

**WEGMANS SUPERMARKET
STATE EMPLOYEES CREDIT UNION (SECU) PROPERTY
ACCESS DRIVEWAY**

TRAFFIC IMPACT STUDY

EXECUTIVE SUMMARY



Prepared for:

The Town of Chapel Hill
Public Works Department - Engineering

Prepared by:

HNTB North Carolina, PC

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Raleigh, NC 27609*

NCBELS License #: C-1554

November 2019



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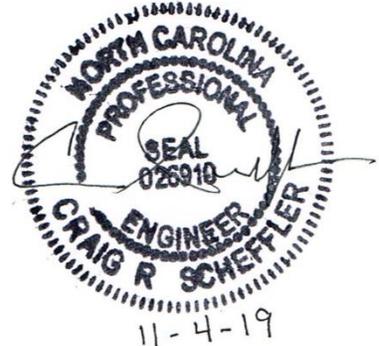
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EXECUTIVE SUMMARY

Project Overview

A new access plan for the Chapel Hill Wegmans Supermarket along US 15-501 (Durham-Chapel Hill Boulevard) near Old Durham Road is being proposed by the Applicant. The project proposes to modify the existing approved access plan for Wegmans to include intersection improvements and full access for Wegmans site traffic at the US 15-501 intersection with Eastowne Drive / US 15-501 Service Road. **Figure ES-1** shows the general location of the Wegmans site and access modification location. The Wegmans Supermarket is anticipated to be fully complete by late 2020 / early 2021. This report analyzes the transportation impacts for the access modification scenario for the year 2022 (one full year after anticipated completion), the “no-build” scenario (assuming Wegmans is complete with the current approved access configuration) for 2022, as well as 2019 existing base year traffic conditions.

The proposed site concept plan shows several substantial transportation network changes from existing conditions, including improvements to Old Durham Road at its intersection with US 15-501, a restriction of access to/from Scarlett Drive, and a new roundabout to serve on-site parking lots along Old Durham Road. Vehicular access to the site will be provided along the existing Service Road for inbound-only traffic. **Figure ES-2A** displays the site concept plan of the Wegmans Supermarket development, transportation network changes, and nearby land uses and roadways. **Figure ES-2B** shows the proposed access modification at the US 15-501 and Eastowne Drive / Service Road intersection that allows direct entering and existing access for Wegmans along with potential future access for the SECU property.

Existing Conditions

Study Area

The existing Wegmans site currently is under construction and the former Performance Motors development has been demolished. The site borders residential neighborhoods to the south and commercial development to the west, east, and north across the US 15-501 corridor. It is located immediately adjacent to the existing SECU Property building to the east and a Hardees Restaurant to the west.



All vehicular access is proposed to enter and exit the site via several full access site driveways along Old Durham Road, with external access via the US 15-501 intersections at Sage Road/Old Durham Road and Eastowne Drive/Lakeview Drive. Inbound-only site access is currently planned to be provided via the existing adjacent US 15-501 Service Road or the Eastowne Drive/Service Road intersection with US 15-501. All parking will be provided on-site or at an additional surface lot to the south of the proposed site across Old Durham Road, with a grand total of approximately 750 parking spaces for customers and employees. The proposed site plan, shown in **Figure ES-2A**, shows the location of the local access streets, internal driveway network and adjacent transportation facilities.

The study area contains all major signalized intersections along US 15-501 (Fordham Boulevard) from Erwin Road/Europa Drive to the I-40 interchange. It also includes several intersections along Old Durham Road/Old Chapel Hill Road in the vicinity of neighborhoods and commercial areas surrounding Wegmans Supermarket to the north and east. Site traffic is primarily expected use either the major existing access points along US 15-501 at Old Durham Road and Lakeview Drive. Consideration was



made for a small percentage of site traffic utilizing local streets from the neighborhoods surrounding Wegmans Supermarket. US 15-501 (Fordham Boulevard – Durham/Chapel Hill Boulevard) is a major principal arterial providing connectivity between Chapel Hill, the UNC Main Campus, the I-40 corridor and Durham. The remaining study area roadways are either minor arterial facilities providing connectivity throughout Chapel Hill, suburban collector streets or local neighborhood/commercial access streets.

Site Traffic Generation

With the addition of new site trips during the weekday AM, noon, and PM peak hours, there are potential site traffic impacts to the study area intersections. Appropriate reductions for “pass-by” type trips, transit trips, and pedestrian/bicycle trips were assumed to occur, given the nature of the proposed Wegmans Supermarket land use, and are summarized in **Table ES-1**. **Table ES-1** shows site trip generation details, with rates taken from the *ITE Trip Generation Manual, Volume 9* and adjusted for appropriate trip reductions and separated into “new” site trips and “pass-by” site trips that are already part of the traffic stream and make an intermediate stop at Wegmans before continuing to a final destination.

Table ES-1
Weekday Vehicle Trip Generation Summary - Wegmans Supermarket

| Trip Designation | % Trip Reduction | Daily | | | AM Peak Hour | | | Noon Peak Hour | | | PM Peak Hour | | |
|--|-----------------------|--------------|--------------|--------------|--------------|------------|------------|----------------|------------|------------|--------------|------------|------------|
| | | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total |
| Raw ITE Calculation – LUC 850 (Supermarket) – 140,000 SF | | 5,383 | 5,383 | 10,766 | 295 | 181 | 476 | 302 | 252 | 554 | 509 | 490 | 999 |
| Transit | 5% | -269 | -269 | -538 | -15 | -9 | -24 | -15 | -13 | -28 | -25 | -25 | -50 |
| Ped/Bike | 5% | -269 | -269 | -538 | -15 | -9 | -24 | -15 | -13 | -28 | -25 | -25 | -50 |
| Total Vehicle Trips | | 4,845 | 4,845 | 9,690 | 265 | 163 | 428 | 272 | 226 | 498 | 459 | 440 | 899 |
| Pass-By Trips | 18% AM & NN 36% PM | 1,454 | 1,454 | 2,908 | 48 | 29 | 77 | 49 | 41 | 90 | 165 | 158 | 323 |
| Balanced Pass-by Trips | | 1,454 | 1,454 | 2,908 | 39 | 39 | 78 | 45 | 45 | 90 | 162 | 162 | 324 |
| New Site Trips | | 3,391 | 3,391 | 6,782 | 217 | 134 | 351 | 223 | 185 | 408 | 294 | 282 | 576 |

Notes: No ITE Data for Noon Peak - Assume 75% of Average Between AM and PM Peak Generation Data and 50% of PM Peak Pass-by Data

Background Traffic

Background traffic growth for the 2022 analysis year is expected to come from ambient regional traffic growth and specific development-related traffic growth. Based on information on average daily traffic collected by the Town of Chapel Hill and the NCDOT, a yearly ambient traffic growth rate of 1.4 percent per year was used for the short-term 2022 design year capacity analyses. Specific background generator site traffic was applied to the study area for the adjacent UNC Health Care Medical-Office Building – Phase 1 redevelopment, which is currently under construction and expected to be complete by 2022.



