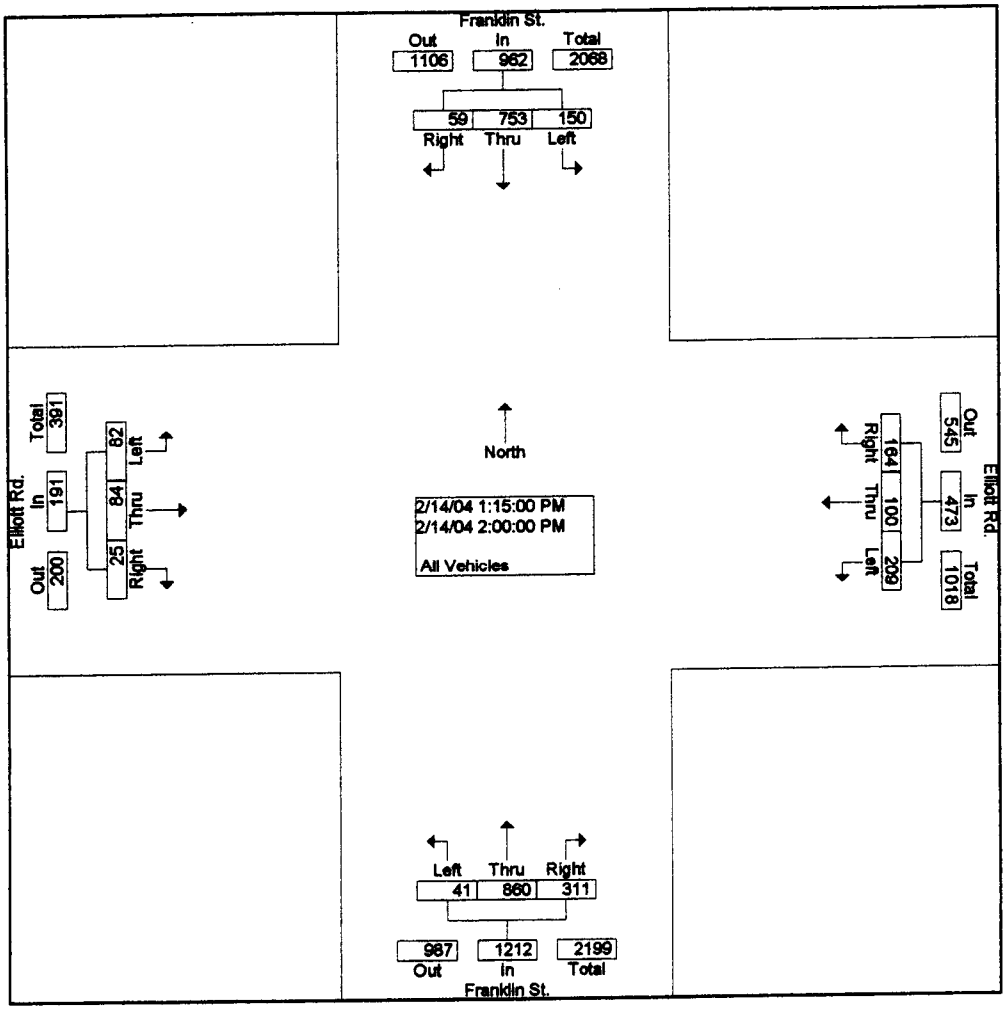
| | Franklin St. Southbound | | | Elliott Rd. Westbound | | | Franklin St. Northbound | | | Elliott Rd. Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| 11:00 AM | 22 | 161 | 10 | 43 | 19 | 15 | 13 | 149 | 57 | 19 | 22 | 18 | 548 |
| 11:15 AM | 18 | 136 | 22 | 40 | 15 | 30 | 8 | 170 | 76 | 12 | 18 | 9 | 554 |
| 11:30 AM | 19 | 133 | 17 | 46 | 32 | 26 | 11 | 186 | 57 | 32 | 16 | 7 | 582 |
| 11:45 AM | 29 | 148 | 21 | 44 | 30 | 22 | 7 | 149 | 62 | 29 | 29 | 14 | 584 |
| Total | 88 | 578 | 70 | 173 | 96 | 93 | 39 | 654 | 252 | 92 | 85 | 48 | 2268 |
| 12:00 PM | 28 | 200 | 21 | 45 | 26 | 35 | 13 | 206 | 68 | 20 | 26 | 24 | 712 |
| 12:15 PM | 35 | 166 | 23 | 49 | 23 | 32 | 13 | 205 | 62 | 27 | 16 | 7 | 658 |
| 12:30 PM | 23 | 167 | 20 | 53 | 27 | 23 | 13 | 180 | 66 | 14 | 17 | 12 | 615 |
| 12:45 PM | 24 | 184 | 10 | 53 | 21 | 30 | 9 | 188 | 80 | 26 | 19 | 13 | 657 |
| Total | 110 | 717 | 74 | 200 | 97 | 120 | 48 | 779 | 276 | 87 | 78 | 56 | 2642 |
| 01:00 PM | 24 | 170 | 17 | 59 | 23 | 39 | 15 | 181 | 69 | 25 | 16 | 3 | 641 |
| 01:15 PM | 34 | 169 | 11 | 43 | 28 | 45 | 7 | 185 | 92 | 24 | 20 | 8 | 666 |
| 01:30 PM | 35 | 211 | 21 | 62 | 22 | 44 | 6 | 227 | 68 | 27 | 17 | 2 | 742 |
| 01:45 PM | 39 | 205 | 12 | 59 | 23 | 41 | 13 | 252 | 75 | 14 | 24 | 9 | 766 |
| Total | 132 | 755 | 61 | 223 | 96 | 169 | 41 | 845 | 304 | 90 | 77 | 22 | 2815 |
| 02:00 PM | 42 | 168 | 15 | 45 | 27 | 34 | 15 | 196 | 76 | 17 | 23 | 6 | 664 |
| 02:15 PM | 26 | 157 | 13 | 38 | 18 | 43 | 10 | 225 | 65 | 22 | 11 | 8 | 636 |
| 02:30 PM | 30 | 153 | 15 | 60 | 25 | 34 | 8 | 185 | 51 | 21 | 17 | 5 | 604 |
| 02:45 PM | 22 | 155 | 15 | 52 | 19 | 45 | 10 | 218 | 69 | 16 | 10 | 9 | 640 |
| Total | 120 | 633 | 58 | 195 | 89 | 156 | 43 | 824 | 261 | 76 | 61 | 28 | 2544 |
| 05:00 PM | 33 | 166 | 17 | 44 | 22 | 36 | 5 | 199 | 67 | 14 | 19 | 8 | 630 |
| 05:15 PM | 28 | 202 | 13 | 55 | 31 | 28 | 11 | 143 | 59 | 6 | 14 | 6 | 596 |
| 05:30 PM | 19 | 128 | 28 | 44 | 21 | 26 | 8 | 123 | 49 | 13 | 19 | 2 | 480 |
| 05:45 PM | 18 | 192 | 11 | 47 | 19 | 32 | 7 | 138 | 37 | 9 | 12 | 8 | 530 |
| Total | 98 | 688 | 69 | 190 | 93 | 122 | 31 | 603 | 212 | 42 | 64 | 24 | 2236 |
| 06:00 PM | 26 | 166 | 10 | 39 | 21 | 27 | 6 | 173 | 56 | 13 | 18 | 3 | 558 |
| 06:15 PM | 21 | 166 | 13 | 55 | 16 | 15 | 8 | 179 | 47 | 9 | 13 | 9 | 551 |
| 06:30 PM | 26 | 144 | 8 | 35 | 24 | 29 | 4 | 159 | 39 | 6 | 12 | 9 | 495 |
| 06:45 PM | 12 | 146 | 11 | 25 | 30 | 26 | 2 | 169 | 43 | 11 | 14 | 5 | 494 |
| Total | 85 | 622 | 42 | 154 | 91 | 97 | 20 | 680 | 185 | 39 | 57 | 26 | 2098 |
| 07:00 PM | 23 | 156 | 16 | 41 | 16 | 25 | 6 | 154 | 31 | 9 | 15 | 4 | 496 |
| 07:15 PM | 12 | 186 | 15 | 42 | 14 | 18 | 0 | 145 | 30 | 6 | 14 | 5 | 487 |
| 07:30 PM | 20 | 149 | 5 | 29 | 16 | 22 | 2 | 128 | 34 | 9 | 8 | 3 | 425 |
| 07:45 PM | 10 | 122 | 6 | 35 | 9 | 21 | 4 | 109 | 32 | 2 | 5 | 4 | 359 |
| Total | 65 | 613 | 42 | 147 | 55 | 86 | 12 | 536 | 127 | 26 | 42 | 16 | 1767 |
| 08:00 PM | 13 | 116 | 5 | 37 | 8 | 24 | 5 | 112 | 26 | 9 | 10 | 3 | 368 |
| 08:15 PM | 14 | 113 | 7 | 26 | 5 | 20 | 5 | 135 | 41 | 6 | 5 | 2 | 379 |
| 08:30 PM | 14 | 116 | 9 | 28 | 15 | 13 | 10 | 111 | 28 | 6 | 1 | 2 | 353 |
| 08:45 PM | 1 | 143 | 5 | 27 | 8 | 11 | 5 | 164 | 24 | 6 | 8 | 4 | 406 |
| Total | 42 | 488 | 26 | 118 | 36 | 68 | 25 | 522 | 119 | 27 | 24 | 11 | 1506 |
| Grand Total | 740 | 5094 | 442 | 1400 | 653 | 911 | 259 | 5443 | 1736 | 479 | 488 | 231 | 17876 |
| Apprch % | 11.8 | 81.2 | 7.0 | 47.2 | 22.0 | 30.7 | 3.5 | 73.2 | 23.3 | 40.0 | 40.7 | 19.3 | |
| Total % | 4.1 | 28.5 | 2.5 | 7.8 | 3.7 | 5.1 | 1.4 | 30.4 | 9.7 | 2.7 | 2.7 | 1.3 | |

Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(292)

File Name : elliott-franklin-saturday
Site Code : 00000000
Start Date : 02/14/2004


| | Franklin St. Southbound | | | | Elliott Rd. Westbound | | | | Franklin St. Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 11:00 AM to 03:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection 01:15 PM | | | | | | | | | | | | | | | | | |
| Volume | 150 | 753 | 59 | 962 | 209 | 100 | 164 | 473 | 41 | 860 | 311 | 1212 | 82 | 84 | 25 | 191 | 2838 |
| Percent | 15.6 | 78.3 | 6.1 | | 44.2 | 21.1 | 34.7 | | 3.4 | 71.0 | 25.7 | | 42.9 | 44.0 | 13.1 | | |
| 01:45 Volume | 39 | 205 | 12 | 256 | 59 | 23 | 41 | 123 | 13 | 252 | 75 | 340 | 14 | 24 | 9 | 47 | 766 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.926 |
| High Int. | 01:30 PM | | | | 01:30 PM | | | | 01:45 PM | | | | 01:15 PM | | | | |
| Volume | 35 | 211 | 21 | 267 | 62 | 22 | 44 | 128 | 13 | 252 | 75 | 340 | 24 | 20 | 8 | 52 | |
| Peak Factor | | | | 0.901 | | | | 0.924 | | | | 0.891 | | | | 0.918 | |

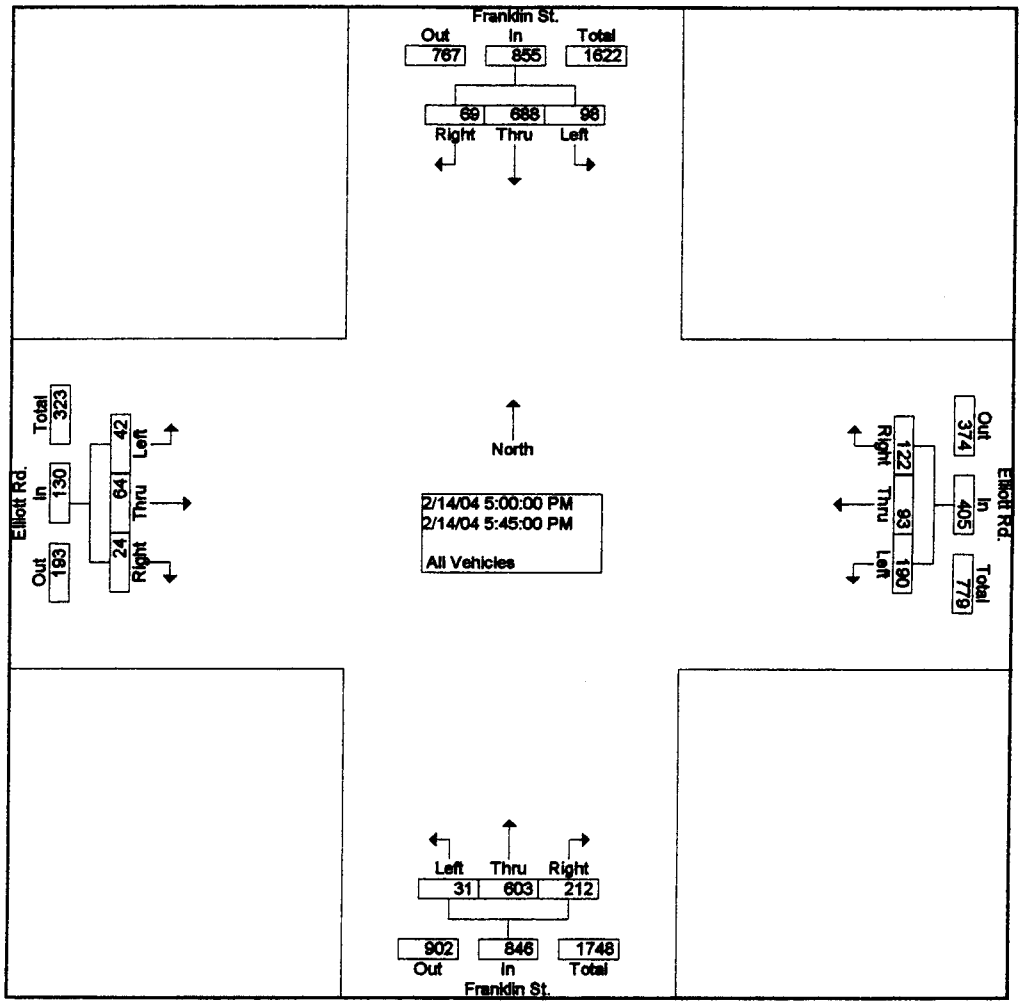


Carolina Traffic Services
3958 Cold Springs Road
Concord, NC 28025
(704) 436-3817

(293)

File Name : elliott-franklin-saturday
Site Code : 00000000
Start Date : 02/14/2004
Page No : 1

| | Franklin St. Southbound | | | | Elliott Rd. Westbound | | | | Franklin St. Northbound | | | | Elliott Rd. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour From 05:00 PM to 08:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection 05:00 PM | | | | | | | | | | | | | | | | | |
| Volume | 98 | 688 | 69 | 855 | 190 | 93 | 122 | 405 | 31 | 603 | 212 | 846 | 42 | 64 | 24 | 130 | 2236 |
| Percent | 11.5 | 80.5 | 8.1 | | 46.9 | 23.0 | 30.1 | | 3.7 | 71.3 | 25.1 | | 32.3 | 49.2 | 18.5 | | |
| 05:00 Volume | 33 | 166 | 17 | 216 | 44 | 22 | 36 | 102 | 5 | 199 | 67 | 271 | 14 | 19 | 8 | 41 | 630 |
| Peak Factor | | | | | | | | | | | | | | | | | 0.887 |
| High Int. | 05:15 PM | | | | 05:15 PM | | | | 05:00 PM | | | | 05:00 PM | | | | |
| Volume | 28 | 202 | 13 | 243 | 55 | 31 | 28 | 114 | 5 | 199 | 67 | 271 | 14 | 19 | 8 | 41 | |
| Peak Factor | | | | 0.880 | | | | 0.888 | | | | 0.780 | | | | 0.793 | |



**Trip Generation, 7th Edition**
**Land Use 445, Multiplex Movie Theater**

| Independent Variable | Number of Studies | Average Independent Variable Size | Directional Distribution | | Average Rate | Range of Rates | | Standard Deviation | 110% of Average Rate | Standard Deviation <= 110% Avg. Rate? | Fitted Curve Equation | R2 | R2 >= 0.75? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Entering | Exiting | | Low | High | | | | | | |
| **Friday PM Peak Hour of Adjacent Street Traffic** | | | | | | | | | | | | | |
| **Movie Screens** | **15** | **16** | **60%** | **40%** | **23.02** | **8.41** | **47.90** | **11.72** | **25.32** | **yes** | **Not given** | **n/a** | **n/a** |
| Seats | 13 | 3617 | 60% | 40% | 0.10 | 0.04 | 0.21 | 0.33 | 0.11 | no | Not given | n/a | n/a |
| 1000 Sq. Feet Gross Floor Area | 7 | 65 | 64% | 36% | 5.22 | 3.07 | 9.04 | 3.14 | 5.74 | yes | Ln(T) = 1.35 Ln(X) + 0.11 | 0.79 | yes |
| **Friday PM Peak Hour of Generator** | | | | | | | | | | | | | |
| **Movie Screens** | **13** | **17** | **57%** | **43%** | **62.89** | **27.70** | **109.44** | **24.54** | **69.18** | **yes** | **Not given** | **n/a** | **n/a** |
| Seats | 11 | 3551 | 59% | 41% | 0.29 | 0.14 | 0.39 | 0.55 | 0.32 | no | Not given | n/a | n/a |
| 1000 Sq. Feet Gross Floor Area | 5 | 66 | 58% | 42% | 17.87 | 9.83 | 20.59 | 5.15 | 19.66 | yes | T = 18.35(X) - 31.92 | 0.93 | yes |
| **Saturday Midday Peak Hour of Adjacent Street Traffic** | | | | | | | | | | | | | |
| **Movie Screens** | **7** | **18** | **72%** | **28%** | **19.97** | **14.31** | **29.06** | **6.47** | **21.97** | **yes** | **T = 30.23(X) - 188.62** | **0.54** | **no** |
| Seats | 7 | 4099 | 72% | 28% | 0.09 | 0.06 | 0.14 | 0.30 | 0.10 | no | Not given | n/a | n/a |
| 1000 Sq. Feet Gross Floor Area | 4 | 75 | 75% | 25% | 4.70 | 4.22 | 6.93 | 2.33 | 5.17 | yes | T = 3.47(X) + 92.57 | 0.89 | yes |
| **Saturday Peak Hour of Generator** | | | | | | | | | | | | | |
| **Movie Screens** | **16** | **16** | **52%** | **48%** | **69.14** | **28.80** | **111.00** | **21.10** | **76.05** | **yes** | **T = 96.59(X) - 440.99** | **0.70** | **no** |
| Seats | 14 | 3504 | 52% | 48% | 0.30 | 0.14 | 0.51 | 0.56 | 0.33 | no | T = 0.37(X) - 229.36 | 0.62 | no |
| 1000 Sq. Feet Gross Floor Area | 8 | 60 | 52% | 48% | 16.76 | 10.22 | 26.34 | 6.58 | 18.44 | yes | Ln(T) = 1.2 Ln(X) + 1.96 | 0.75 | yes |

