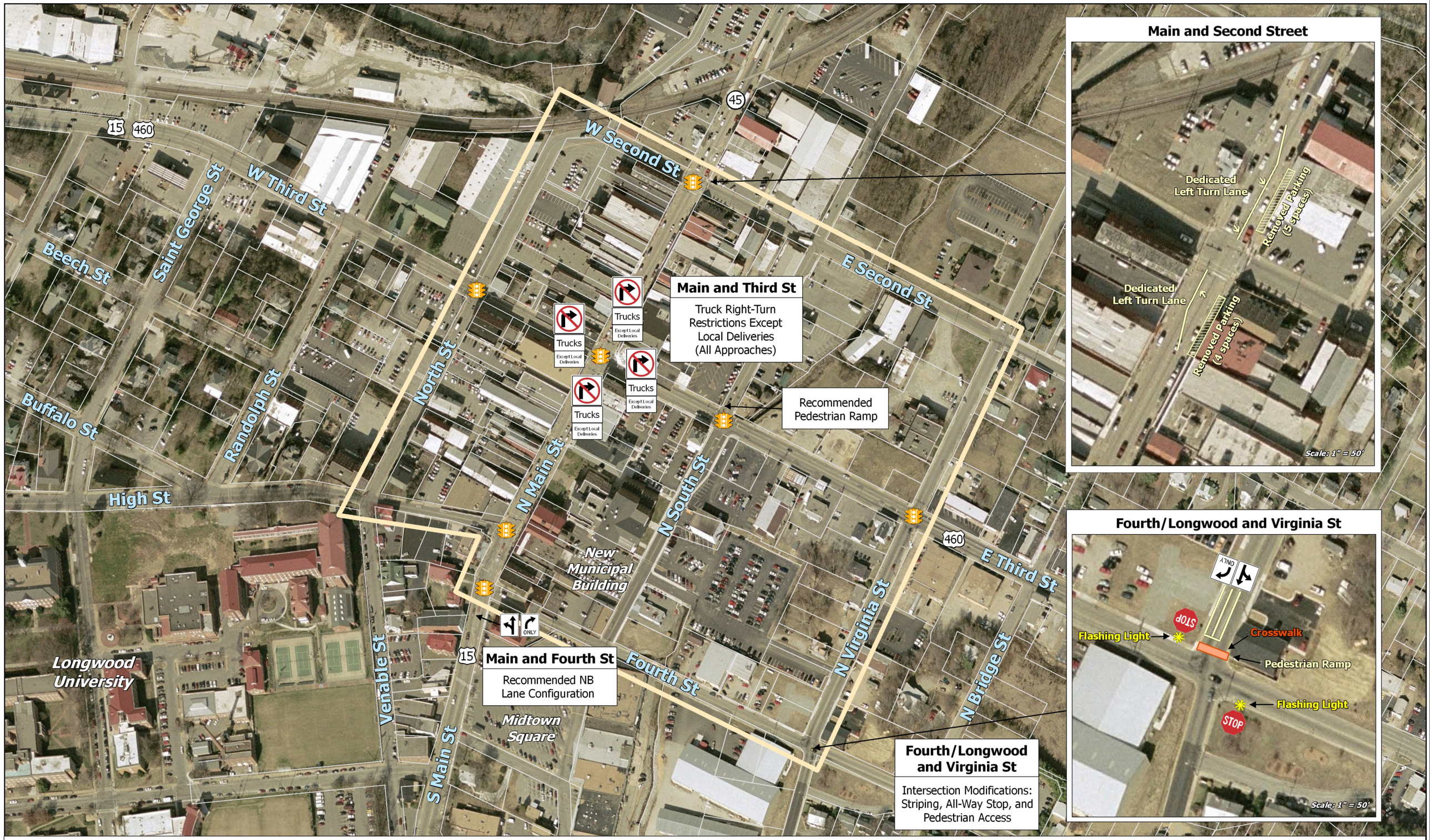



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# Town of Farmville Downtown Study

## *Figure 1 - Recommended Spot Intersection Improvements*

*June 2006*

N

0 25 50 100 150 200 Feet

*Legend*

- Study Area
- Tax Parcel
- Traffic Light

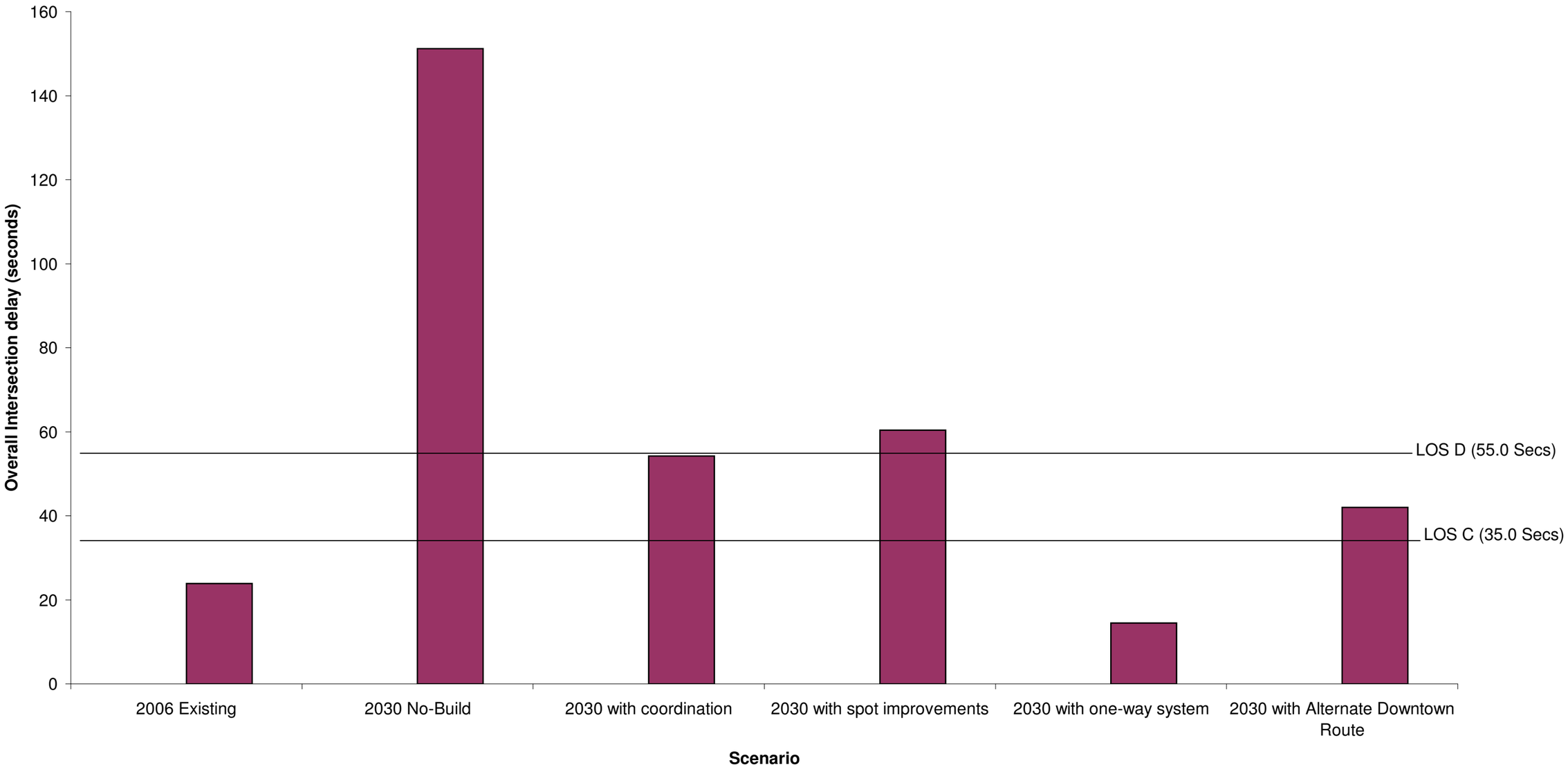


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***Figure 10 - Main Street and Third Street***
***PM Level of Service (LOS) Comparison***
***June 2006***