Impact Analysis

Peak Hour Intersection Level of Service

2019 base year traffic operations at most study area intersections are acceptable during all three peak hours analyzed, though several intersections along US 15-501 are near or at capacity. The projected ambient and background development traffic growth will marginally increase impacts for the 2022 analysis time period. Study results for the Current Access Plan Scenario and the Proposed Wegmans-SECU Access Driveway Scenario indicate that in both conditions, all study area intersections should operate acceptably in all 2022 analysis year peak hours, with the exception of the PM peak hour stop-controlled southbound approach at Old Chapel Hill Road and Lakeview Drive. Mitigation improvements committed to by Wegmans or UNC Health Care allow study area intersection operations to improve or at least remain at current levels in the future scenarios. The additional full movement access point and related design improvements at the US 15-501 and Eastowne Drive/Service Road intersection divert site-related traffic and reduce traffic volumes at adjacent intersections compared to the Current Access Plan Scenario. Additional volumes and signalized phasing and timing changes at this intersection cause additional delays and LOS drop at this location, but not to deficient levels in any peak hour.

A summary of the traffic operations for each intersection, related to vehicular delays (overall intersection average if signalized, critical movement if stop-controlled) and the corresponding Level-of-Service (LOS) is shown in **Table ES-2**.

Access Analysis

In the Current Wegmans Access Scenario, vehicular site access is to be accommodated by four proposed full movement access driveways, three connecting to Old Durham Road and one connecting to Cooper Street for the auxiliary surface parking lot. Additional inbound-only access to the site was proposed via the Service Road connecting to US 15-501 at Eastowne Drive. Access for delivery trucks was also proposed along the rear of the supermarket building that would connect with Old Durham Road. All proposed connections are shown on the site plan in **Figure ES-2A**. All issues regarding access design details for these driveways was documented in previous traffic studies for the Wegmans project.

The proposed access modification design (see **Figure ES-2B**) realigns the existing Service Road to provide a new access connections for the SECU Property Visitors parking area in front of the SECU Building and a direct connection to the Wegmans parking lot, with a realignment of the existing Service Road to traverse the periphery of the proposed parking lot and tie back into its existing US 15-501 frontage alignment. In general, proposed design modifications adhere to all driveway throat length and separation standards found in the 2003 *NCDOT Policy on Street and Driveway Access to North Carolina Highways* the *Town of Chapel Hill Design Manual*.

Access to the site for pedestrians and bicyclists would be improved, based on details provided on the design plan in **Figure ES-2B**. Sidewalk would extend from the Wegmans building on one side of the proposed realigned Service Road to the signalized intersection, where a pedestrian cross-walk would be implemented. The existing Service Road alignment would be converted to a multi-use path along US 15-501 in the area of realignment.

Signal Warrant Analysis

Based on projected 2022 traffic volumes and current/proposed access plans, the only unsignalized intersection in the project study area that may warrant the new installation of a traffic signal, based on the peak hour warrant methodology found in the 2009 *Manual on Uniform Traffic Control Devices (MUTCD)*, is at Old Chapel Hill Road and Lakeview Drive. The Peak Hour signal warrant analysis is used as a verification that projected traffic volumes meet peak hour warrants as a precursor to a more extensive analysis of conditions via additional data collection for 4-Hour and 8-Hour warrant analyses.



Table ES-2. Wegmans Supermarket Redevelopment Peak Hour LOS and Vehicular Delay Summary