## Friday PM Peak Hour of Adjacent Street Traffic

One Hour Between 4 and 6 p.m

| | X | Total | Entering | Exiting | Entering Trips | | Exiting Trips | |
|---|---|---|---|---|---|---|---|---|
| **Movie Screens** | **10** | **Trips** | **Trips** | **Trips** | **From Franklin** | **From US 15/501** | **To Franklin** | **To US 15/501** |
| | | | | | 50% | 50% | 50% | 50% |
| **Using Average Rate** | | **230** | **138** | **92** | **69** | **69** | **46** | **46** |
| Using High Rate | | 479 | 287 | 192 | 144 | 144 | 96 | 96 |
| Using Fitted Curve | | n/a | n/a | n/a | | | | |
| **Seats** | 1600 | | | | | | | |
| Using Average Rate | | 160 | 96 | 64 | | | | |
| Using High Rate | | 336 | 202 | 134 | | | | |
| Using Fitted Curve | | n/a | n/a | n/a | | | | |
| **1000 Sq. Feet Gross Floor Area** | 36 | | | | | | | |
| Using Average Rate | | 188 | 120 | 68 | | | | |
| Using High Rate | | 325 | 208 | 117 | | | | |
| Using Fitted Curve | | 141 | 90 | 51 | | | | |

## Friday PM Peak Hour of Generator

One Hour Between 6 and 10 p.m

| | X | Total | Entering | Exiting | Entering Trips | | Exiting Trips | |
|---|---|---|---|---|---|---|---|---|
| **Movie Screens** | **10** | **Trips** | **Trips** | **Trips** | **From Franklin** | **From US 15/501** | **To Franklin** | **To US 15/501** |
| | | | | | 50% | 50% | 50% | 50% |
| **Using Average Rate** | | **629** | **358** | **270** | **179** | **179** | **135** | **135** |
| Using High Rate | | 1094 | 624 | 471 | 312 | 312 | 235 | 235 |
| Using Fitted Curve | | n/a | n/a | n/a | | | | |
| **Seats** | 1600 | | | | | | | |
| Using Average Rate | | 464 | 274 | 190 | | | | |
| Using High Rate | | 624 | 368 | 256 | | | | |
| Using Fitted Curve | | n/a | n/a | n/a | | | | |
| **1000 Sq. Feet Gross Floor Area** | 36 | | | | | | | |
| Using Average Rate | | 643 | 373 | 270 | | | | |
| Using High Rate | | 741 | 430 | 311 | | | | |
| Using Fitted Curve | | 629 | 365 | 264 | | | | |

## Saturday Peak Hour of Adjacent Street Traffic

One Hour Between 11 a.m. and 1 p.m

| | X | Total Trips | Entering Trips | Exiting Trips | Entering Trips: From Franklin | Entering Trips: From US 15/501 | Exiting Trips: To Franklin | Exiting Trips: To US 15/501 |
|---|---|---|---|---|---|---|---|---|
| **Movie Screens** | **10** | | | | 50% | 50% | 50% | 50% |
| **Using Average Rate** | | **200** | **144** | **56** | **72** | **72** | **28** | **28** |
| Using High Rate | | 291 | 209 | 81 | 105 | 105 | 41 | 41 |
| Using Fitted Curve | | 114 | 82 | 32 | | | | |
| **Seats** | 1600 | | | | | | | |
| Using Average Rate | | 144 | 104 | 40 | | | | |
| Using High Rate | | 224 | 161 | 63 | | | | |
| Using Fitted Curve | | n/a | n/a | n/a | | | | |
| **1000 Sq. Feet Gross Floor Area** | 36 | | | | | | | |
| Using Average Rate | | 169 | 127 | 42 | | | | |
| Using High Rate | | 249 | 187 | 62 | | | | |
| Using Fitted Curve | | 217 | 163 | 54 | | | | |

296

## Saturday Peak Hour of Generator

One Hour Between 6 and 10 p.m

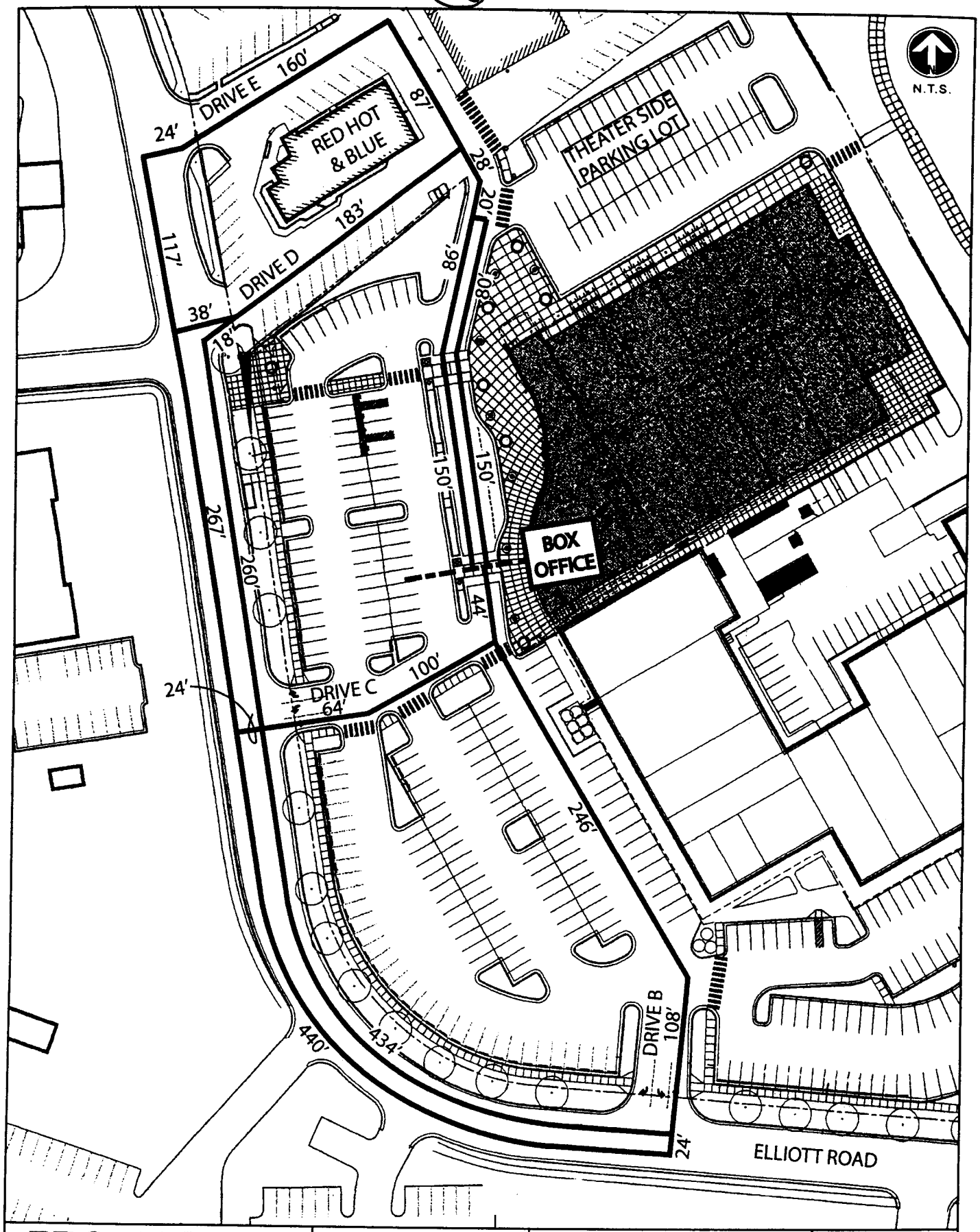
| | X | Total Trips | Entering Trips | Exiting Trips | Entering Trips: From Franklin | Entering Trips: From US 15/501 | Exiting Trips: To Franklin | Exiting Trips: To US 15/501 |
|---|---|---|---|---|---|---|---|---|
| **Movie Screens** | **10** | | | | 50% | 50% | 50% | 50% |
| **Using Average Rate** | | **691** | **360** | **332** | **180** | **180** | **166** | **166** |
| Using High Rate | | 1110 | 577 | 533 | 289 | 289 | 266 | 266 |
| Using Fitted Curve | | 525 | 273 | 252 | | | | |
| **Seats** | 1600 | | | | | | | |
| Using Average Rate | | 480 | 250 | 230 | | | | |
| Using High Rate | | 816 | 424 | 392 | | | | |
| Using Fitted Curve | | 363 | 189 | 174 | | | | |
| **1000 Sq. Feet Gross Floor Area** | 36 | | | | | | | |
| Using Average Rate | | 603 | 314 | 290 | | | | |
| Using High Rate | | 948 | 493 | 455 | | | | |
| Using Fitted Curve | | 523 | 272 | 251 | | | | |

(47)