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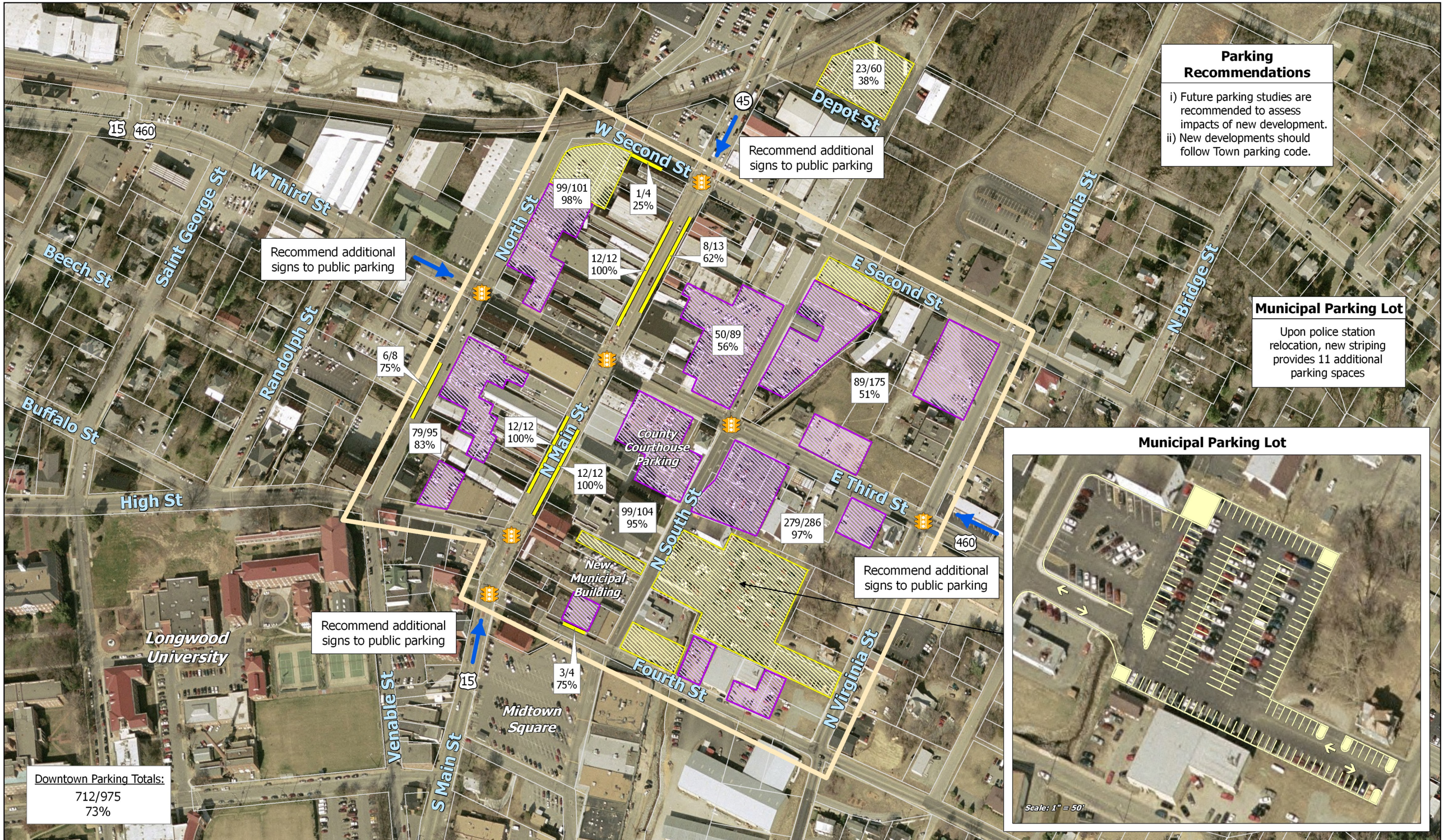


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# Town of Farmville Downtown Study

## *Figure 2 - Existing Weekday Parking and Recommendations*

*June 2006*

N

0 25 50 100 150 200 Feet

*Legend*

- Study Area
- Tax Parcel
- Traffic Light
- Municipal Primary Off-Street Parking Lot
- Private Primary Off-Street Parking Lot
- On-Street Parking

Note: i) highest observed vehicles parking / available capacity (% occupied at peak - February 2006)
ii) parking lots: block parking for total area

NB Main Street at High Street

Pedestrian Crossing at Fourth Street

Virginia Street at Fourth Street

Third Street at Virginia Street

WB Third Street Between
South and Main Streets

North Street at Third Street

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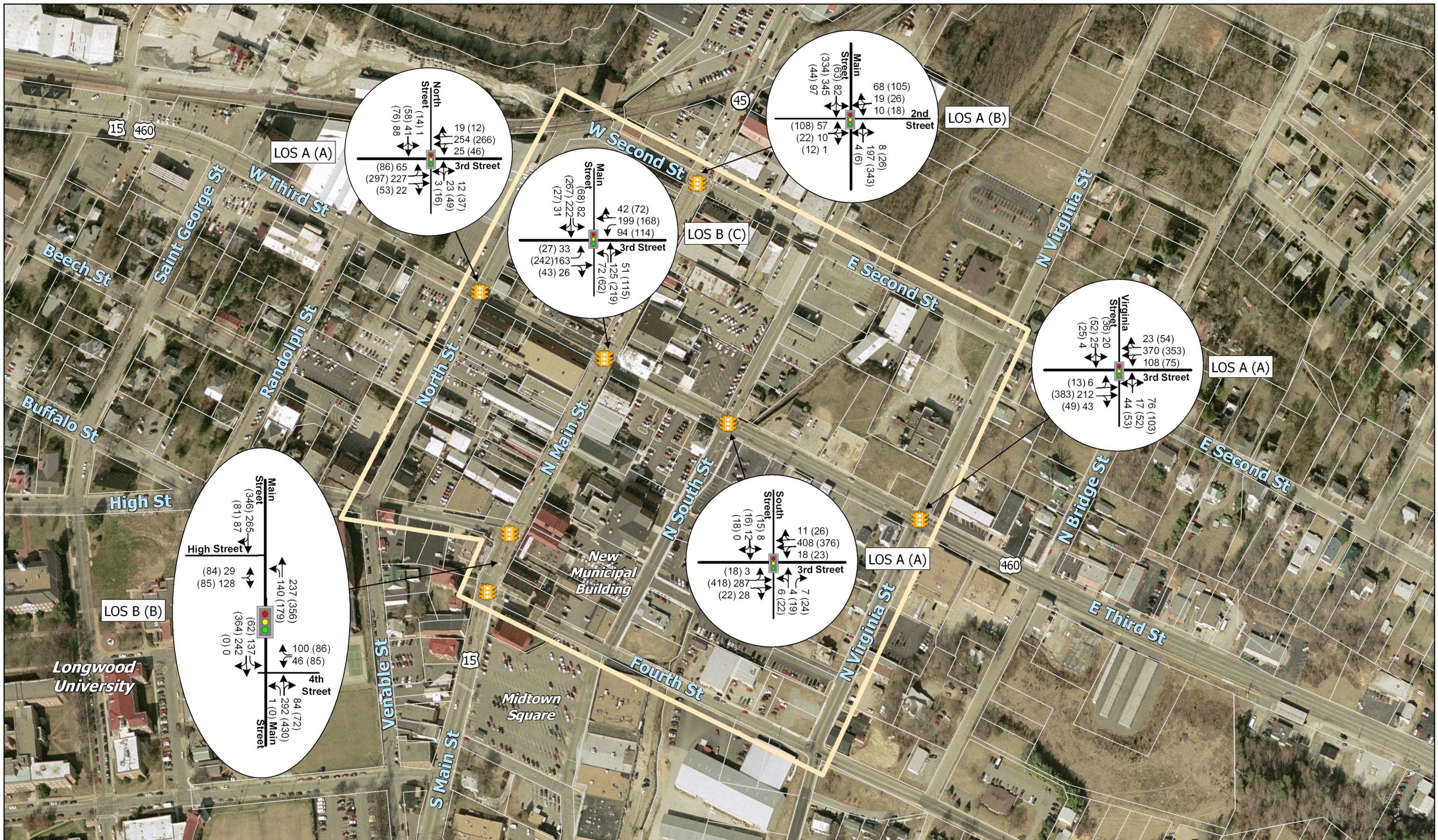
## *Figure 3 - Existing Conditions*

***June 2006***

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# Town of Farmville Downtown Study