| ID | Intersection Name | 2019 Base Year | | | | | | 2022 Current Site Access | | | | | | 2022 Proposed Site Access with SECU Property Driveway | | | | | |
|-----------|---|----------------|----|----|-------------------------|------|------|--------------------------|----|----------|-------------------------|------|-------------|---|----|----------|-------------------------|------|-------------|
| | | LOS | | | Average Delay (sec/veh) | | | LOS | | | Average Delay (sec/veh) | | | LOS | | | Average Delay (sec/veh) | | |
| | | AM | NN | PM | AM | NN | PM | AM | NN | PM | AM | NN | PM | AM | NN | PM | AM | NN | PM |
| 1 | US 15-501 Northbound & Southbound U-Turn / Service Road Access | A | A | B | 7.8 | 8.9 | 10.1 | A | A | B | 8.2 | 9.7 | 14.4 | A | A | B | 8.3 | 9.7 | 14.5 |
| 2 | US 15-501 Northbound & Europa Drive | B | B | B | 14.3 | 10.9 | 12.1 | B | B | B | 10.4 | 10.5 | 10.7 | B | B | B | 10.4 | 10.9 | 13.5 |
| 3 | US 15-501 Southbound & Northbound U-Turn | B | B | B | 15.4 | 17.1 | 19.8 | B | B | B | 15.1 | 14.9 | 18.4 | B | B | B | 15.1 | 15.1 | 18.9 |
| 4 | US 15-501 Southbound & Erwin Road | C | C | C | 24.1 | 21.3 | 30.8 | C | B | C | 22.9 | 15.6 | 20.0 | C | B | B | 22.5 | 16.8 | 18.6 |
| 5 | US 15-501 & Sage Road / Scarlett Drive | D | D | D | 43.8 | 50.3 | 49.0 | D | D | D | 52.3 | 41.1 | 54.8 | D | D | D | 48.2 | 37.0 | 42.8 |
| 6 | US 15-501 & Eastowne Dr / Service Rd - Proposed Full Wegmans Access | A | A | B | 6.9 | 9.8 | 11.4 | B | B | B | 13.4 | 13.3 | 12.6 | C | B | C | 21.7 | 19.9 | 30.2 |
| 7 | US 15-501 & Eastowne Drive / Lakeview Drive | B | B | C | 19.8 | 19.1 | 32.5 | B | B | C | 15.9 | 18.4 | 28.1 | B | B | C | 15.5 | 17.4 | 21.4 |
| 8 | US 15-501 & I-40 Eastbound Ramps | D | C | C | 44.5 | 26.0 | 24.8 | C | C | C | 31.9 | 20.4 | 30.7 | C | C | C | 32.1 | 21.0 | 33.2 |
| 9 | US 15-501 & I-40 Westbound Ramps | D | C | D | 52.8 | 31.9 | 39.2 | D | C | D | 51.6 | 33.8 | 38.8 | D | C | D | 51.6 | 34.2 | 36.7 |
| 10 | Old Durham Road & Service Road / Cemetery Driveway [@] | B | B | B | 10.7 | 10.6 | 10.8 | A | B | B | 12.4 | 12.5 | 13.8 | B | B | B | 11.7 | 11.6 | 12.3 |
| 11 | Old Durham Road & Scarlett Drive [@] | A | A | A | 9.5 | 9.9 | 9.6 | A | B | A | 9.7 | 10.1 | 9.8 | A | B | A | 9.7 | 10.1 | 9.8 |
| 12 | Old Durham Road & Cooper Street [@] | B | B | B | 11.5 | 10.2 | 13.2 | B | B | C | 13.4 | 11.7 | 19.8 | B | B | C | 12.4 | 10.7 | 15.1 |
| 13 | Old Durham Road & Standish Drive [@] | B | B | C | 12.3 | 10.3 | 15.1 | B | B | C | 14.7 | 11.6 | 21.1 | B | B | C | 13.7 | 10.9 | 17.3 |
| 14 | Old Chapel Hill Road & Lakeview Drive [@] | C | B | C | 19.3 | 14.7 | 23.4 | D | C | F | 33.1 | 22.0 | 85.2 | D | C | F | 25.4 | 16.9 | 52.4 |
| 15 | Old Chapel Hill Road & White Oak Lane [@] | C | B | D | 16.7 | 11.7 | 25.0 | C | B | D | 16.7 | 12.1 | 30.3 | C | B | D | 16.7 | 12.1 | 30.3 |
| 16 | Scarlett Drive & Legion Road / Legion Road Ext ^{**} | A | A | A | 8.5 | 8.1 | 9.0 | A | A | B | 8.3 | 8.6 | 10.1 | A | A | A | 8.2 | 8.6 | 10.0 |
| 17 | Eastowne Drive & Service Road / SECU Visitor Driveway Access[@] | A | A | A | 8.6 | 9.1 | 8.6 | A | A | A | 9.0 | 9.8 | 9.3 | A | B | A | 9.0 | 10.2 | 9.9 |
| 18 | Old Durham Road & Site Driveway 1 [@] | | | | | | | C | C | E | 17.8 | 17.7 | 36.1 | B | B | C | 14.6 | 14.1 | 18.1 |
| 19 | Old Durham Road & Site Driveways 2 & 3 ^{\$} | | | | | | | A | A | A | 5.4 | 5.8 | 7.7 | A | A | A | 5.0 | 5.1 | 6.1 |
| 20 | Cooper Street & Site Driveway 4 / Commercial Driveway [@] | | | | | | | A | A | B | 9.8 | 9.7 | 11.1 | A | A | B | 9.8 | 9.7 | 11.0 |
| 21 | Service Road & Site Driveway 5[@] | | | | | | | A | A | A | 6.9 | 6.9 | 7.4 | A | A | A | 8.5 | 8.6 | 8.7 |
| 22 | Service Road & Site Driveway 6^{**} | | | | | | | | | | | | | A | A | A | 7.8 | 8.0 | 9.4 |

BLUE – New and/or Modified Intersections **BOLD/ITALICS** – Movement or Overall Intersection is over capacity as defined by Town of Chapel Hill TIS Standards **GREY CELLS** – Intersection Does Not Exist for Analyzed Scenario
[@] - Unsignalized Intersection, LOS/Delay Values Correspond to Worst-Case Critical Movement N/A – Not Applicable, i.e. no improvements made
^{**} - All-Way Stop Controlled Intersection, LOS/Delay Values Correspond to Overall Average
^{\$} - Proposed Roundabout, LOS/Delay Values Correspond to Overall Intersection average from SIDRA software



This intersection does not meet signal warrants for either 2022 Access Scenario but should be monitored for signalization if traffic patterns due to the Wegmans site differ from assumptions made for this analysis.

Crash Analysis

Data from the NCDOT Traffic Safety Unit was provided for the original Wegmans TIS for the five-year period 6/1/2011 to 5/31/2016 for segments of US 15-501 and Old Durham Road in the vicinity of the proposed site and for major study area intersections adjacent to the site. 613 crashes were reported along US 15-501 between E. Franklin Street and I-40 and 46 crashes were reported along Old Durham Road between US 15-501 and Lakeview Drive. Primary crash types included rear end crashes, sideswipes, and left-turn crashes. Overall, the number and severity of crashes along the US 15-501 corridor in the project study area is higher than state-wide averages for similar facilities. The intersection of Old Durham Road and Scarlett Drive has a high crash rate relative to other study area intersections.

Mitigation Measures/Recommendations

Planned Improvements

The North Carolina Department of Transportation is studying the US 15-501 corridor through the project study area for comprehensive improvements to manage access and increase vehicular capacity. STIP project (U-5304F) is in the planning stages and was not considered to be complete by 2022. The proposed Applicant Committed Improvements and Necessary Improvements outlined below, were developed to minimize future changes that may be necessary due to future designs of access changes and potentially limitations that may be recommended in the U-5304F project.

The Town of Chapel Hill is constructing improvements to the Old Durham Road corridor to enhance pedestrian and bicycle facilities. The NCDOT project, STIP EB-4707, is providing bicycle and pedestrian improvements along Old Durham Road from the Scarlett Drive/Sage Road/Old Durham Road and US 15-501 Fordham Boulevard intersection into Durham County (as schematically shown on **Figure ES-3**). The improvements will add sidewalks along the entire length as well as bicycle lanes on both sides.