## Trip Generation, 7th Edition
## Land Use 445, Multiplex Movie Theater

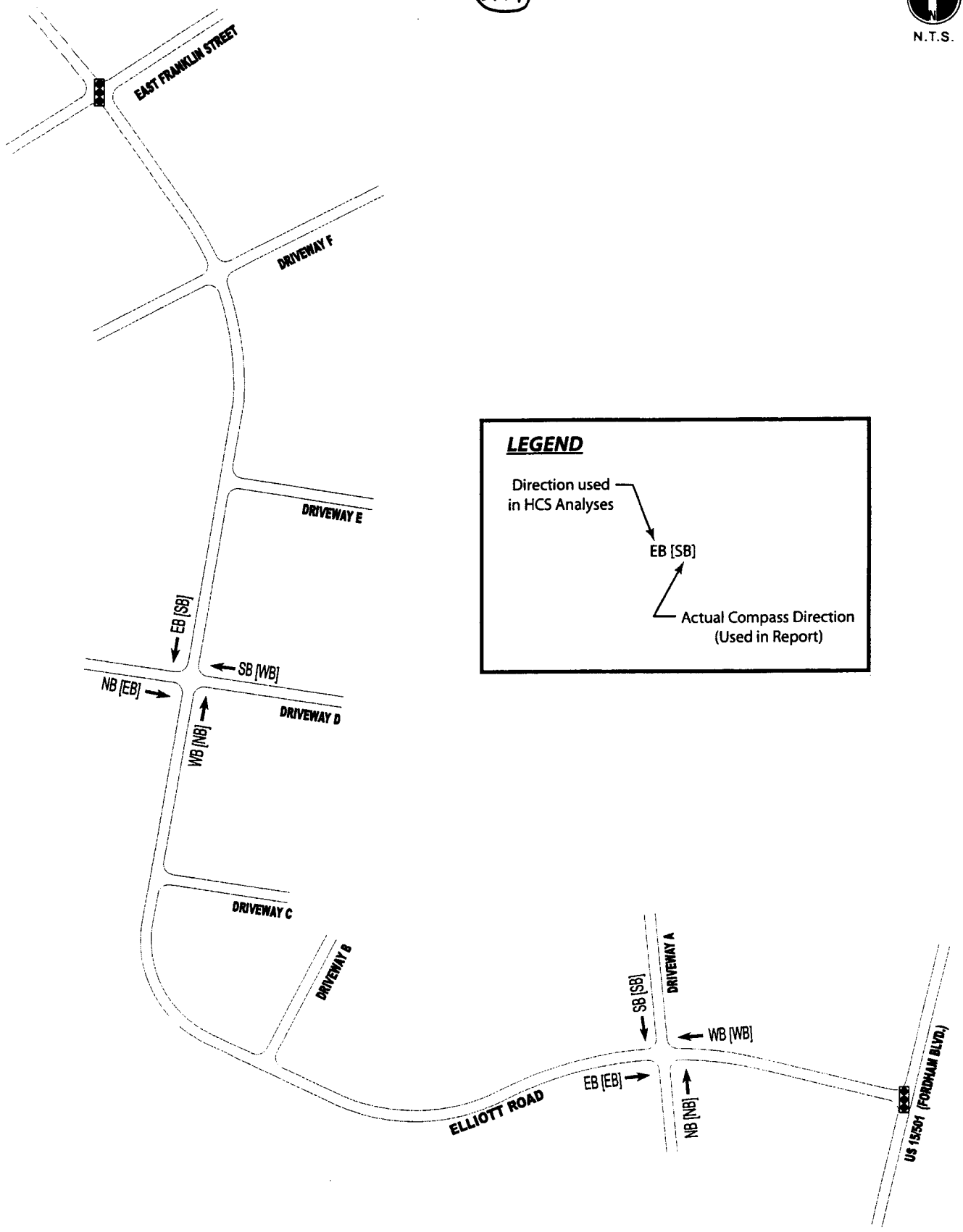
Based on 10-screen data point with maximum T value shown on data plot.

| Independent Variable | Directional Distribution | | Average Vehicle Trip Ends | Computed Rate | Entering Trips | Exiting Trips | Entering Trips | | Exiting Trips | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Entering | Exiting | | | | | From Franklin | From US 15/501 | To Franklin | To US 15/501 |
| | | | | | | | 50% | 50% | 50% | 50% |
| **Friday PM Peak Hour of Adjacent Street Traffic** | | | | | | | | | | |
| Movie Screens | 60% | 40% | 480 | 48.00 | 288 | 192 | 144 | 144 | 96 | 96 |
| **Friday PM Peak Hour of Generator** | | | | | | | | | | |
| Movie Screens | 57% | 43% | 870 | 87.00 | 496 | 374 | 248 | 248 | 187 | 187 |
| **Saturday Midday Peak Hour of Adjacent Street Traffic** | | | | | | | | | | |
| Movie Screens | 72% | 28% | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| **Saturday Peak Hour of Generator** | | | | | | | | | | |
| Movie Screens | 52% | 48% | 845 | 84.50 | 439 | 406 | 220 | 220 | 203 | 203 |




| | | | |
|---|---|---|---|
| PBSJ 1616 E. Millbrook Road-Suite 310 Raleigh, NC 27609 (919) 876-6888 | PROJECT: VILLAGE PLAZA TRAFFIC IMPACT ANALYSIS | DESCRIPTION: APPROXIMATE TRAVEL DISTANCES FOR ENTERING AND EXITING THEATER TRAFFIC | Figure A1 |

N.T.S.




| | | | |
|---|---|---|---|
| PBSJ 1616 E. Millbrook Road-Suite 310 Raleigh, NC 27609 (919) 876-6888 | PROJECT: VILLAGE PLAZA TRAFFIC IMPACT ANALYSIS | DESCRIPTION: KEY TO HCS ANALYSIS APPROACH DIRECTIONS | Figure A2 |

# INTERSECTION ANALYSES

# EXISTING (2004) CONDITIONS

(301)

# HCS2000™ DETAILED REPORT

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | Erin Harrington | Intersection | US 15-501 & Elliott Rd |
| Agency or Co. | PBS&J | Area Type | All other areas |
| Date Performed | 4/20/2004 | Jurisdiction | Town of Chapel Hill |
| Time Period | Exist Friday PM | Analysis Year | 2004 |
| | | Project ID | Village Plaza No Build Analysis |

## Volume and Timing Input

| | EB | | | WB | | | NB | | | SB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Number of lanes, $N_1$ | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 2 | 1 |
| Lane group | L | | R | | | | L | T | | L | T | R |
| Volume, V (vph) | 153 | | 292 | | | | 301 | 1608 | | 20 | 1598 | 189 |
| % Heavy vehicles, %HV | 1 | | 1 | | | | 1 | 1 | | 1 | 1 | 1 |
| Peak-hour factor, PHF | 0.95 | | 0.95 | | | | 0.95 | 0.95 | | 0.95 | 0.95 | 0.95 |
| Pretimed (P) or actuated (A) | A | | A | | | | A | A | | A | A | A |
| Start-up lost time, $l_1$ | 2.0 | | 2.0 | | | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Extension of effective green, e | 2.0 | | 2.0 | | | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Arrival type, AT | 3 | | 3 | | | | 3 | 3 | | 3 | 3 | 3 |
| Unit extension, UE | 3.0 | | 3.0 | | | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Filtering/metering, I | 1.000 | 1.000 | 1.000 | | | | 1.000 | 1.000 | | 1.000 | 1.000 | 1.000 |
| Initial unmet demand, $Q_b$ | 0.0 | | 0.0 | | | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Ped / Bike / RTOR volumes | 0 | | 29 | 0 | | | 0 | | | 0 | | 19 |
| Lane width | 12.0 | | 12.0 | | | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| Parking / Grade / Parking | N | 0 | N | N | | N | N | 0 | N | N | 0 | N |
| Parking maneuvers, $N_m$ | | | | | | | | | | | | |
| Buses stopping, $N_B$ | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| Min. time for pedestrians, $G_p$ | 3.2 | | | 3.2 | | | 3.2 | | | 3.2 | | |

| Phasing | EB Only | 02 | 03 | 04 | Excl. Left | NB Only | Thru & RT | 08 |
|---|---|---|---|---|---|---|---|---|
| Timing | G = 26.0 | G = | G = | G = | G = 9.0 | G = 25.0 | G = 82.0 | G = |
| | Y = 6 | Y = | Y = | Y = | Y = 6 | Y = | Y = 6 | Y = |
| Duration of Analysis, T = 0.25 | | | | | | Cycle Length, C = 160.0 | | |

## Lane Group Capacity, Control Delay, and LOS Determination

| | EB | | | WB | | | NB | | | SB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Adjusted flow rate, v | 161 | | 277 | | | | 317 | 1693 | | 21 | 1682 | 179 |
| Lane group capacity, c | 260 | | 644 | | | | 400 | 2139 | | 90 | 1639 | 733 |
| v/c ratio, X | 0.62 | | 0.43 | | | | 0.79 | 0.79 | | 0.23 | 1.03 | 0.24 |
| Total green ratio, g/C | 0.16 | | 0.45 | | | | 0.25 | 0.67 | | 0.06 | 0.51 | 0.51 |

302

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Uniform delay, $d_1$ | 62.4 | | 30.0 | | | | 56.1 | 18.6 | | 72.2 | 39.0 | 21.7 |
| Progression factor, PF | 1.000 | | 1.000 | | | | 1.000 | 1.000 | | 1.000 | 1.000 | 1.000 |
| Delay calibration, k | 0.20 | | 0.11 | | | | 0.34 | 0.34 | | 0.11 | 0.50 | 0.11 |
| Incremental delay, $d_2$ | 4.5 | | 0.5 | | | | 10.5 | 2.1 | | 1.3 | 29.2 | 0.2 |
| Initial queue delay, $d_3$ | | | | | | | | | | | | |
| Control delay | 66.8 | | 30.5 | | | | 66.6 | 20.8 | | 73.5 | 68.2 | 21.9 |
| Lane group LOS | E | | C | | | | E | C | | E | E | C |
| Approach delay | 43.8 | | | | | | 28.0 | | | 63.8 | | |
| Approach LOS | D | | | | | | C | | | E | | |
| Intersection delay | 45.2 | | | $X_c$ = 0.89 | | | Intersection LOS | | | D | | |

(303)

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *Erin Harrington* | Intersection | *Elliott Rd & Burger King* |
| Agency/Co. | *PBS&J* | Jurisdiction | *Town of Chapel Hill* |
| Date Performed | *4/20/2004* | Analysis Year | *2004* |
| Analysis Time Period | *Exist Friday PM* | | |