## *Figure 4 - Existing Peak Hour Conditions*

***June 2006***

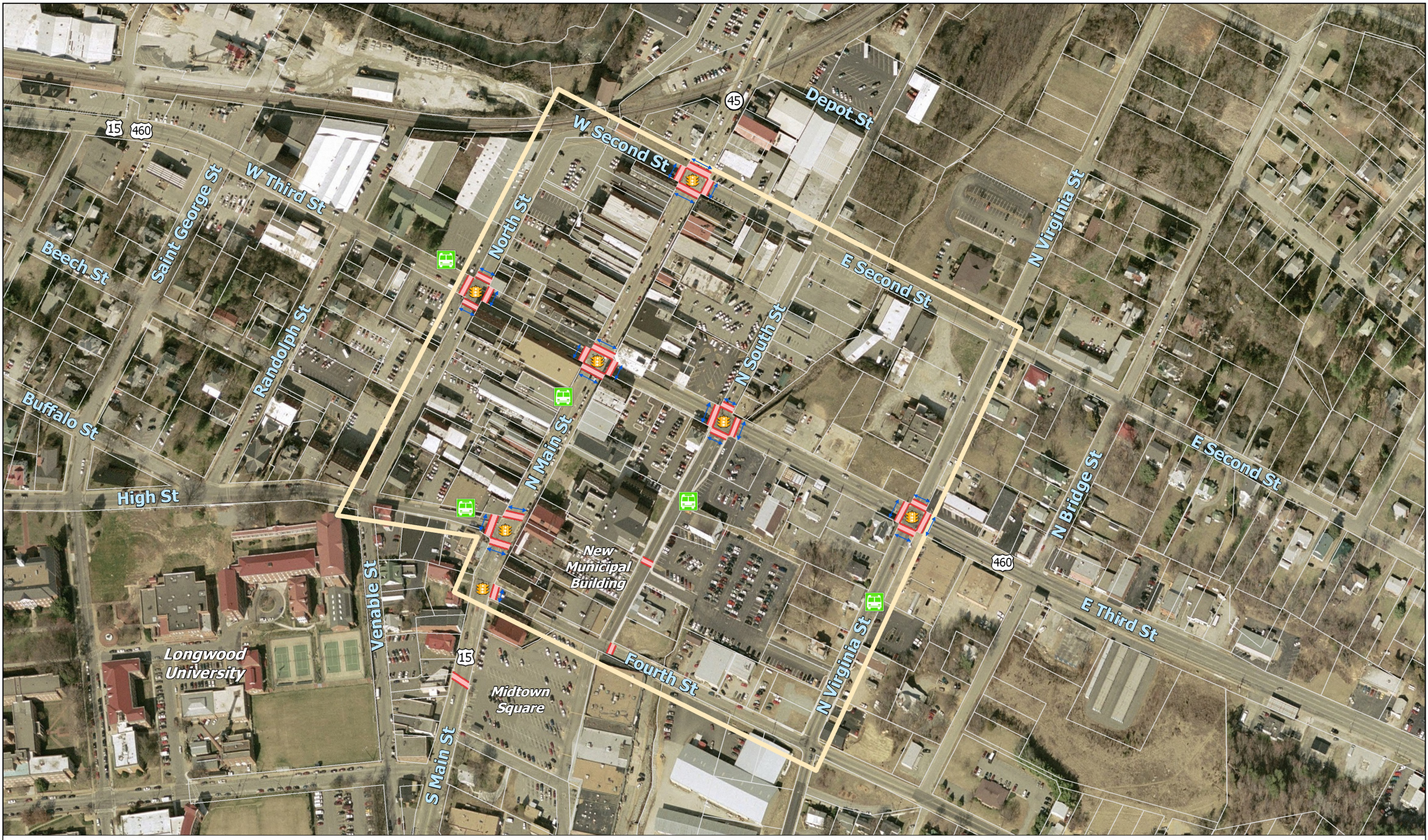
N

0 25 50 100 150 200 Feet

*Legend*

- Study Area
- Traffic Light
- Tax Parcel

Notes: i) Peak Hour Weekday Traffic Volumes
6 (13) = AM (PM)
ii) Level of Service (LOS)
LOS A (B) = AM (PM)

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# Town of Farmville Downtown Study

## *Figure 5 - Pedestrian Access*

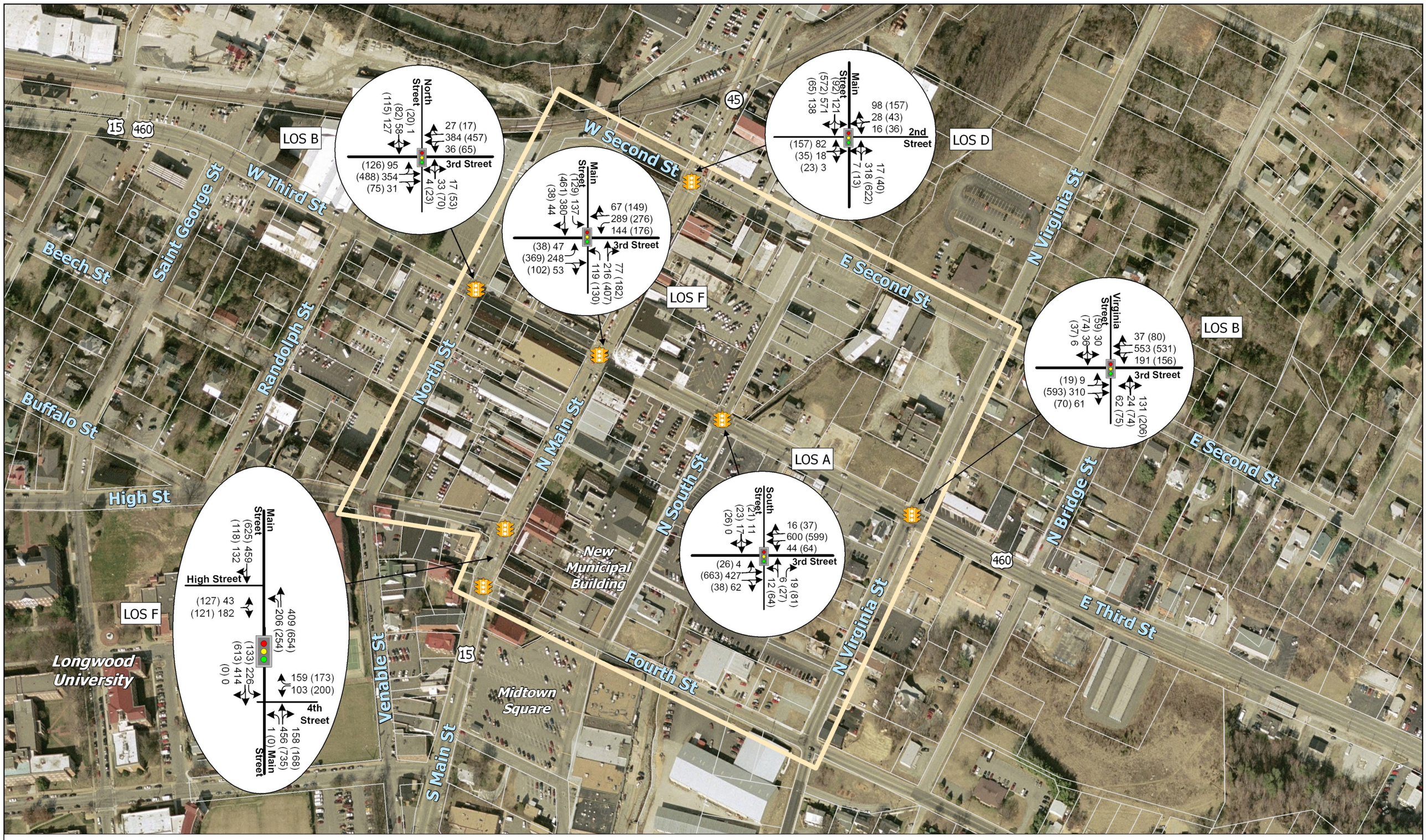
***June 2006***

N

0 25 50 100 150 200 Feet

*Legend*

- Study Area
- Tax Parcel
- Traffic Light
- Crosswalk
- Ped. Signal/Push Button
- Bus Stop





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# Town of Farmville Downtown Study