Background Committed Improvements

An adjacent redevelopment project along US 15-501 and Eastowne Drive, known as UNC Health Care Medical Office Building Phase 1, is currently under construction. As part of that project's infrastructure improvements, several recommended improvements from the corresponding traffic impact study were considered to be built by the 2022 analysis year. These are highlighted on **Figure ES-3**.

Applicant Committed Improvements

The current Wegmans site access plan that has been approved by the Town of Chapel Hill and all transportation recommendations based on that plan, as highlighted in **Figures ES-3 and ES-3A**, were considered to be committed improvements for this analysis.

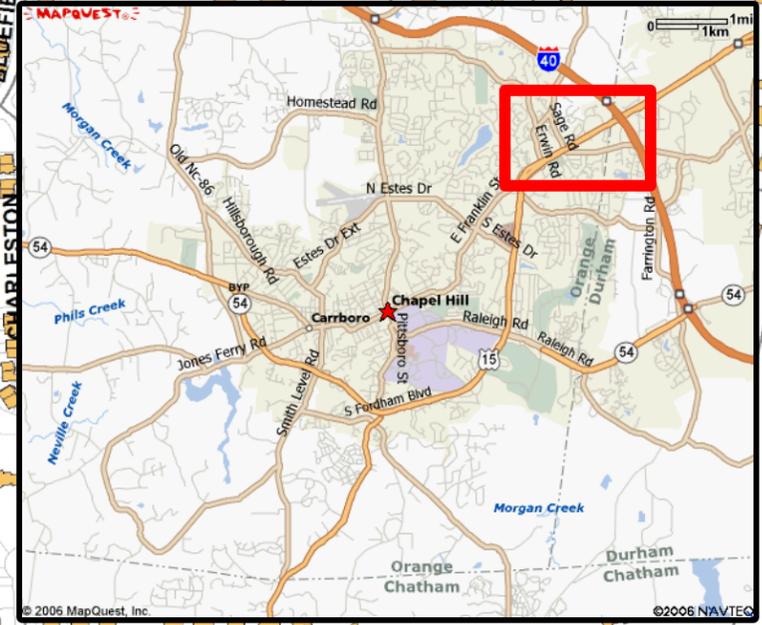
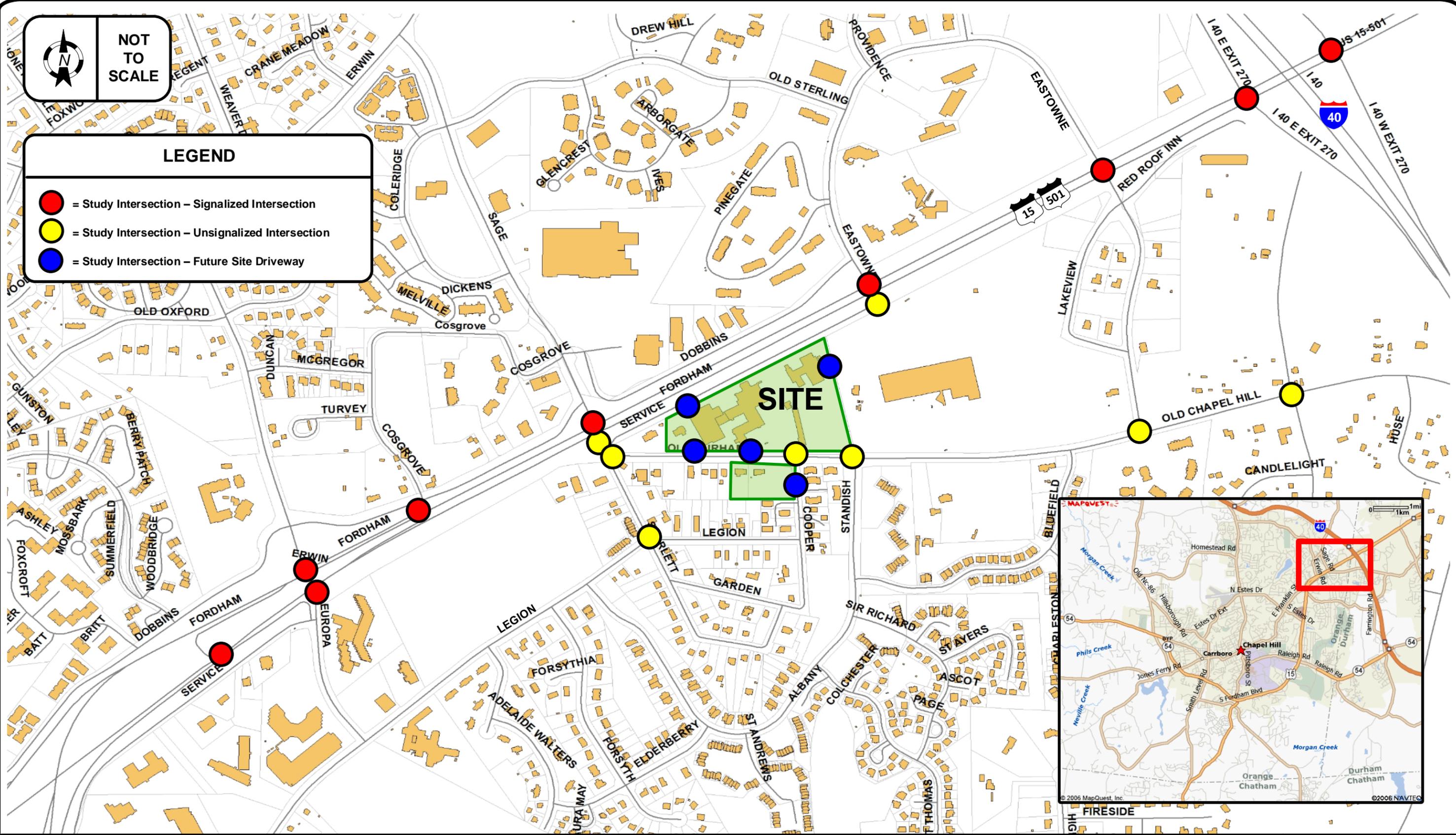
Necessary/Proposed Improvements

Based on traffic capacity analyses for the 2022 design year for the Proposed Wegmans – SECU Access Driveway Scenario, and in consideration that all previous Background Committed and Applicant Committed improvements are completed by the 2022 design year, the proposed access modification and intersection improvements, as designed in **Figure ES-2B** and schematically shown in **Figure ES-3**, should provide adequate traffic operations for the study area network. This access modification should provide some operational benefit to adjacent signalized intersections along US 15-501, which were forced to accommodate all the exiting Wegmans site traffic in the Current Access Scenario. It should also reduce site-related traffic along Old Durham Road. Additional monitoring of the existing two-way stop controlled intersection at Old Chapel Hill Road and Lakeview Drive once the Wegmans site is open to traffic is recommended to evaluate the warrant for a traffic signal at this location.