Project Description *Village Plaza No Build Analysis (Driveway A)*

East/West Street: *Elliott Rd* | North/South Street: *Burger King*

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) | *38* | *385* | *109* | *28* | *447* | *15* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *40* | *405* | *114* | *29* | *470* | *15* |
| Proportion of heavy vehicles, $P_{HV}$ | *1* | – | – | *1* | – | – |
| Median type | *Undivided* | | | | | |
| RT Channelized? | | | *0* | | | *0* |
| Lanes | *1* | *1* | *0* | *1* | *1* | *0* |
| Configuration | *L* | | *TR* | *L* | | *TR* |
| Upstream Signal | | *0* | | | *1* | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | *66* | *1* | *40* | *20* | *1* | *21* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *69* | *1* | *42* | *21* | *1* | *22* |
| Proportion of heavy vehicles, $P_{HV}$ | *1* | *1* | *1* | *1* | *1* | *1* |
| 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) | *40* | *29* | | *112* | | | *44* | |
| Capacity, $c_m$ (vph) | *1086* | *1052* | | *242* | | | *262* | |
| v/c ratio | *0.04* | *0.03* | | *0.46* | | | *0.17* | |
| Queue length (95%) | *0.11* | *0.08* | | *2.27* | | | *0.59* | |
| Control Delay (s/veh) | *8.4* | *8.5* | | *32.1* | | | *21.5* | |

(304)

| LOS | A | A | D | C |
|---|---|---|---|---|
| Approach delay (s/veh) | -- | -- | 32.1 | 21.5 |
| Approach LOS | -- | -- | D | C |

(305)

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *Erin Harrington* | Intersection | *Elliott Rd & Plaza* |
| Agency/Co. | *PBS&J* | Jurisdiction | *Town of Chapel Hill* |
| Date Performed | *4/20/2004* | Analysis Year | *2004* |
| Analysis Time Period | *Exist Friday PM* | | |

Project Description *Village Plaza No Build Analysis (Driveway B)*

East/West Street: *Elliott Rd* | North/South Street: *Plaza*

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) | *24* | *452* | *0* | *0* | *461* | *65* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *25* | *475* | *0* | *0* | *485* | *68* |
| Proportion of heavy vehicles, $P_{HV}$ | *1* | – | – | *0* | – | – |
| Median type | *Undivided* | | | | | |
| 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* | *66* | *0* | *32* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *0* | *0* | *0* | *69* | *0* | *33* |
| Proportion of heavy vehicles, $P_{HV}$ | *0* | *0* | *0* | *1* | *1* | *1* |
| Percent grade (%) | | *0* | | | *0* | |
| 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) | *25* | | | | | *69* | | *33* |
| Capacity, $c_m$ (vph) | *1022* | | | | | *249* | | *559* |
| v/c ratio | *0.02* | | | | | *0.28* | | *0.06* |
| Queue length (95%) | *0.08* | | | | | *1.10* | | *0.19* |
| Control Delay (s/veh) | *8.6* | | | | | *24.9* | | *11.8* |

306

| LOS | A | | | | | C | | B |
|---|---|---|---|---|---|---|---|---|
| Approach delay (s/veh) | – | – | | | | 20.7 | | |
| Approach LOS | – | – | | | | C | | |

(307)

# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | *Erin Harrington* |
| Agency/Co. | *PBS&J* |
| Date Performed | *5/5/2004* |
| Analysis Time Period | *Exist Friday PM* |

## Site Information

| | |
|---|---|
| Intersection | *Elliott Rd & Theater* |
| Jurisdiction | *Town of Chapel Hill* |
| Analysis Year | *2004* |
| | |

Project Description *Village Plaza No Build Analysis (Driveway C)*

East/West Street: *Elliott Rd* | North/South Street: *Theater*

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) | *61* | *450* | *0* | *0* | *479* | *10* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *64* | *473* | *0* | *0* | *504* | *10* |
| Proportion of heavy vehicles, $P_{HV}$ | *1* | – | – | *0* | – | – |
| Median type | *Undivided* | | | | | |
| 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* | *6* | *0* | *41* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *0* | *0* | *0* | *6* | *0* | *43* |
| Proportion of heavy vehicles, $P_{HV}$ | *0* | *0* | *0* | *1* | *0* | *1* |
| Percent grade (%) | | *0* | | | *0* | |
| Flared approach | | *N* | | | *N* | |
| Storage | | *0* | | | *0* | |
| RT Channelized? | | | *0* | | | *0* |
| Lanes | *0* | *0* | *0* | *0* | *1* | *0* |
| Configuration | | | | | *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* | | | | | | *LTR* | |
| Volume, v (vph) | *64* | | | | | | *49* | |
| Capacity, $c_m$ (vph) | *1057* | | | | | | *474* | |
| v/c ratio | *0.06* | | | | | | *0.10* | |
| Queue length (95%) | *0.19* | | | | | | *0.34* | |
| Control Delay (s/veh) | *8.6* | | | | | | *13.5* | |

308

| LOS | A | | | | | B | |
|---|---|---|---|---|---|---|---|
| Approach delay (s/veh) | – | – | | | | 13.5 | |
| Approach LOS | – | – | | | | B | |

(309)

# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | Erin Harrington |
| Agency/Co. | PBS&J |
| Date Performed | 4/20/2004 |
| Analysis Time Period | Exist Friday PM |

## Site Information

| | |
|---|---|
| Intersection | Elliott Rd & Red Hot Blue 2 |
| Jurisdiction | Town of Chapel Hill |
| Analysis Year | 2004 |
| | |

Project Description: Village Plaza No Build Analysis (Driveway D)

East/West Street: Elliott Rd | North/South Street: Red Hot Blue 2

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) | 18 | 416 | 9 | 40 | 451 | 29 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate (veh/h) | 18 | 437 | 9 | 42 | 474 | 30 |
| Proportion of heavy vehicles, $P_{HV}$ | 1 | – | – | 1 | – | – |
| Median type | Undivided | | | | | |
| 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) | 24 | 0 | 40 | 55 | 0 | 28 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate (veh/h) | 25 | 0 | 42 | 57 | 0 | 29 |
| Proportion of heavy vehicles, $P_{HV}$ | 1 | 1 | 1 | 1 | 1 | 1 |
| 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 | 42 | | 67 | | | 86 | |
| Capacity, $c_m$ (vph) | 1066 | 1120 | | 328 | | | 232 | |
| v/c ratio | 0.02 | 0.04 | | 0.20 | | | 0.37 | |
| Queue length (95%) | 0.05 | 0.12 | | 0.75 | | | 1.62 | |

(310)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Control Delay (s/veh) | 8.4 | 8.3 | | 18.8 | | | 29.4 | |
| LOS | A | A | | C | | | D | |
| Approach delay (s/veh) | – | – | 18.8 | | | 29.4 | | |
| Approach LOS | – | – | C | | | D | | |

(311)

# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | *Erin Harrington* |
| Agency/Co. | *PBS&J* |
| Date Performed | *4/20/2004* |
| Analysis Time Period | *Exist Friday PM* |

## Site Information

| | |
|---|---|
| Intersection | *Elliott Rd & Red Hot Blue 1* |
| Jurisdiction | *Town of Chapel Hill* |
| Analysis Year | *2004* |
| | |

Project Description *Village Plaza No Build Analysis (Driveway E)*

East/West Street: *Elliott Rd* | North/South Street: *Red Hot Blue 1*

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) | *43* | *360* | *0* | *0* | *444* | *59* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *45* | *378* | *0* | *0* | *467* | *62* |
| Proportion of heavy vehicles, $P_{HV}$ | *1* | – | – | *0* | – | – |
| Median type | *Undivided* | | | | | |
| 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* | *83* | *0* | *28* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *0* | *0* | *0* | *87* | *0* | *29* |
| Proportion of heavy vehicles, $P_{HV}$ | *0* | *0* | *0* | *1* | *1* | *1* |
| Percent grade (%) | | *0* | | | *0* | |
| Flared approach | | *N* | | | *N* | |
| Storage | | *0* | | | *0* | |
| RT Channelized? | | | *0* | | | *0* |
| Lanes | *0* | *0* | *0* | *0* | *1* | *0* |
| Configuration | | | | | *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* | | | | | | *LTR* | |
| Volume, v (vph) | *45* | | | | | | *116* | |
| Capacity, $c_m$ (vph) | *1043* | | | | | | *313* | |
| v/c ratio | *0.04* | | | | | | *0.37* | |
| Queue length (95%) | *0.14* | | | | | | *1.66* | |

312

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Control Delay (s/veh) | 8.6 | | | | | | 23.1 | |
| LOS | A | | | | | | C | |
| Approach delay (s/veh) | -- | -- | | | | 23.1 | | |
| Approach LOS | -- | -- | | | | C | | |

(313)

# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | Erin Harrington |
| Agency/Co. | PBS&J |
| Date Performed | 4/20/2004 |
| Analysis Time Period | Exist Friday PM |

## Site Information

| | |
|---|---|
| Intersection | Elliott Rd & Whole Foods #1 |
| Jurisdiction | Town of Chapel Hill |
| Analysis Year | 2004 |
| | |

Project Description: Village Plaza No Build Analysis (Driveway F)