## *Figure 6 - 2030 Baseline Traffic Conditions (No Improvements)*

*June 2006*

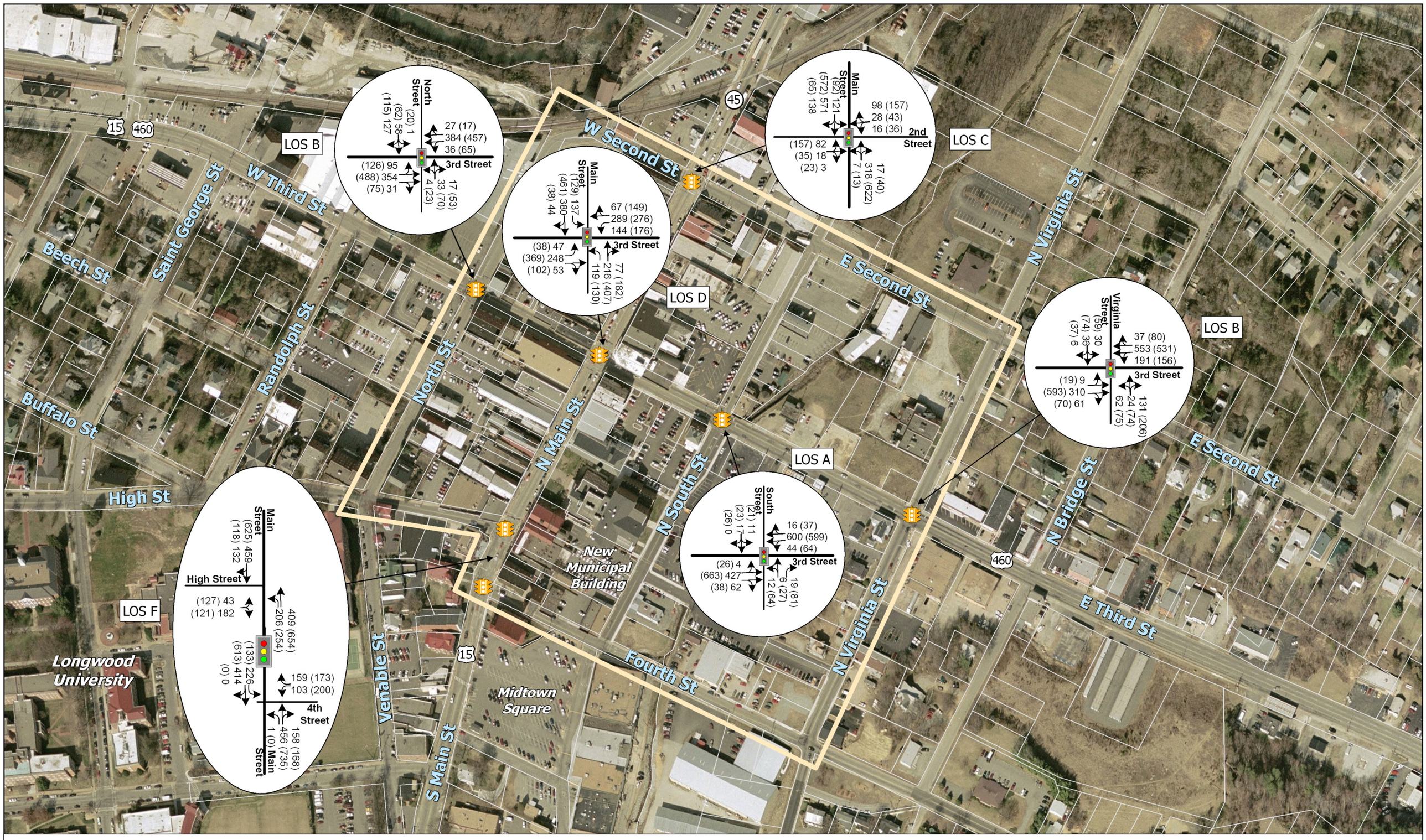
N

0 25 50 100 150 200 Feet

*Legend*

- Study Area
- Traffic Light
- Tax Parcel

Notes: i) 2030 Peak Hour Weekday Traffic Volumes
6 (13) = AM (PM)
ii) 2030 PM Level of Service (LOS)
LOS B





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# Town of Farmville Downtown Study

## *Figure 7 - 2030 Synchronized Signals*

***June 2006***

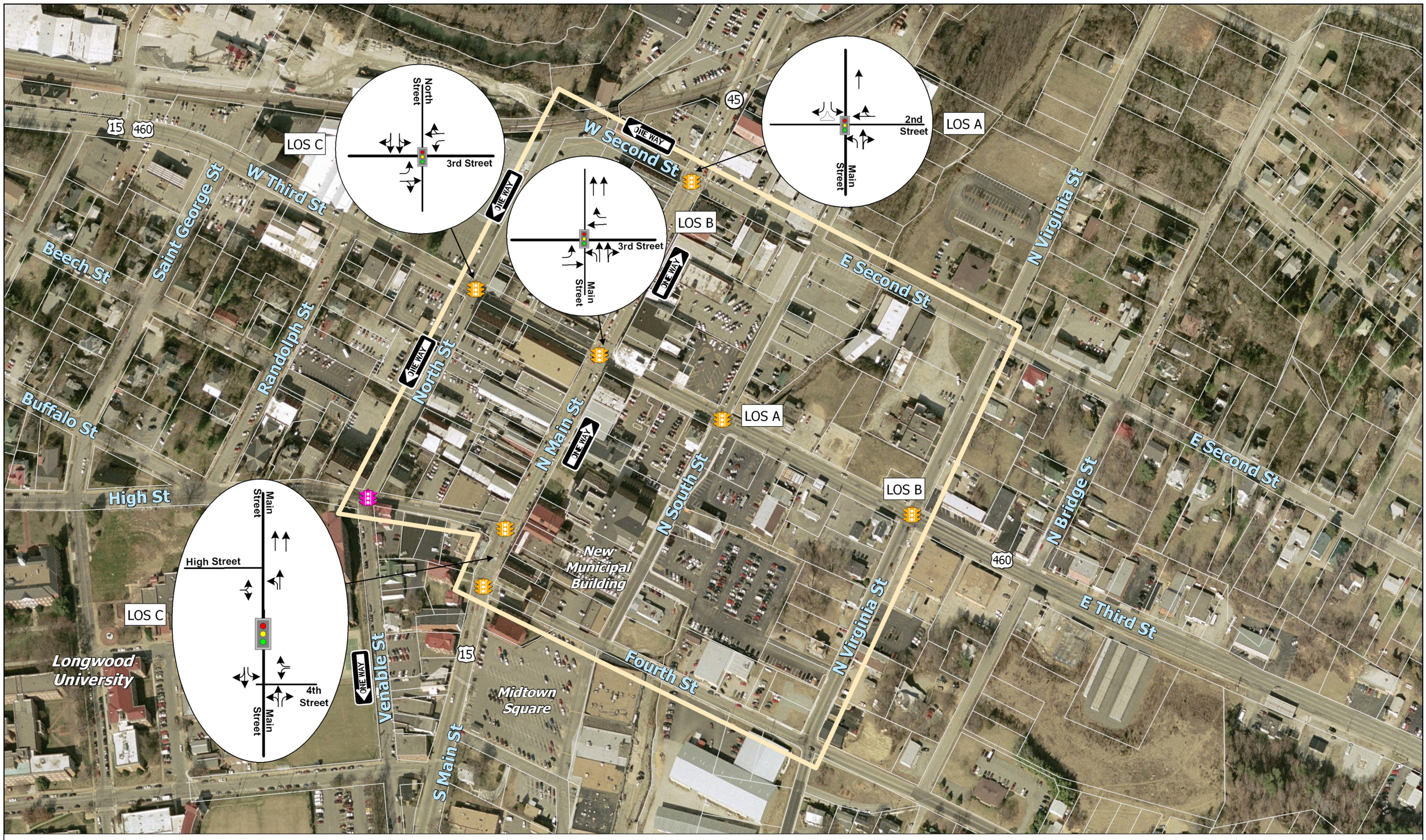
N

0 25 50 100 150 200 Feet

*Legend*

- Study Area
- Traffic Light
- Tax Parcel

Notes: i) 2030 Peak Hour Weekday Traffic Volumes
6 (13) = AM (PM)
ii) 2030 PM Level of Service (LOS)
LOS B

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# Town of Farmville Downtown Study