LEGEND

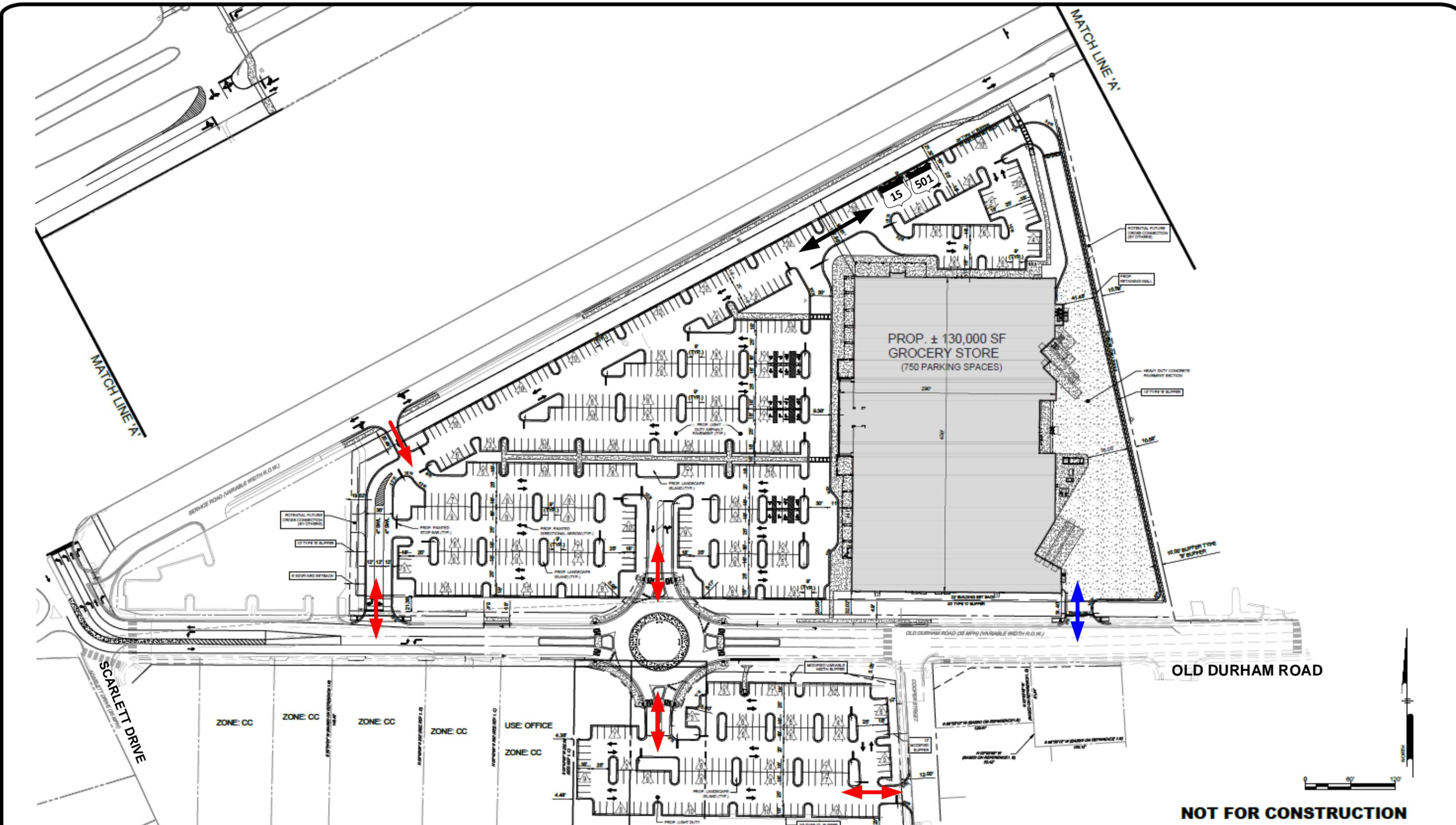
- = Study Intersection – Signalized Intersection
- = Study Intersection – Unsignalized Intersection
- = Study Intersection – Future Site Driveway