East/West Street: Elliott Rd | North/South Street: Whole Foods #1

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) | 204 | 293 | 81 | 16 | 364 | 92 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate (veh/h) | 214 | 308 | 85 | 16 | 383 | 96 |
| Proportion of heavy vehicles, $P_{HV}$ | 1 | – | – | 1 | – | – |
| Median type | Undivided | | | | | |
| RT Channelized? | | | 0 | | | 0 |
| Lanes | 1 | 1 | 0 | 1 | 1 | 0 |
| Configuration | L | | TR | L | | TR |
| Upstream Signal | | 1 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 68 | 7 | 52 | 58 | 3 | 198 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate (veh/h) | 71 | 7 | 54 | 61 | 3 | 208 |
| Proportion of heavy vehicles, $P_{HV}$ | 1 | 1 | 1 | 1 | 1 | 1 |
| Percent grade (%) | 0 | | | 0 | | |
| Flared approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized? | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 1 |
| Configuration | | LTR | | LT | | 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 | | LTR | | LT | | R |
| Volume, v (vph) | 214 | 16 | | 132 | | 64 | | 208 |
| Capacity, $c_m$ (vph) | 1089 | 1175 | | 118 | | 110 | | 626 |
| v/c ratio | 0.20 | 0.01 | | 1.12 | | 0.58 | | 0.33 |
| Queue length (95%) | 0.73 | 0.04 | | 7.96 | | 2.81 | | 1.45 |

(314)

| Control Delay (s/veh) | 9.1 | 8.1 | | 189.0 | | 75.6 | | 13.6 |
|---|---|---|---|---|---|---|---|---|
| LOS | A | A | | F | | F | | B |
| Approach delay (s/veh) | – | – | 189.0 | | | 28.2 | | |
| Approach LOS | – | – | F | | | D | | |

(315)

# HCS2000™ DETAILED REPORT

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | Erin Harrington | Intersection | Franklin St & Elliott Rd |
| Agency or Co. | PBS&J | Area Type | All other areas |
| Date Performed | 4/20/2004 | Jurisdiction | Town of Chapel Hill |
| Time Period | Exist Friday PM | Analysis Year | 2004 |
| | | Project ID | Village Plaza No Build Analysis |

**Volume and Timing Input**

| | EB | | | WB | | | NB | | | SB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Number of lanes, $N_1$ | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Lane group | L | TR | | L | TR | | L | TR | | L | TR | |
| Volume, V (vph) | 70 | 46 | 56 | 286 | 174 | 170 | 111 | 991 | 357 | 175 | 798 | 129 |
| % Heavy vehicles, %HV | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Pretimed (P) or actuated (A) | A | A | A | A | A | A | A | A | A | A | A | A |
| Start-up lost time, $l_1$ | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Extension of effective green, e | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Arrival type, AT | 3 | 3 | | 3 | 3 | | 3 | 3 | | 3 | 3 | |
| Unit extension, UE | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Filtering/metering, I | 1.000 | 1.000 | | 1.000 | 1.000 | | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Initial unmet demand, $Q_b$ | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Ped / Bike / RTOR volumes | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 |
| Lane width | 12.0 | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | |
| Parking / Grade / Parking | N | 0 | N | N | 0 | N | N | 0 | N | N | 0 | N |
| Parking maneuvers, $N_m$ | | | | | | | | | | | | |
| Buses stopping, $N_B$ | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Min. time for pedestrians, $G_p$ | 3.2 | | | 3.2 | | | 3.2 | | | 3.2 | | |

| Phasing | Excl. Left | EW Perm | 03 | 04 | Excl. Left | NS Perm | 07 | 08 |
|---|---|---|---|---|---|---|---|---|
| Timing | G = 9.0 | G = 18.5 | G = | G = | G = 14.0 | G = 44.5 | G = | G = |
| | Y = 6 | Y = 6.5 | Y = | Y = | Y = 6 | Y = 5.5 | Y = | Y = |
| Duration of Analysis, T = 0.25 | | | | | | Cycle Length, C = 110.0 | | |

**Lane Group Capacity, Control Delay, and LOS Determination**

| | EB | | | WB | | | NB | | | SB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Adjusted flow rate, v | 74 | 107 | | 301 | 362 | | 117 | 1419 | | 184 | 976 | |
| Lane group capacity, c | 196 | 260 | | 343 | 262 | | 204 | 1242 | | 269 | 1267 | |
| v/c ratio, X | 0.38 | 0.41 | | 0.88 | 1.38 | | 0.57 | 1.14 | | 0.68 | 0.77 | |

316

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total green ratio, g/C | 0.30 | 0.17 | | 0.30 | 0.17 | | 0.13 | 0.40 | | 0.59 | 0.40 | |
| Uniform delay, $d_1$ | 29.9 | 40.9 | | 37.9 | 45.8 | | 45.2 | 32.8 | | 28.2 | 28.3 | |
| Progression factor, PF | 1.000 | 1.000 | | 1.000 | 1.000 | | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Delay calibration, k | 0.11 | 0.11 | | 0.40 | 0.50 | | 0.17 | 0.50 | | 0.25 | 0.32 | |
| Incremental delay, $d_2$ | 1.2 | 1.1 | | 21.8 | 193.8 | | 3.9 | 74.2 | | 7.0 | 3.0 | |
| Initial queue delay, $d_3$ | | | | | | | | | | | | |
| Control delay | 31.1 | 41.9 | | 59.7 | 239.5 | | 49.1 | 106.9 | | 35.2 | 31.3 | |
| Lane group LOS | C | D | | E | F | | D | F | | D | C | |
| Approach delay | 37.5 | | | 157.9 | | | 102.5 | | | 31.9 | | |
| Approach LOS | D | | | F | | | F | | | C | | |
| Intersection delay | 86.4 | | | $X_c$ = 1.00 | | | Intersection LOS | | | F | | |

(317)

# HCS2000™ DETAILED REPORT

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | Erin Harrington | Intersection | US 15-501 & Elliott Rd |
| Agency or Co. | PBS&J | Area Type | All other areas |
| Date Performed | 4/20/2004 | Jurisdiction | Town of Chapel Hill |
| Time Period | Exist Saturday Noon | Analysis Year | 2004 |
| | | Project ID | Village Plaza No Build Analysis |

## Volume and Timing Input

| | EB | | | WB | | | NB | | | SB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Number of lanes, $N_1$ | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 2 | 1 |
| Lane group | L | | R | | | | L | T | | L | T | R |
| Volume, V (vph) | 146 | | 325 | | | | 290 | 1435 | | 20 | 1240 | 227 |
| % Heavy vehicles, %HV | 1 | | 1 | | | | 1 | 1 | | 1 | 1 | 1 |
| Peak-hour factor, PHF | 0.95 | | 0.95 | | | | 0.95 | 0.95 | | 0.95 | 0.95 | 0.95 |
| Pretimed (P) or actuated (A) | A | | A | | | | A | A | | A | A | A |
| Start-up lost time, $l_1$ | 2.0 | | 2.0 | | | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Extension of effective green, e | 2.0 | | 2.0 | | | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Arrival type, AT | 3 | | 3 | | | | 3 | 3 | | 3 | 3 | 3 |
| Unit extension, UE | 3.0 | | 3.0 | | | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Filtering/metering, I | 1.000 | 1.000 | 1.000 | | | | 1.000 | 1.000 | | 1.000 | 1.000 | 1.000 |
| Initial unmet demand, $Q_b$ | 0.0 | | 0.0 | | | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Ped / Bike / RTOR volumes | 0 | | 33 | 0 | | | 0 | | | 0 | | 23 |
| Lane width | 12.0 | | 12.0 | | | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| Parking / Grade / Parking | N | 0 | N | N | | N | N | 0 | N | N | 0 | N |
| Parking maneuvers, $N_m$ | | | | | | | | | | | | |
| Buses stopping, $N_B$ | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| Min. time for pedestrians, $G_p$ | 3.2 | | | 3.2 | | | 3.2 | | | 3.2 | | |

| Phasing | EB Only | 02 | 03 | 04 | Excl. Left | NB Only | Thru & RT | 08 |
|---|---|---|---|---|---|---|---|---|
| Timing | G = 28.0 | G = | G = | G = | G = 9.0 | G = 24.0 | G = 71.0 | G = |
| | Y = 6 | Y = | Y = | Y = | Y = 6 | Y = | Y = 6 | Y = |
| Duration of Analysis, T = 0.25 | | | | | | Cycle Length, C = 150.0 | | |

## Lane Group Capacity, Control Delay, and LOS Determination

| | EB | | | WB | | | NB | | | SB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Adjusted flow rate, v | 154 | | 307 | | | | 305 | 1511 | | 21 | 1305 | 215 |
| Lane group capacity, c | 298 | | 696 | | | | 416 | 2025 | | 96 | 1514 | 677 |
| v/c ratio, X | 0.52 | | 0.44 | | | | 0.73 | 0.75 | | 0.22 | 0.86 | 0.32 |
| Total green ratio, g/C | 0.19 | | 0.49 | | | | 0.26 | 0.63 | | 0.06 | 0.47 | 0.47 |

318

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Uniform delay, $d_1$ | 54.9 | | 25.2 | | | | 50.7 | 19.1 | | 67.2 | 35.1 | 24.5 |
| Progression factor, PF | 1.000 | | 1.000 | | | | 1.000 | 1.000 | | 1.000 | 1.000 | 1.000 |
| Delay calibration, k | 0.12 | | 0.11 | | | | 0.29 | 0.30 | | 0.11 | 0.39 | 0.11 |
| Incremental delay, $d_2$ | 1.6 | | 0.4 | | | | 6.6 | 1.6 | | 1.2 | 5.4 | 0.3 |
| Initial queue delay, $d_3$ | | | | | | | | | | | | |
| Control delay | 56.5 | | 25.6 | | | | 57.3 | 20.7 | | 68.3 | 40.5 | 24.8 |
| Lane group LOS | E | | C | | | | E | C | | E | D | C |
| Approach delay | 35.9 | | | | | | 26.8 | | | 38.7 | | |
| Approach LOS | D | | | | | | C | | | D | | |
| Intersection delay | 32.7 | | | $X_c$ = 0.76 | | | Intersection LOS | | | C | | |