## *Figure 8 - Possible One Way Configurations*

***June 2006***

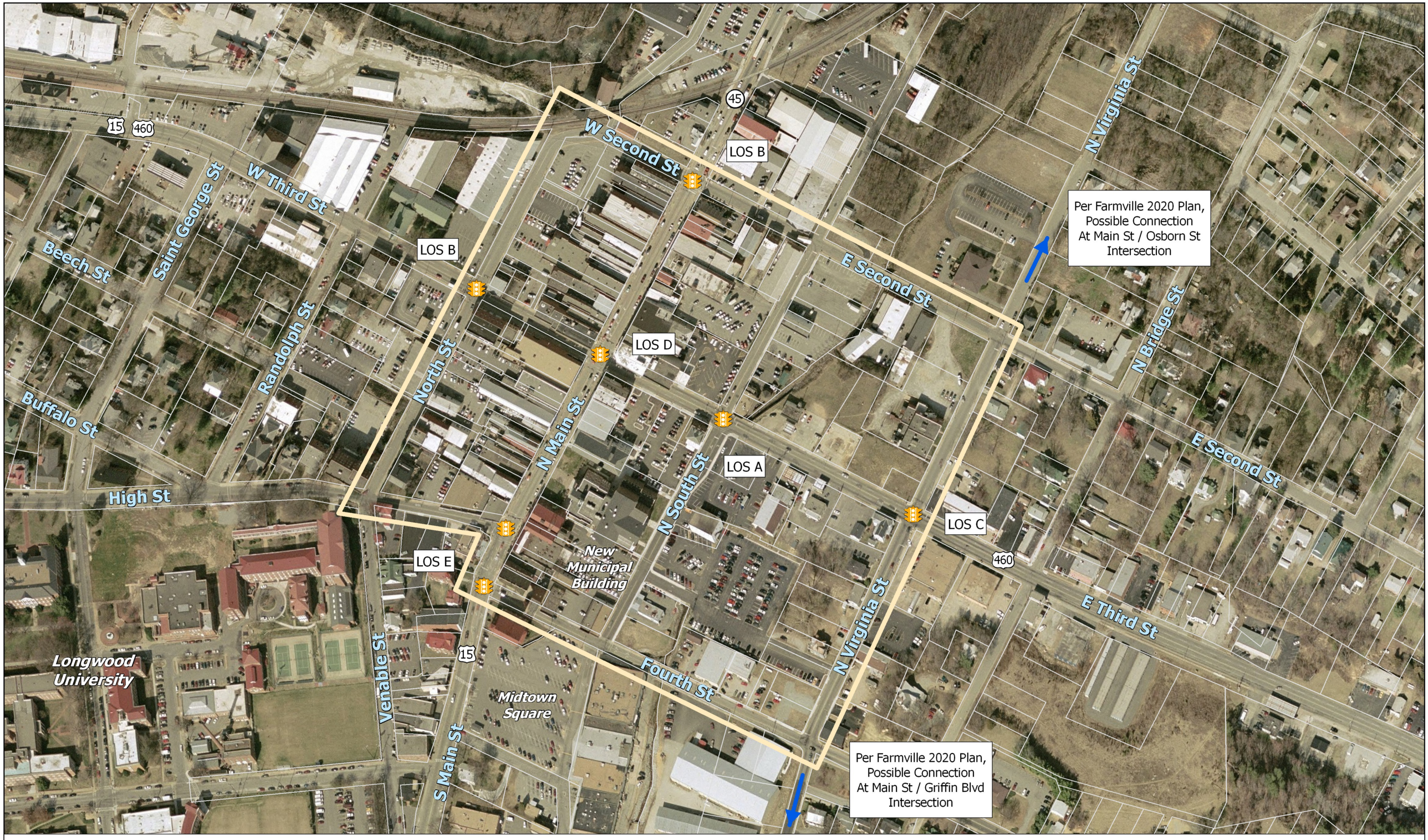
N

0 25 50 100 150 200 Feet

*Legend*

- Study Area
- Tax Parcel
- Existing Traffic Light
- Recommended Traffic Light

Notes: 2030 PM Level of Service (LOS)
LOS B

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# Town of Farmville Downtown Study

## *Figure 9 - Possible Alternate Downtown Route*

***June 2006***

N

0 25 50 100 150 200 Feet

*Legend*

- Study Area
- Existing Traffic Light
- Tax Parcel

Notes: 2030 PM Level of Service (LOS)
LOS B

# Town of Farmville Downtown Study

prepared for

**Commonwealth Regional Council**
102 ½ High Street
P.O. Box P
Farmville, Virginia 23901

in cooperation with the

**Town of Farmville**

prepared by

**Patton Harris Rust & Associates (PHR+A)**
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June 30, 2006

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Notice:

*The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration (FHWA) or the Commonwealth Transportation Board. This report does not constitute a standard specification or regulation. FHWA acceptance of this report as evidence of fulfillment of the objectives of this planning study does not constitute approval of location and design or a commitment to fund any recommended improvements. Additional project-level environmental impact assessments and/or studies of alternatives may be necessary.*

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*This Report is Prepared by:*

Douglas R. Kennedy, P.E. – Director of Transportation Planning – PHR+A
Laurie H. Butakis, E.I.T. – Associate Project Manager – PHR+A

## EXECUTIVE SUMMARY

This report summarizes the Town of Farmville Downtown Study prepared for the Commonwealth Regional Council in cooperation with the Town of Farmville to determine future transportation needs for the downtown area and how best to address those needs. With recent and anticipated growth in Farmville, resulting from the ongoing expansion of Longwood University and the Town's position as a regional hub for commerce and shopping, a number of transportation issues have arisen as town officials plan for the future. The study team (PHR+A and MCV) was overseen and directed by an advisory committee comprised of key project beneficiaries and stakeholders to develop transportation recommendations, who met on a monthly basis throughout the study.

Within the 6 block study area of Downtown Farmville, between Second and Fourth Streets (North to South) and between North and Virginia Streets (West to East) the study team:

- Collected and reviewed existing conditions (traffic, safety, pedestrians, parking)
- Analyzed existing traffic conditions
- Developed and analyzed future (2030) traffic conditions based on known and potential developments
- Recommended improvements to address the 2030 Town of Farmville transportation needs

The public was invited to provide comments during two public informational meetings. The first meeting, held March 1, 2006, presented the existing data collection and the second meeting, held May 17, 2006, presented future 2030 analysis and recommendations. The public commented on five main areas: signal timing and optimization, insufficient parking availability, pedestrian access, truck restrictions and spot intersection improvements.

The study team developed recommended improvements based on the study goals, 2030 future conditions analysis and citizen input. In analyzing the traffic component of the study, several scenarios were considered. The base model considered signal synchronization along the Main and Third Street corridors. Building from that model, spot intersection improvements, a one-way system, and an alternate route through downtown were considered.

Given the existing infrastructure, the team developed a list of short-term recommendations for immediate implementation based on funding availability. The short-term recommendations include the following spot intersection and parking improvements not prioritized:

1. Synchronization of traffic lights within study area. Synchronization is a process to allow the signals to work together and optimize traffic volumes processed with available green times.
2. Stripe a 50 foot northbound Main Street Left-turn at Second Street and a 100' foot southbound Main Street left-turn at Second Street (implementation must be in conjunction with recommendation No.1).

3. Re-stripe northbound Main Street configuration at Fourth Street as a shared through-left and an exclusive right-turn.
4. Re-stripe southbound Virginia Street at Fourth Street to align the through movements, relocate Virginia Street stop signs closer to the intersection and install a flashing light on each stop sign.
5. Install right-turn through truck restrictions at Main and Third Street intersection.
6. Install pedestrian ramp at Third and South Street.
7. Re-stripe and add landscaping to the Municipal Parking Lot located between South and Virginia Street.
8. Install additional signs leading to downtown parking.

During the time of this study, the Town had two additional initiatives underway, streetscaping along Main Street and direction way-finding within the study area. Plans have been developed from Midtown Square to Third Street to include new crosswalks, urban landscape (tree pits), decorative sidewalks within the existing R.O.W. with no change to the roadway widths. In considering recommendations, the study team believed these separate initiatives corresponded to the pedestrian and signing needs of this study, and therefore, the study did not want to make recommendations that would duplicate these efforts.

In projecting future conditions to 2030, the study team concluded that the signal operation would begin to deteriorate between 2020 and 2025 assuming the short-term recommendations. Given the signal operation deterioration, the study team recommended that the Town keeps a funding placeholder for an alternate route for downtown traffic. The study team also recommended future parking studies to assess impacts of new developments and that new developments comply with the Town parking code.

Long-term recommendations for the downtown study area include:

1. Maintain the Alternate Downtown Route link via Virginia Street as a corridor for the future roadway. If growth continues as projected, the existing Route 15 Business / Route 45 Corridor must be able to accommodate peak period traffic. The alternative corridor may require additional environmental and neighborhood studies to verify mitigation measures.
2. Encourage new businesses and development to provide parking per the Town code within B1 and B2 Districts to avoid future parking deficiencies.
3. Coordinate with the County on municipal parking needs and review parking demand to ascertain if additional public resources should be allocated.
4. Expand the programmed streetscape improvements to promote increased pedestrian circulation downtown, including applications to the remainder of Main Street (as planned) and to Third Street, to link all the blocks.
5. Encourage continued coordination with Longwood University to address transportation growth elements such as parking needs, pedestrian crossings, redevelopment options at Venable Street, and maintaining adequate pedestrian and vehicle linkages from campus to downtown.
6. Options to increase street capacity with one-way street or additional reductions with

on-street parking are not preferred; however, if pedestrian or vehicle accidents increase, improved traffic engineering strategies should be initiated to ensure safety. Bump outs would improve pedestrian access but will not accommodate typical traffic maneuvers.

7. Bicycle facilities and increased bus accessibility is encouraged; however, infrastructure changes to accommodate new bike lane and bus pull-offs is not possible within the limited R.O.W. and urban street character downtown.

Costs associated with these improvements are shown on the attached Table 1.