Wegmans - SECU Driveway Access
 Traffic Impact Study
 PROJECT STUDY AREA

DATE: November 2019

FIGURE ES-1

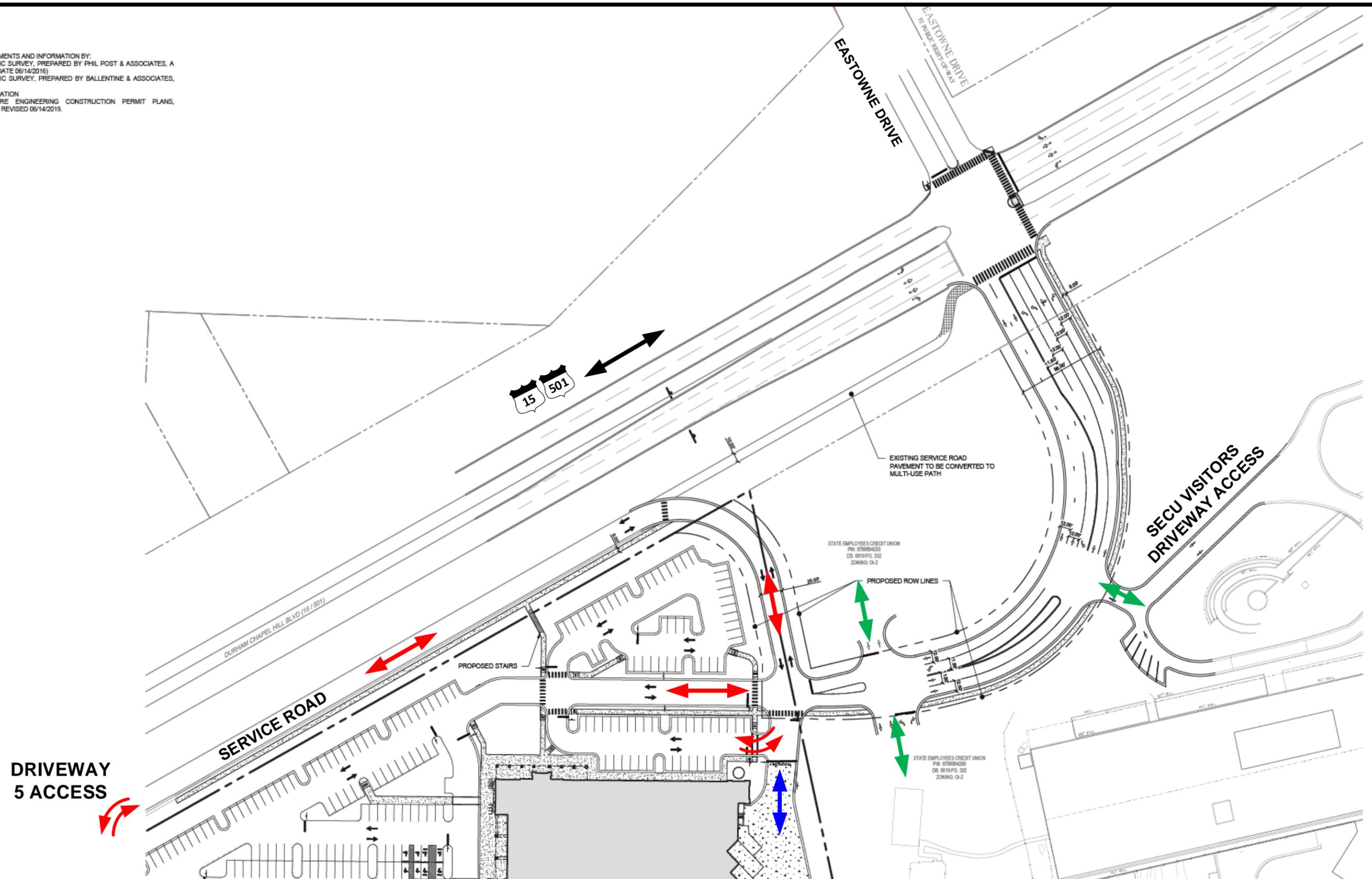


NOT FOR CONSTRUCTION

| | | | | | | |
|--|--|--|----------------------------|--|---|---|
| | | | <p>NOT TO SCALE</p> | <p align="center">LEGEND</p> <p> = PROPOSED SITE ACCESS</p> <p> = PROPOSED DELIVERY TRUCK-ONLY ACCESS</p> | <p align="center">Wegmans - SECU Driveway Access Traffic Impact Study</p> <p align="center">CURRENT SITE CONCEPT PLAN</p> | <p>DATE: November 2019</p> <p>FIGURE ES-2A</p> |
|--|--|--|----------------------------|--|---|---|

NOTES:

1. THIS PLAN REFERENCES DOCUMENTS AND INFORMATION BY:
 - A. BOUNDARY AND TOPOGRAPHIC SURVEY, PREPARED BY PHIL POST & ASSOCIATES, A DIVISION OF PENNONI (FIELD DATE 06/14/2016)
 - B. BOUNDARY AND TOPOGRAPHIC SURVEY, PREPARED BY BALLENTINE & ASSOCIATES, P.A.; DATED 01/20/2017
 - C. ORANGE COUNTY GIS INFORMATION
 - D. PROPOSED GROCERY STORE ENGINEERING CONSTRUCTION PERMIT PLANS, PREPARED BY PENNONI; LAST REVISED 06/14/2019.