(319)

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *Erin Harrington* | Intersection | *Elliott Rd & Burger King* |
| Agency/Co. | *PBS&J* | Jurisdiction | *Town of Chapel Hill* |
| Date Performed | *4/20/2004* | Analysis Year | *2004* |
| Analysis Time Period | *Exist Saturday Noon* | | |

Project Description *Village Plaza No Build Analysis (Driveway A)*

East/West Street: *Elliott Rd* | North/South Street: *Burger King*

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) | *24* | *338* | *18* | *49* | *383* | *85* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *25* | *355* | *18* | *51* | *403* | *89* |
| Proportion of heavy vehicles, $P_{HV}$ | *1* | – | – | *1* | – | – |
| Median type | *Undivided* | | | | | |
| RT Channelized? | | | *0* | | | *0* |
| Lanes | *1* | *1* | *0* | *1* | *1* | *0* |
| Configuration | *L* | | *TR* | *L* | | *TR* |
| Upstream Signal | | *0* | | | *1* | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | *18* | *2* | *55* | *79* | *5* | *29* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *18* | *2* | *57* | *83* | *5* | *30* |
| Proportion of heavy vehicles, $P_{HV}$ | *1* | *1* | *1* | *1* | *1* | *1* |
| 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) | *25* | *51* | | *77* | | | *118* | |
| Capacity, $c_m$ (vph) | *1080* | *1191* | | *426* | | | *238* | |
| v/c ratio | *0.02* | *0.04* | | *0.18* | | | *0.50* | |
| Queue length (95%) | *0.07* | *0.13* | | *0.65* | | | *2.52* | |
| Control Delay (s/veh) | *8.4* | *8.2* | | *15.3* | | | *34.1* | |

320

| LOS | A | A | C | D |
|---|---|---|---|---|
| Approach delay (s/veh) | -- | -- | 15.3 | 34.1 |
| Approach LOS | -- | -- | C | D |

(321)

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *Erin Harrington* | Intersection | *Elliott Rd & Plaza* |
| Agency/Co. | *PBS&J* | Jurisdiction | *Town of Chapel Hill* |
| Date Performed | *4/20/2004* | Analysis Year | *2004* |
| Analysis Time Period | *Exist Saturday Noon* | | |

Project Description *Village Plaza No Build Analysis (Driveway B)*

| | |
|---|---|
| East/West Street: *Elliott Rd* | North/South Street: *Plaza* |
| 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) | *34* | *317* | *0* | *0* | *340* | *84* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *35* | *333* | *0* | *0* | *357* | *88* |
| Proportion of heavy vehicles, $P_{HV}$ | *1* | – | – | *0* | – | – |
| Median type | *Undivided* | | | | | |
| 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* | *58* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *0* | *0* | *0* | *77* | *0* | *61* |
| Proportion of heavy vehicles, $P_{HV}$ | *0* | *0* | *0* | *1* | *1* | *1* |
| Percent grade (%) | | *0* | | | *0* | |
| 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) | *35* | | | | | *77* | | *61* |
| Capacity, $c_m$ (vph) | *1121* | | | | | *343* | | *651* |
| v/c ratio | *0.03* | | | | | *0.22* | | *0.09* |
| Queue length (95%) | *0.10* | | | | | *0.85* | | *0.31* |
| Control Delay (s/veh) | *8.3* | | | | | *18.5* | | *11.1* |

322

| LOS | A | | | | | C | | B |
|---|---|---|---|---|---|---|---|---|
| Approach delay (s/veh) | – | – | | | | 15.2 | | |
| Approach LOS | – | – | | | | C | | |

323

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | Erin Harrington | Intersection | Elliott Rd & Theater |
| Agency/Co. | PBS&J | Jurisdiction | Town of Chapel Hill |
| Date Performed | 5/5/2004 | Analysis Year | 2004 |
| Analysis Time Period | Exist Saturday Noon | | |

Project Description: Village Plaza No Build Analysis (Driveway C)

East/West Street: Elliott Rd | North/South Street: Theater

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) | 88 | 337 | 0 | 0 | 391 | 7 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate (veh/h) | 92 | 354 | 0 | 0 | 411 | 7 |
| Proportion of heavy vehicles, $P_{HV}$ | 1 | – | – | 0 | – | – |
| Median type | Undivided | | | | | |
| 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 | 12 | 0 | 55 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate (veh/h) | 0 | 0 | 0 | 12 | 0 | 57 |
| Proportion of heavy vehicles, $P_{HV}$ | 0 | 0 | 0 | 1 | 0 | 1 |
| Percent grade (%) | | 0 | | | 0 | |
| Flared approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized? | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | | | 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 | | | | | | LTR | |
| Volume, v (vph) | 92 | | | | | | 69 | |
| Capacity, $c_m$ (vph) | 1146 | | | | | | 514 | |
| v/c ratio | 0.08 | | | | | | 0.13 | |
| Queue length (95%) | 0.26 | | | | | | 0.46 | |
| Control Delay (s/veh) | 8.4 | | | | | | 13.1 | |

(324)

| LOS | A | | | | B | |
|---|---|---|---|---|---|---|
| Approach delay (s/veh) | – | – | | | 13.1 | |
| Approach LOS | – | – | | | B | |

325

# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | *Erin Harrington* |
| Agency/Co. | *PBS&J* |
| Date Performed | *4/20/2004* |
| Analysis Time Period | *Exist Saturday Noon* |

## Site Information

| | |
|---|---|
| Intersection | *Elliott Rd & Red Hot Blue 2* |
| Jurisdiction | *Town of Chapel Hill* |
| Analysis Year | *2004* |
| | |

Project Description *Village Plaza No Build Analysis (Driveway D)*

East/West Street: *Elliott Rd* | North/South Street: *Red Hot Blue 2*

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) | *7* | *347* | *3* | *14* | *413* | *19* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *7* | *365* | *3* | *14* | *434* | *20* |
| Proportion of heavy vehicles, $P_{HV}$ | *1* | – | – | *1* | – | – |
| Median type | *Undivided* | | | | | |
| 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) | *5* | *0* | *10* | *68* | *0* | *39* |
| Peak-hour factor, PHF | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate (veh/h) | *5* | *0* | *10* | *71* | *0* | *41* |
| Proportion of heavy vehicles, $P_{HV}$ | *1* | *1* | *1* | *1* | *1* | *1* |
| 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) | *7* | *14* | | *15* | | | *112* | |
| Capacity, $c_m$ (vph) | *1112* | *1196* | | *432* | | | *340* | |
| v/c ratio | *0.01* | *0.01* | | *0.03* | | | *0.33* | |
| Queue length (95%) | *0.02* | *0.04* | | *0.11* | | | *1.40* | |

(326)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Control Delay (s/veh) | 8.3 | 8.0 | | 13.6 | | | 20.7 | |
| LOS | A | A | | B | | | C | |
| Approach delay (s/veh) | – | – | 13.6 | | | 20.7 | | |
| Approach LOS | – | – | B | | | C | | |

(327)

# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | Erin Harrington |
| Agency/Co. | PBS&J |
| Date Performed | 4/20/2004 |
| Analysis Time Period | Exist Saturday Noon |

## Site Information

| | |
|---|---|
| Intersection | Elliott Rd & Red Hot Blue 1 |
| Jurisdiction | Town of Chapel Hill |
| Analysis Year | 2004 |
| | |

Project Description: Village Plaza No Build Analysis (Driveway E)

East/West Street: Elliott Rd | North/South Street: Red Hot Blue 1

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) | 44 | 270 | 0 | 0 | 365 | 92 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate (veh/h) | 46 | 284 | 0 | 0 | 384 | 96 |
| Proportion of heavy vehicles, $P_{HV}$ | 1 | – | – | 0 | – | – |
| Median type | Undivided | | | | | |
| 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 | 87 | 0 | 52 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate (veh/h) | 0 | 0 | 0 | 91 | 0 | 54 |
| Proportion of heavy vehicles, $P_{HV}$ | 0 | 0 | 0 | 1 | 1 | 1 |
| Percent grade (%) | | 0 | | | 0 | |
| Flared approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized? | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | | | 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 | | | | | | LTR | |
| Volume, v (vph) | 46 | | | | | | 145 | |
| Capacity, $c_m$ (vph) | 1088 | | | | | | 407 | |
| v/c ratio | 0.04 | | | | | | 0.36 | |
| Queue length (95%) | 0.13 | | | | | | 1.58 | |

328

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Control Delay (s/veh) | 8.5 | | | | | | 18.7 | |
| LOS | A | | | | | | C | |
| Approach delay (s/veh) | -- | -- | | | | 18.7 | | |
| Approach LOS | -- | -- | | | | C | | |

(329)

# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | Erin Harrington |
| Agency/Co. | PBS&J |
| Date Performed | 4/20/2004 |
| Analysis Time Period | Exist Saturday Noon |

## Site Information

| | |
|---|---|
| Intersection | Elliott Rd & Whole Foods #1 |
| Jurisdiction | Town of Chapel Hill |
| Analysis Year | 2004 |
| | |

Project Description: Village Plaza No Build Analysis (Driveway F)