TABLE 1 – COST ESTIMATES FOR STUDY RECOMMENDATIONS

| | Route | Facility Name | From | To | Road Segment Length | Recommendation | Estimated Cost [1] | Subtotal of costs |
|---|---|---|---|---|---|---|---|---|
| Short-term | 15 Bus | Main Street | Second Street | Fourth Street | N/A | Sychronization of traffic lights [2] | $ 18,000.00 | |
| | 460 Bus | Third Street | North Street | Virginia Street | N/A | Sychronization of traffic lights [2] | $ 18,000.00 | |
| | 15 Bus | Main Street | Fourth Street | N/A | N/A | Striping of exclusive right-turn lane [4,5] | $ 1,030.00 | |
| | | Fourth Street | Virginia Street | N/A | N/A | Striping changes, flashing lights above stop signs and a new pedestrian ramp [3, 5, 6] | $ 800.00 | |
| | 15 Bus | Main Street | Third Street | N/A | N/A | Prohibit through truck right-turns all approaches [4] | $ 840.00 | |
| | 460 Bus | Third Street | South Street | N/A | N/A | Add a pedestrian ramp at northwest corner [3] | $ 500.00 | |
| | 15 Bus | Main Street | Second Street | N/A | N/A | Add a 50' northbound left-turn lane and a 100' southbound left-turn lane [5,6] | $ 3,900.00 | |
| | | Municipal Parking lot | N/A | N/A | N/A | Restiping parking lot and landscaping [5,7] | $ 73,800.00 | **$ 116,870.00** |
| Long-term | 15/45 | East Side River Crossing Route | Main Street at Griffin Blvd. | Main Street at Osborn Rd. | 1.6 | Construct alternate downtown route as outlined in Farmville 2020 Transportation Plan [8] | $ 10,560,000.00 | |
| | | Parking Study | | | | Detailed parking study to access impacts of new development | $ 30,000.00 | **$ 10,590,000.00** |
| | | | | | | Estimated total recommendation costs [10] | | **$ 10,706,870.00** |

[1] Cost estimates included in this table are planning-level costs in year 2006 dollars and should be used for planning purposes only.
[2] Assumes a unit cost of $6000 per signalized intersection for synchronization.
[3] Assumes a unit cost of $500 per pedestrian ramp.
[4] Assumes a unit cost of $35 per square foot of sign.
[5] Does not include cost for LED solar-power operated flashing light for above stop signs.
[6] Assumes a $2 per linear foot pavement marking.
[7] Assumes $1125 per 5-section signal head and $2250 per video detection for the northbound Main Street approach.
[8] Assumes $2000 per tree pit and $100 per linear foot of curb.
[9] Length of new roadway and bridge based on the Farmville 2020 Transportation Plan. Assumes a unit cost for an urban 2-lane roadway to be $2.6 million per mile, with an additional 50 percent for right-of-way and utilities. Assumes a unit cost for the new bridge over Appomattox River and railroad track (800' in length and 36' wide) to be $150 per square foot.
[10] Costs for separate Town Iniatives as described in this report are not included in the estimated total recommendation costs.

The Downtown Study provides an initial evaluation of traffic and parking conditions downtown with a more detailed analysis than previously performed as part of the VDOT Small Urban Area Plan Studies; however, the framework of implementation per the VDOT Transportation Plan and Town Comprehensive Plan should continue. The analysis identifies localized parking deficiencies and intersection degradation which can be reduced with the short-term and long-term recommendations.

## INTRODUCTION

The Town of Farmville Downtown Study was initiated by the Commonwealth Regional Council to determine the future transportation needs of the Town of Farmville Downtown area. The study was performed and funded under VDOT's Rural Transportation Planning Grant program for Fiscal Year 2006. Ultimately it is the hope of the region that this planning project will lead to the development of projects, which may be part of VDOT's construction program or future VDOT enhancement projects. The study reviewed, among other things:

- measures to improve traffic flow
- synchronization of traffic lights in the study area
- alternate routes through downtown
- improved pedestrian and bicycle access
- additional parking facilities in the downtown area

A series of figures was created to summarize the collection and review of existing conditions, the future analysis, and recommendations within the study area. The short-term physical roadway and parking improvement recommendations as developed in this study are summarized in Figures 1 and 2. This report is organized as follows:

- study location context
- existing transportation conditions
- future traffic analysis
- transportation recommendations

## STUDY LOCATION CONTEXT

Farmville is home to Longwood University and a regional hub for commerce and shopping. The Town of Farmville is located in Prince Edward County at the junction of U.S. Route 15 (north-south), U.S. Route 460 (west-east) and Virginia Primary Route 45 (north). The study area encompasses a 6-block area bisected by two primary corridors through downtown. The primary north-south corridor is Main Street (Bus. Route 15 and Virginia Primary Route 45) and the primary east-west corridor is Third Street (Bus. Route 460). The study limits from north to south are between Second and Fourth Streets and from west to east are between North and Virginia Streets.

Main Street is a two lane, undivided roadway with on-street parking, sidewalks and dedicated left-turn lanes at the signalized intersections through the study area except were noted. The signalized intersections along Main Street within the study area include the following:

- Second Street (does not have a dedicated left-turn lane)
- Third Street
- High/Fourth Street

**FIGURE 1 – RECOMMENDED SPOT INTERSECTION IMPROVEMENTS**

## FIGURE 2 – EXISTING PARKING AND RECOMMENDATIONS

Third Street is a four-lane, undivided roadway with shared left-turn lanes at the signalized intersections except were noted and sidewalks within the study area. The signalized intersections along Main Street within the study area include the following:

- North Street
- Main Street (dedicated left-turn lanes)
- South Street
- Virginia Street

## EXISTING TRANSPORTATION CONDITIONS

The study team collected existing transportation conditions in the areas of traffic, safety, pedestrians, and parking. Figure 3 depicts existing conditions during the January 2006 study observations.

### Traffic

Traffic turning movement counts were collected during the AM peak periods (7:00 am – 9:00 am) and the PM peak periods (4:00 pm – 6:00 pm) on a typical weekday (Tuesday, Wednesday, or Thursday) during the second and third weeks of February 2006 (Feb. 7-9 and 16). One data collection tube was also installed between High Street and Putney Street to capture one weekday and weekend daily traffic. The Average Daily Traffic (ADT) collected by the tube count indicates that the total volume of traffic on Tuesday is the same as on Saturday. The traffic turning movement and tube count worksheets are attached as Appendix A.

The signalized intersections were analyzed using Synchro 6.0. Figure 4 summarizes the existing traffic conditions. As shown, all of the subject intersections operate at a Level of Service (LOS) "C" or better for both the A.M. and P.M. peak hours. LOS is a term used to rate the efficiency of a traffic signal operation. As defined by the Highway Capacity Manual (HCM), the LOS of a traffic signal is measured by the average delay of the vehicles entering the intersection. LOS is measured in seconds and graded on a scale from LOS "A" to "F." For analysis purposes, LOS "D," reflecting average delay of between approximately 35 and 55 seconds, or better is desirable. The existing LOS Synchro Reports are attached as Appendix B.

### Safety

PHR+A gathered accident reports within the study area, which encompasses a total of 13 intersections for a three year period (2003-2005). Of the reported accidents during this time frame, there were no fatalities and only one involving a pedestrian. Within the study area, the three intersections that experienced the most accidents were:

- Third Street and North Street (13 accidents)
- Third Street and Main Street (11 accidents)
- Third Street and Virginia Street (11 accidents)

## FIGURE 3– EXISTING CONDITIONS

## FIGURE 4 – EXISTING PEAK HOUR CONDITIONS

**Pedestrians**

Pedestrians were counted at the signalized intersections during the traffic data collection. As stated above, this data was collected during the AM peak periods (7:00 am – 9:00 am) and the PM peak periods (4:00 pm – 6:00 pm) on a typical weekday (Tuesday, Wednesday, or Thursday) during the second and third weeks of February 2006 (Feb. 7-9 and 16). The pedestrian counts are included on the traffic turning movement count worksheets attached as Appendix A. Figure 5 depicts the existing pedestrian access (crosswalks, pedestrian signals) within the study area.

**Parking**

Parking inventory and occupancy were collected February 7, 2006 through February 9, 2006. The occupancy was collected mid-day and mid-afternoon for both on-street and off-street parking regardless of whether parking was public or private. The parking provided downtown has a variety of time limits ranging from one hour limits for public on-street parking to no limit at all. In total, the downtown parking observed was at 73% occupied at the time of this data collection. While these findings indicate sufficient parking on a whole, the study team recognizes that parking in certain areas and times of day may be deficient. Areas along Main Street between North and South Streets are parking at the existing supply. The summary of the weekday parking can be found on Figure 2 previously mentioned. Parking observation worksheets are attached as Appendix C.

**Public Informational Meeting**

On March 1, 2006 a public information meeting was held to introduce the Farmville citizens to the Town of Farmville Downtown study, present the data collection results and to obtain citizen comments. A total of 18 attended, not including the Commonwealth Regional Council staff and representatives from the study team. A total of seven (7) public comment forms were completed and returned. In addition to the written responses, the public verbally commented on safety, pedestrian/bicycle access, parking and traffic/signals. The public was interested in synchronizing the signals in the downtown and commented about the need for more parking. Attached as Appendix D is a complete summary of the public comments.

**FIGURE 5 – PEDESTRIAN ACCESS**

## FUTURE TRAFFIC ANALYSIS

PHR+A evaluated the study intersections for the 2030 traffic conditions. Future traffic conditions considered a background traffic growth and the trips generated by future developments within the study area, which equates to a 3 percent annual non-compounded growth rate. The future developments contributing to the forecasted traffic include Midtown Square, the new Farmville Municipal Building and 1000 additional students at Longwood University. A complete list of the known and potential future developments considered in this study are summarized in Table 2.