NOT TO SCALE

LEGEND

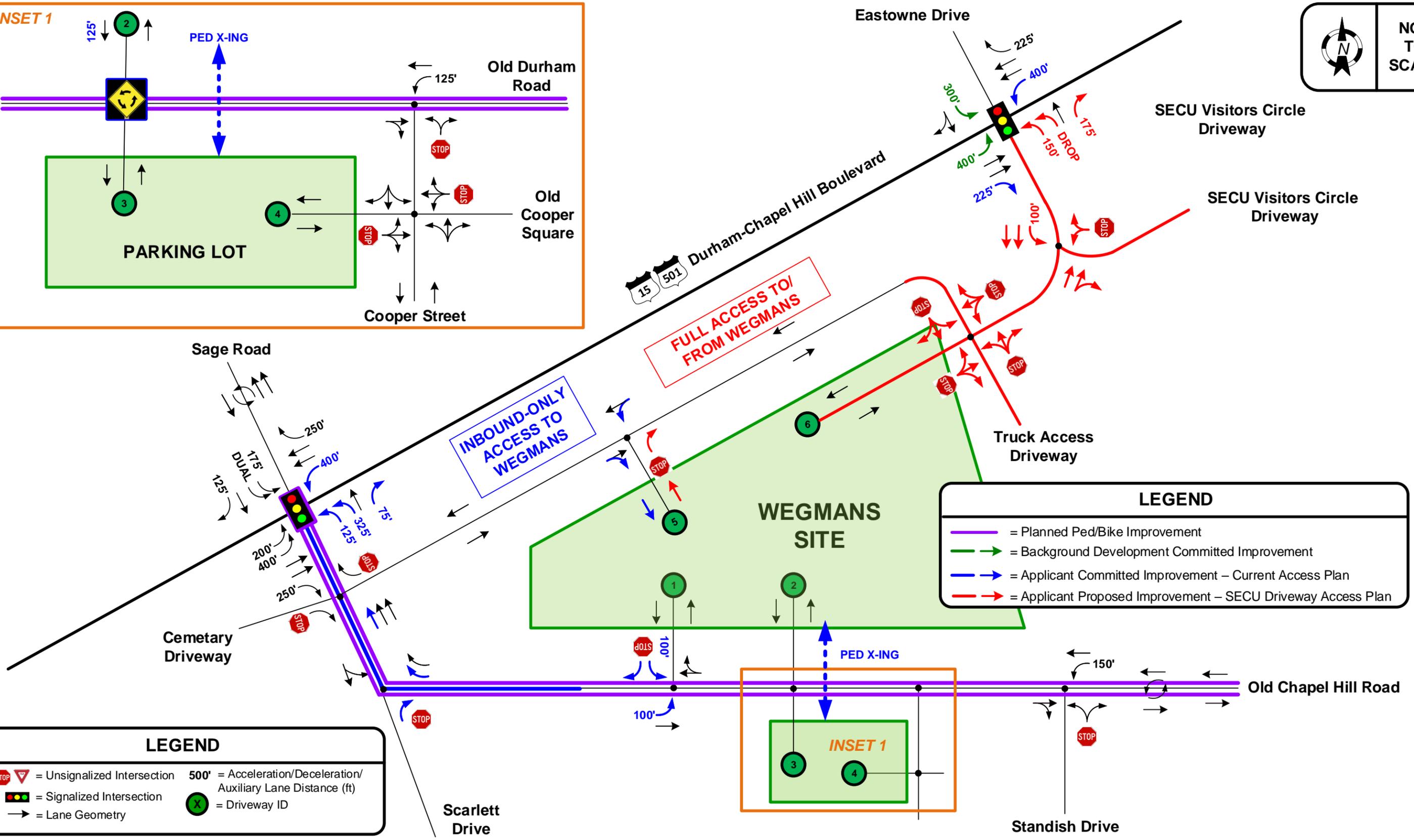
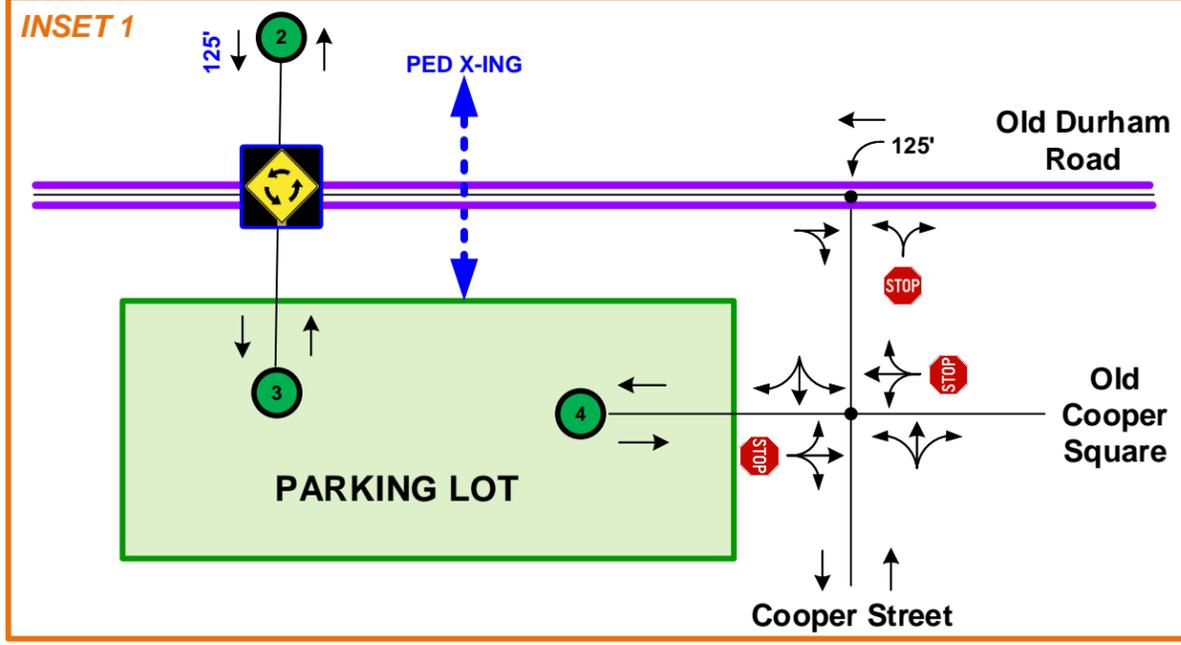
- = PROPOSED SITE ACCESS
- = PROPOSED DELIVERY TRUCK-ONLY ACCESS
- = PROPOSED FUTURE SECU PROPERTY ACCESS