East/West Street: Elliott Rd | North/South Street: Whole Foods #1

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) | 262 | 232 | 23 | 3 | 280 | 134 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate (veh/h) | 275 | 244 | 24 | 3 | 294 | 141 |
| Proportion of heavy vehicles, $P_{HV}$ | 1 | – | – | 1 | – | – |
| Median type | Undivided | | | | | |
| RT Channelized? | | | 0 | | | 0 |
| Lanes | 1 | 1 | 0 | 1 | 1 | 0 |
| Configuration | L | | TR | L | | TR |
| Upstream Signal | | 1 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 13 | 3 | 17 | 65 | 0 | 191 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate (veh/h) | 13 | 3 | 17 | 68 | 0 | 201 |
| Proportion of heavy vehicles, $P_{HV}$ | 1 | 1 | 1 | 1 | 1 | 1 |
| Percent grade (%) | 0 | | | 0 | | |
| Flared approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized? | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 1 |
| Configuration | | LTR | | LT | | 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 | | LTR | | LT | | R |
| Volume, v (vph) | 275 | 3 | | 33 | | 68 | | 201 |
| Capacity, $c_m$ (vph) | 1130 | 1300 | | 166 | | 131 | | 683 |
| v/c ratio | 0.24 | 0.00 | | 0.20 | | 0.52 | | 0.29 |
| Queue length (95%) | 0.96 | 0.01 | | 0.71 | | 2.47 | | 1.23 |

330

| Control Delay (s/veh) | 9.2 | 7.8 | | 32.0 | | 58.9 | | 12.5 |
|---|---|---|---|---|---|---|---|---|
| LOS | A | A | | D | | F | | B |
| Approach delay (s/veh) | -- | -- | 32.0 | | | 24.2 | | |
| Approach LOS | -- | -- | D | | | C | | |

(331)

# HCS2000™ DETAILED REPORT

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | Erin Harrington | Intersection | Franklin St & Elliott Rd |
| Agency or Co. | PBS&J | Area Type | All other areas |
| Date Performed | 4/20/2004 | Jurisdiction | Town of Chapel Hill |
| Time Period | Exist Saturday Noon | Analysis Year | 2004 |
| | | Project ID | Village Plaza No Build Analysis |

## Volume and Timing Input

| | EB | | | WB | | | NB | | | SB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Number of lanes, $N_1$ | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Lane group | L | TR | | L | TR | | L | TR | | L | TR | |
| Volume, V (vph) | 102 | 75 | 26 | 224 | 97 | 163 | 37 | 781 | 320 | 121 | 734 | 59 |
| % Heavy vehicles, %HV | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Pretimed (P) or actuated (A) | A | A | A | A | A | A | A | A | A | A | A | A |
| Start-up lost time, $l_1$ | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Extension of effective green, e | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Arrival type, AT | 3 | 3 | | 3 | 3 | | 3 | 3 | | 3 | 3 | |
| Unit extension, UE | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Filtering/metering, I | 1.000 | 1.000 | | 1.000 | 1.000 | | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Initial unmet demand, $Q_b$ | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Ped / Bike / RTOR volumes | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 |
| Lane width | 12.0 | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | |
| Parking / Grade / Parking | N | 0 | N | N | 0 | N | N | 0 | N | N | 0 | N |
| Parking maneuvers, $N_m$ | | | | | | | | | | | | |
| Buses stopping, $N_B$ | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Min. time for pedestrians, $G_p$ | 3.2 | | | 3.2 | | | 3.2 | | | 3.2 | | |

| Phasing | Excl. Left | EW Perm | 03 | 04 | Excl. Left | NS Perm | 07 | 08 |
|---|---|---|---|---|---|---|---|---|
| Timing | G = 9.0 | G = 18.5 | G = | G = | G = 14.0 | G = 44.5 | G = | G = |
| | Y = 6 | Y = 6.5 | Y = | Y = | Y = 6 | Y = 5.5 | Y = | Y = |
| Duration of Analysis, T = 0.25 | | | | | | Cycle Length, C = 110.0 | | |

## Lane Group Capacity, Control Delay, and LOS Determination

| | EB | | | WB | | | NB | | | SB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Adjusted flow rate, v | 107 | 106 | | 236 | 274 | | 39 | 1159 | | 127 | 835 | |
| Lane group capacity, c | 213 | 272 | | 343 | 256 | | 204 | 1238 | | 275 | 1279 | |
| v/c ratio, X | 0.50 | 0.39 | | 0.69 | 1.07 | | 0.19 | 0.94 | | 0.46 | 0.65 | |

(332)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total green ratio, g/C | 0.30 | 0.17 | | 0.30 | 0.17 | | 0.13 | 0.40 | | 0.59 | 0.40 | |
| Uniform delay, $d_1$ | 29.9 | 40.7 | | 34.6 | 45.8 | | 42.9 | 31.4 | | 17.3 | 26.5 | |
| Progression factor, PF | 1.000 | 1.000 | | 1.000 | 1.000 | | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Delay calibration, k | 0.11 | 0.11 | | 0.26 | 0.50 | | 0.11 | 0.45 | | 0.11 | 0.23 | |
| Incremental delay, $d_2$ | 1.9 | 0.9 | | 5.7 | 76.1 | | 0.5 | 13.2 | | 1.2 | 1.2 | |
| Initial queue delay, $d_3$ | | | | | | | | | | | | |
| Control delay | 31.8 | 41.7 | | 40.3 | 121.9 | | 43.4 | 44.6 | | 18.5 | 27.7 | |
| Lane group LOS | C | D | | D | F | | D | D | | B | C | |
| Approach delay | 36.7 | | | 84.1 | | | 44.5 | | | 26.5 | | |
| Approach LOS | D | | | F | | | D | | | C | | |
| Intersection delay | 44.9 | | | $X_c$ = 0.91 | | | Intersection LOS | | | D | | |

(333)

# HCS2000™ DETAILED REPORT

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | Erin Harrington | Intersection | US 15-501 & Elliott Rd |
| Agency or Co. | PBS&J | Area Type | All other areas |
| Date Performed | 4/20/2004 | Jurisdiction | Town of Chapel Hill |
| Time Period | Exist Saturday PM | Analysis Year | 2004 |
| | | Project ID | Village Plaza No Build Analysis |

## Volume and Timing Input

| | EB | | | WB | | | NB | | | SB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Number of lanes, $N_1$ | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 2 | 1 |
| Lane group | L | | R | | | | L | T | | L | T | R |
| Volume, V (vph) | 93 | | 294 | | | | 200 | 1077 | | 20 | 1051 | 123 |
| % Heavy vehicles, %HV | 1 | | 1 | | | | 1 | 1 | | 1 | 1 | 1 |
| Peak-hour factor, PHF | 0.95 | | 0.95 | | | | 0.95 | 0.95 | | 0.95 | 0.95 | 0.95 |
| Pretimed (P) or actuated (A) | A | | A | | | | A | A | | A | A | A |
| Start-up lost time, $l_1$ | 2.0 | | 2.0 | | | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Extension of effective green, e | 2.0 | | 2.0 | | | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Arrival type, AT | 3 | | 3 | | | | 3 | 3 | | 3 | 3 | 3 |
| Unit extension, UE | 3.0 | | 3.0 | | | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Filtering/metering, I | 1.000 | 1.000 | 1.000 | | | | 1.000 | 1.000 | | 1.000 | 1.000 | 1.000 |
| Initial unmet demand, $Q_b$ | 0.0 | | 0.0 | | | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Ped / Bike / RTOR volumes | 0 | | 30 | 0 | | | 0 | | | 0 | | 12 |
| Lane width | 12.0 | | 12.0 | | | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| Parking / Grade / Parking | N | 0 | N | N | | N | N | 0 | N | N | 0 | N |
| Parking maneuvers, $N_m$ | | | | | | | | | | | | |
| Buses stopping, $N_B$ | 0 | | 0 | | | | 0 | 0 | | 0 | 0 | 0 |
| Min. time for pedestrians, $G_p$ | 3.2 | | | 3.2 | | | 3.2 | | | 3.2 | | |

| Phasing | EB Only | 02 | 03 | 04 | Excl. Left | NB Only | Thru & RT | 08 |
|---|---|---|---|---|---|---|---|---|
| Timing | G = 28.0 | G = | G = | G = | G = 9.0 | G = 24.0 | G = 71.0 | G = |
| | Y = 6 | Y = | Y = | Y = | Y = 6 | Y = | Y = 6 | Y = |
| Duration of Analysis, T = 0.25 | | | | | | Cycle Length, C = 150.0 | | |

## Lane Group Capacity, Control Delay, and LOS Determination

| | EB | | | WB | | | NB | | | SB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Adjusted flow rate, v | 98 | | 278 | | | | 211 | 1134 | | 21 | 1106 | 117 |
| Lane group capacity, c | 298 | | 696 | | | | 416 | 2025 | | 96 | 1514 | 677 |
| v/c ratio, X | 0.33 | | 0.40 | | | | 0.51 | 0.56 | | 0.22 | 0.73 | 0.17 |
| Total green ratio, g/C | 0.19 | | 0.49 | | | | 0.26 | 0.63 | | 0.06 | 0.47 | 0.47 |

(334)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Uniform delay, $d_1$ | 52.9 | | 24.5 | | | | 47.3 | 15.6 | | 67.2 | 31.8 | 22.7 |
| Progression factor, PF | 1.000 | | 1.000 | | | | 1.000 | 1.000 | | 1.000 | 1.000 | 1.000 |
| Delay calibration, k | 0.11 | | 0.11 | | | | 0.12 | 0.16 | | 0.11 | 0.29 | 0.11 |
| Incremental delay, $d_2$ | 0.6 | | 0.4 | | | | 1.0 | 0.4 | | 1.2 | 1.8 | 0.1 |
| Initial queue delay, $d_3$ | | | | | | | | | | | | |
| Control delay | 53.5 | | 24.9 | | | | 48.3 | 16.0 | | 68.3 | 33.6 | 22.8 |
| Lane group LOS | D | | C | | | | D | B | | E | C | C |
| Approach delay | 32.4 | | | | | | 21.1 | | | 33.2 | | |
| Approach LOS | C | | | | | | C | | | C | | |
| Intersection delay | 27.6 | | | $X_c$ = 0.56 | | | Intersection LOS | | | C | | |