TABLE 2 – FUTURE LAND USE TABLE

| Location | Parcel Number | Acres | FAR | Future Use | Assumed Densities |
|---|---|---|---|---|---|
| Midtown Square | 0023A04(11)03-001 | 5.893 | 0.77 | Retail<br>Residential | 44,000 gsf<br>120 DU |
| Farmville Municipal Building | 0023A04(13)04-004<br>0023A04(13)04-006 | 0.765 | 0.90 | Municipal | 30,982 gsf |
| Corner of 3rd Street and Virginia Street (Benchmark Bank) | 0023A04(24)00-001<br>0023A04(24)00-002<br>0023A04(23)01-015A | 0.851 | 0.11 | Bank | 4000 gsf (1) |
| Corner of 2nd Street and Main Street (Sleeping Bee) | 0023A04(15)02-009 | 0.14 | 1.87 | Retail<br>Residential | 9870 gsf<br>1530 gsf (1 DU ) |
| Corner of 2nd Street and Virginia Street | 0023A04(23)01-000A | 0.476 | 0.80 | 1/3 Office<br>2/3 Residential | 6,800 gsf<br>10,000 gsf (8 DU) |
| Longwood University | Expansion<br>(2006-2030) | | | | 1000 Students |

(1) Based on ITE Trip Generation.
Assumed parking is shared among blocks.

### Traffic Growth

PHR+A grew the existing 2006 traffic volumes by 1.75 percent based on the historical growth comparisons of four intersections within the study area. This growth was derived by investigating intersection PM turning volumes collected by PHR+A in February 2006 during this study as compared to the PM volumes collected in May 2001 as a part of the Farmville 2020 Transportation Plan. The percent change in PM peak hour volume per year varies by the four intersections compared. As a raw average, the percent change equates to a non-cumulative 2 percent per year. Since individual development trip generation is accounted for separately, the study team and advisory committee agreed to using a background growth slightly lower than 2 percent. The peak hour volume growth comparisons are included in Appendix E.

### Trip Generation

As part of trip generation analysis for the future developments considered, PHR+A used the ITE Trip Generation Manual, 7th Edition (2003). The trip generation for the proposed land use densities is presented in Table 3.

TABLE 3 – TRIP GENERATION

**Trip Distributions and Traffic Assignments**

Future development trip distributions were computed based on the existing travel patterns at the primary entering intersections of the study area, as presented in Table 4 below:

TABLE 4 – FUTURE DEVELOPMENT TRAFFIC DISTRIBUTIONS

| Direction | Percentage Distribution |
|---|---|
| Northbound Traffic | 35% |
| Southbound Traffic | 25% |
| Westbound Traffic | 20% |
| Eastbound Traffic | 20% |

Based on these distributions, trips generated for new development are assigned to the roadway network downtown. Figure 6 depicts the 2030 peak hour turning movement counts and the overall LOS by intersection assuming there are no improvements, which is referred to as the baseline scenario. The 2030 Baseline Synchro Reports are attached as Appendix F.

**Future Analysis**

In analyzing the future traffic component of the study, several scenarios were considered for 2030 PM conditions. The first scenario of improvements considered (i) signal synchronization along the Main and Third Street corridors. Building from that model, scenarios including additional improvements were considered as follows: (ii) spot intersection improvements, (iii) a one-way system, and (iv) an alternate route through downtown. Analyses of these additional improvements assume the signal synchronization under (i). Tables 5 through Table 8 compare the overall intersection PM LOS for the 2030 baseline (no improvements) to each of the improvement scenarios.

(i) Synchronization allows the existing traffic signals to work together such that a vehicle traveling along a corridor is likely to experience green traffic signals from one adjacent signal to the next. Due to this coordinated effort, there is a reduction queue (vehicles waiting to be served) and overall vehicle delay experienced at the intersections within a corridor. In comparing the overall intersection LOS of the 2030 baseline scenario (no improvements) to the scenario operating with signal synchronization, there are overall LOS improvements as shown in Table 5 at the Main Street intersections with Second and Third Street. Figure 7 summarizes the overall intersection LOS for the 2030 Synchronization of signals. The 2030 with signal synchronization Synchro Reports are attached as Appendix G.

## FIGURE 6 – 2030 BASELINE TRAFFIC CONDITIONS

**FIGURE 7 – 2030 SYNCHRONIZED SIGNALS**

TABLE 5 – SIGNAL SYNCHRONIZATION LOS COMPARISON

| Intersection | 2030 PM Overall LOS | |
|---|---|---|
| | Baseline (no improvements) | Synchronization |
| Main St. and Second St. | D | C |
| Main St. and Third St. | F | D |
| Main St. and Fourth/High St. | F | F |
| Third St. and North St. | B | B |
| Third St. and South St. | A | A |
| Third St. and Virginia St. | B | B |

(ii) The physical spot intersection improvements (including synchronization) are summarized on Figure 1 previously mentioned. In comparing the overall intersection LOS of the 2030 baseline scenario (no improvements) to the scenario operating with spot intersection improvements, there are overall LOS improvements at the intersections of Main Street with Second, Third and Fourth/High Streets as shown in Table 6. The improvements at the Main Street and Second Street intersection result in a 50 percent reduction in Southbound queue when compared to the baseline. The 2030 with spot intersection improvements Synchro Reports are attached as Appendix H.

TABLE 6 – SPOT INTERSECTION IMPROVEMENTS LOS COMPARISON

| Intersection | 2030 PM Overall LOS | |
|---|---|---|
| | Baseline (no improvements) | Spot Intersection Improvements |
| Main St. and Second St. | D | C |
| Main St. and Third St. | F | E* |
| Main St. and Fourth/High St. | F | E |
| Third St. and North St. | B | B |
| Third St. and South St. | A | A |
| Third St. and Virginia St. | B | B |

* While there is LOS degradation at this intersection as compared to synchronization (i), the system of signals as a whole operates more efficiently.

Another improvement considered was adding pedestrian bump-outs specifically on Third Street at the intersection with North Street and Main Street. Due to the tight intersection radii, adding pedestrian bump-outs is not feasible within the existing ROW and roadway widths. Appendix I contains exhibits of the turning path of a passenger car under existing conditions for the two intersections where bump-outs were considered.

(iii) The possible one-way system configurations and corresponding LOS are shown on Figure 8. Main Street is northbound from Second Street to High Street and North Street is southbound from Second Street through Main Street via Venable Street. In comparing the overall intersection LOS of the 2030 baseline scenario (no improvements) to the one-way system scenario, which includes synchronization, there are overall LOS improvements as shown in Table 7. While from a LOS standpoint, the signals would operate more efficiently under a one-way system due to the increase in roadway capacity, there would be a disadvantage to the business owners along Main Street and the need to signalize additional intersections. The 2030 with one-way configuration Synchro Reports are attached as Appendix J.

## FIGURE 8 – POSSIBLE ONE-WAY CONFIGURATIONS

TABLE 7 – ONE-WAY SYSTEM LOS COMPARISON

| Intersection | 2030 PM Overall LOS | |
|---|---|---|
| | Baseline (no improvements) | One-Way System |
| Main St. and Second St. | D | A |
| Main St. and Third St. | F | B |
| Main St. and Fourth/High St. | F | C |
| Third St. and North St. | B | C |
| Third St. and South St. | A | A |
| Third St. and Virginia St. | B | B |

(iv) The alternate route through downtown assumed the East Side River Crossing Route as designated by the Farmville 2020 Transportation Plan to accommodate additional north-south roadway capacity east of Main Street using portions of Virginia Street, Vernon Street and Parkview Drive. The East Side River Crossing introduces a new bridge across the Appomattox and new roadway connections at Main Street and Griffin Boulevard and Main Street at Osborn Street.

For analysis purposes, this scenario assumes existing roadway configurations and that 15% of the northbound and southbound Main Street traffic is diverted to Virginia Street. Figure 9 summarizes the LOS of the possible alternate downtown route scenario and Table 8 summarizes the LOS comparison between this scenario and the 2030 baseline. The 2030 with alternate downtown route Synchro Reports are attached as Appendix K.

TABLE 8 – ALTERNATE DOWNTOWN ROUTE LOS COMPARISON

| Intersection | 2030 PM Overall LOS | |
|---|---|---|
| | Baseline (no improvements) | Alternate Downtown Route |
| Main St. and Second St. | D | B |
| Main St. and Third St. | F | D |
| Main St. and Fourth/High St. | F | E |
| Third St. and North St. | B | B |
| Third St. and South St. | A | A |
| Third St. and Virginia St. | B | C* |

* Due to the increase of traffic on Virginia Street assumed under the Alternate Downtown scenario, there is a marginal increase of delay at this intersection.