Wegmans - SECU Driveway Access
Traffic Impact Study

SITE CONCEPT PLAN – PROPOSED ACCESS MODIFICATION

DATE: November 2019

FIGURE ES-2B



Wegmans - SECU Driveway Access
Traffic Impact Study

COMMITTED AND PROPOSED IMPROVEMENTS

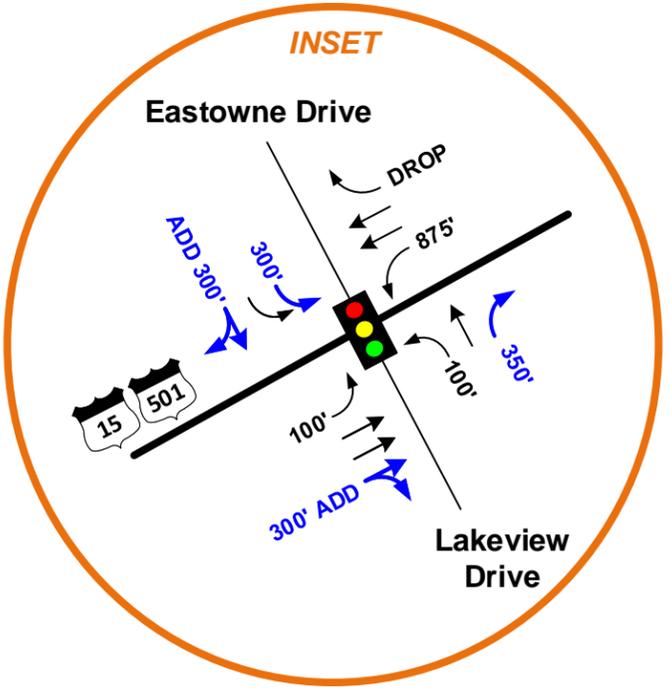
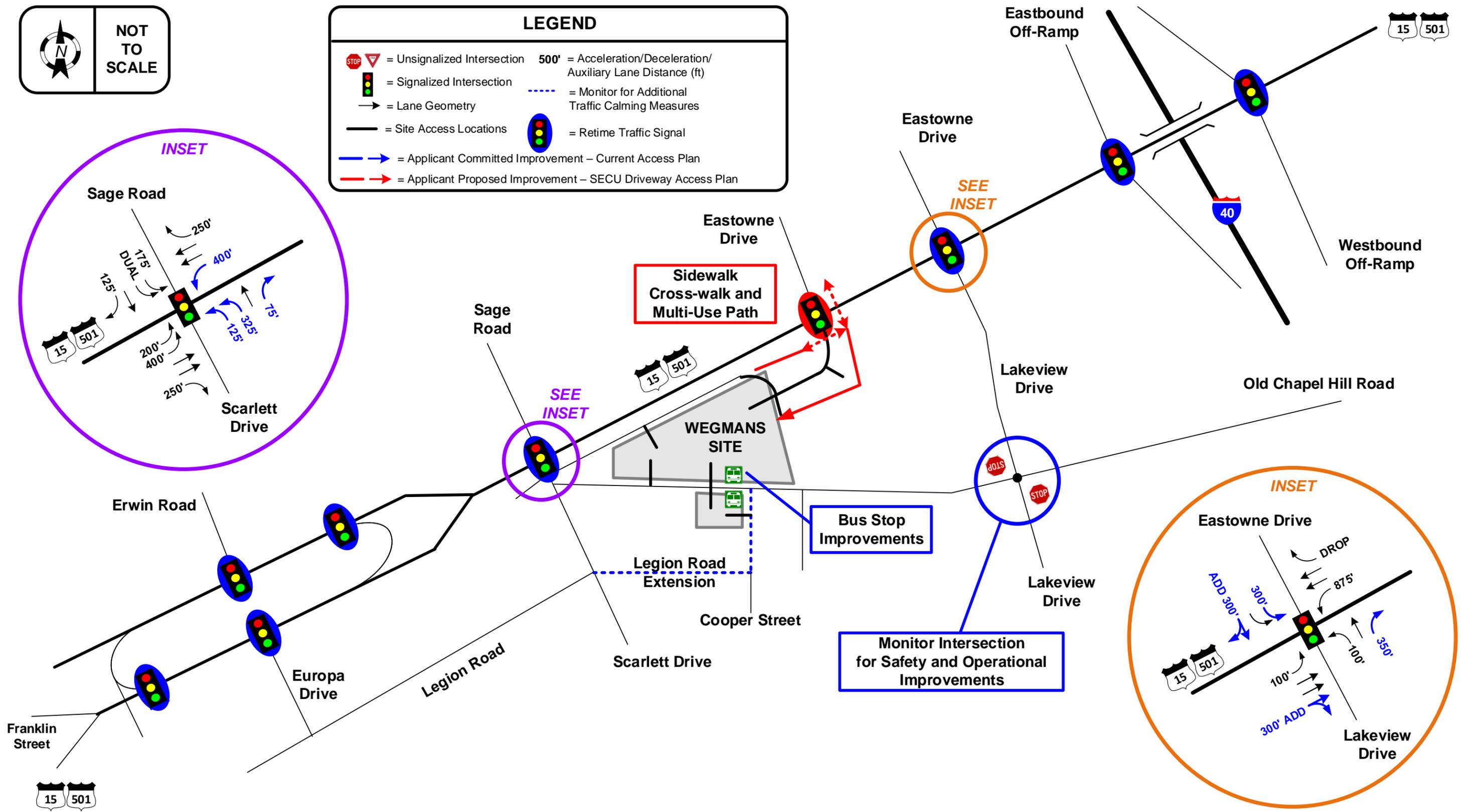
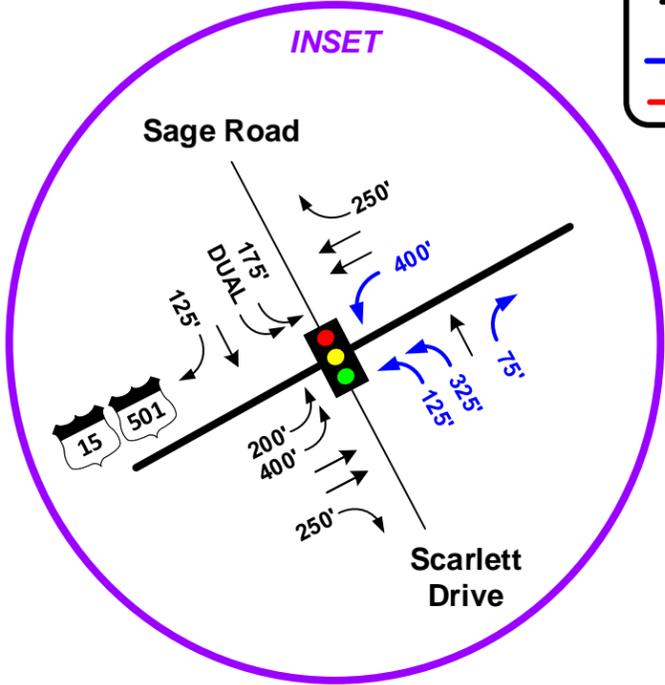
DATE: November 2019

FIGURE ES-3



LEGEND

- = Unsignalized Intersection
- = Signalized Intersection
- = Lane Geometry
- = Site Access Locations
- = Applicant Committed Improvement – Current Access Plan
- = Applicant Proposed Improvement – SECU Driveway Access Plan
- = 500' = Acceleration/Deceleration/Auxiliary Lane Distance (ft)
- = Monitor for Additional Traffic Calming Measures
- = Retime Traffic Signal



**Wegmans - SECU Driveway Access
Traffic Impact Study**

COMMITTED AND PROPOSED IMPROVEMENTS

DATE: November 2019

FIGURE ES-3A