Figure 10 compares the overall 2030 intersection LOS, which is measure of intersection delay (seconds), during the PM peak hour at the Main Street and Third Street intersection given the investigated scenarios. All improvement scenarios provide a significant reduction in delay in comparison to the 2030 baseline. While the resulting intersection delay of the 2030 with spot improvements is slightly higher than the 2030 with signal synchronization alone, the signal system as a whole operates better given this scenario.

**FIGURE 9 – POSSIBLE ALTERNATE DOWNTOWN ROUTE**

**FIGURE 10 – MAIN STREET AND THIRD STREET PM LOS COMPARISON**

**Public Informational Meeting**

On May 17, 2006, a public information meeting was held to present the draft study recommendations to the Farmville citizens and to obtain citizen comments on these recommendations. A total of five (5) people attended, not including the Commonwealth Regional Council staff and representatives from the study team. Three (3) public comment forms were completed and returned. The public in terms of those attending were generally pleased with the study draft recommendations. In addition to the need for more parking, knowing how through trucks would travel if right-turns were restricted at the Third and Main Street intersection was a voiced concern. Attached, as Appendix D, is a complete summary of the public comments.

## TRANSPORTATION RECOMMENDATIONS

Based on the study goals, 2030 future conditions analysis, and citizen and Advisory Committee comments, the study team developed short-term and long-term transportation improvement recommendations for Downtown Farmville. As the Town of Farmville continues to grow, traffic delays experienced in traveling in the downtown area will inevitably increase if no improvements are made. The overall intersection delay at the Main Street and Third Street, which is the junction of the major north-south, west-east corridors in downtown, is predicted to be approximately 150 seconds. Synchronizing the traffic signals will make the most significant improvement to the downtown traffic flow by decreasing overall intersection delay, which at the Main Street and Third Street intersection is a reduction of about 60%.

In addition to the synchronization of traffic signals, the study team recommended spot intersection improvements to support individual intersection traffic flow, pedestrian access, and safety. Intersections specifically identified for improvements include intersections on Main Street with Second, Third, and High/Fourth Streets, the Third Street and South Street intersection and the Fourth Street and Virginia Street intersection. These improvements are further enhanced by the separate streetscaping and signing initiatives already programmed.

While the overall town parking during this study indicates that there is currently sufficient parking, the study team recognizes that parking deficiencies exist at certain times of day and in the southern portion of the study area, especially closest to Main Street. In the short-term, reconfiguring the Municipal Lot between South and Virginia Streets will provide additional parking. The study team believes that the additional parking signs and brochures to identify municipal parking already programmed by the town, will help communicate to the public where parking may be available when familiar lots are at capacity.

**Short-term Recommendations**

Given the existing infrastructure, the team developed a list of short-term recommendations for immediate implementation based on funding availability. As previously presented, physical roadway improvements are shown in Figure 1 and parking improvements are shown in Figure 2. The short-term recommendations include the following spot intersection and parking improvements not prioritized:

1. Synchronization of traffic lights within study area. Synchronization is a process to allow the signals to work together and optimize traffic volumes processed with available green times.
2. Stripe a 50' northbound Main Street Left-turn at Second Street and a 100' southbound Main Street left-turn at Second Street (implementation must be in conjunction with recommendation No.1).
3. Re-stripe northbound Main Street configuration at Fourth Street as a shared through-left and an exclusive right-turn.
4. Re-stripe southbound Virginia Street at Fourth Street to align the through movements, relocate Virginia Street stop signs closer to the intersection and install a flashing light on each stop sign.
5. Install right-turn through truck restrictions at Main and Third Street intersection.
6. Install pedestrian ramp at Third and South Street.
7. Re-stripe and add landscaping to the Municipal Parking Lot located between South and Virginia Street.
8. Install additional signs leading to downtown parking.

**Long-term Recommendations**

In projecting future conditions to 2030, the study team concluded that the signal operation would begin to deteriorate to level of service "E" between 2020 and 2025 assuming the short-term recommendations. Therefore, the study team recommended that the Town keeps a funding placeholder for an alternate route for downtown traffic. The study team also recommended the need for future parking studies to assess impacts of new developments and that new development comply with the Town parking code.

Long-term recommendations for the downtown study area include:

1. Maintain the Alternate Downtown Route link via Virginia Street as a corridor for the future roadway. If growth continues as projected, the existing Route 15 Business / Route 45 Corridor must be able to accommodate peak period traffic. The alternative corridor may require additional environmental and neighborhood studies to verify mitigation measures.
2. Encourage new businesses and development to provide parking per the Town code within B1 and B2 Districts to avoid future parking deficiencies.
3. Coordinate with the County on municipal parking needs and review parking demand to ascertain if additional public resources should be allocated.
4. Expand the programmed streetscape improvements to promote increased pedestrian circulation downtown, including applications to the remainder of Main Street (as

planned) and to Third Street, to link all the blocks.

5. Encourage continued coordination with Longwood University to address transportation growth elements such as parking needs, pedestrian crossings, redevelopment options at Venable Street, and maintaining adequate pedestrian and vehicle linkages from campus to downtown.
6. Options to increase street capacity with one-way street or additional reductions with on-street parking are not preferred; however, if pedestrian or vehicle accidents increase, improved traffic engineering strategies should be initiated to ensure safety. Bump outs would improve pedestrian access but will not accommodate typical traffic maneuvers.
7. Bicycle facilities and increased bus accessibility is encouraged; however, infrastructure changes to accommodate new bike lane and buss pull-offs is not possible within the limited R.O.W. and urban street character downtown.

Costing for both the short-term and long-term recommendations are included in the previously presented Table 1.

The Downtown Study provides an initial evaluation of traffic and parking conditions downtown with a more detailed analysis than previously performed as part of the VDOT Small Urban Area Plan Studies; however, the framework of implementation per the VDOT Transportation Plan and Town Comprehensive Plan should continue. The analysis identifies localized parking deficiencies and intersection degradation which can be reduced with the short-term and long-term recommendations.

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Appendix for

# Town of Farmville Downtown Study

prepared for

**Commonwealth Regional Council (CRC)**
102 ½ High Street
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in cooperation with the

**Town of Farmville**

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June 30, 2006

# LIST OF APPENDICES

A: Existing 2006 Traffic Counts

B: Existing 2006 AM and PM Synchro Reports

C: Existing 2006 Parking Observations

D: Public Informational Meeting Comments

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# APPENDIX A

## Existing 2006 Traffic Counts

# APPENDIX B

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## 2030 with Alternate Downtown Route
## PM Synchro Reports

# Table 3 - Trip Generation

June 30, 2006

| CODE | DENSITY | Var. | USE | AM PEAK HOUR IN | AM PEAK HOUR OUT | AM PEAK HOUR TOTAL | PM PEAK HOUR IN | PM PEAK HOUR OUT | PM PEAK HOUR TOTAL | DAILY (2-way) |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***Midtown Square*** | | | | | | | | | |
| 820.701 | 44 | ksf | Retail | 59 | 37 | 96 | 175 | 189 | 364 | 3,983 |
| 820.701 | 44 | ksf | Retail pass-by reduction | -6 | -6 | -12 | -26 | -26 | -53 | -597 |
| 220 | 120 | DU | Multi-Family Apartment | 10 | 51 | 61 | 50 | 24 | 74 | 793 |
| | | | | **63** | **82** | **145** | **199** | **187** | **386** | **4,179** |
| | ***Municipal Building*** | | | | | | | | | |
| 710.717 | 30.982 | ksf | Office @ 30.982 | 64 | 9 | 73 | 19 | 95 | 114 | 541 |
| | ***Benchmark Bank*** | | | | | | | | | |
| 912 | 4 | ksf | Drive-In Bank | 29 | 22 | 51 | 110 | 109 | 219 | 1,061 |
| | ***Sleeping Bee*** | | | | | | | | | |
| 814.1 | 9.87 | ksf | Specialty Retail | 3 | 4 | 7 | 11 | 15 | 26 | 401 |
| 220 | 1 | DU | Multi-Family Apartment | 0 | 1 | 1 | 1 | 0 | 1 | 7 |
| | | | | **3** | **5** | **8** | **12** | **15** | **27** | **408** |
| | ***Corner of 2nd Street and Virginia Street*** | | | | | | | | | |
| 710.701 | 6.8 | ksf | Office | 16 | 2 | 18 | 6 | 28 | 34 | 131 |
| 220 | 8 | DU | Multi-Family Apartment | 1 | 3 | 4 | 3 | 2 | 5 | 53 |
| | | | | **17** | **5** | **22** | **9** | **30** | **39** | **184** |
| | ***Longwood University*** | | | | | | | | | |
| 550 | 1000 | stud | University/College | 168 | 42 | 210 | 63 | 147 | 210 | 2,380 |
| | | | ***Proposed Use*** | **344** | **165** | **509** | **412** | **583** | **995** | **8,753** |

TRIP RATE SOURCE:
Trip Generation Manual (7th Edition), Institute of Transportation Engineers; 2003.
Average trip rates used, unless noted with * then equations used.