



**LINCOLN COUNTY PLANNING & INSPECTIONS DEPARTMENT**  
302 NORTH ACADEMY STREET, SUITE A, LINCOLNTON, NORTH CAROLINA 28092  
704-736-8440 OFFICE 704-736-8434 INSPECTION REQUEST LINE 704-732-9010 FAX

To: Board of Commissioners  
Planning Board

From: Randy Hawkins, Zoning Administrator

Date: January 16, 2019

Re: CUP #396  
C4 CStore Holdings, LLC, applicant  
Parcel ID# 71506 (1.5-acre portion)

*The following information is for use by the Lincoln County Board of Commissioners and Planning Board at their joint meeting/public hearing on February 4, 2019.*

**REQUEST**

The applicant is requesting a conditional use permit to allow a gas station/convenience store with an automatic car wash in the B-N (Neighborhood Business) district in the Eastern Lincoln Development District (ELDD). A gas station/convenience store and a car wash are conditional uses in the B-N district and in the ELDD. A site plan and a traffic impact analysis have been submitted as part of the application. This site is part of a proposed subdivision that would include four other lots for business locations. A new road off N.C. 16 Business would be built to access this site and the other lots. The new road would line up with Webbs Road and be served by an existing traffic signal. This site would also be accessed by a second driveway limited to right-in, right-out movements.

**SITE AREA AND DESCRIPTION**

The 1.5-acre site is located on the west side of N.C. 16 Business across from Webbs Road. It is part of a 10.9-acre parcel. The site is adjoined on all sides by property zoned B-N. Land uses in this area include business and residential. The site is part of an area designated by the Lincoln County Land Use Plan as a Suburban Commercial Center, suitable for general commercial services.



# County Of Lincoln, North Carolina

## Planning Board

Applicant **C4 CStore Holdings, LLC**

Application No. **CUP #396**

Location **west side of N.C. 16 Business at Webbs Road** Parcel ID# **71506 (1.5-acre portion)**

Zoning District **B-N, ELDD**

Proposed Conditional Use **gas station/convenience store with automatic car wash**

### **FINDINGS OF FACT**

1. The use will not materially endanger the public health or safety if located where proposed and developed according to plan. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. The use meets all required conditions and specifications. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. The use will not substantially injure the value of adjoining or abutting property unless the use is a public necessity. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. The location and character of use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will be in general conformity with the Land Use Plan for the area in question. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

After having held a Public Hearing on \_\_\_\_\_ and in light of the Findings of Facts listed herein, the following action was taken by the Lincoln County Planning Board:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

In recommending such Conditional Use, the following conditions were recommended by the Lincoln County Planning Board:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## **Conditional Use Permit Application**

Lincoln County Planning and Inspections Department  
Zoning Administrator  
302 N. Academy St., Suite A, Lincolnton, NC 28092  
Phone: (704)736-8440 FAX: (704)732-9010

### **PART I**

Applicant Name C4 CStore Holdings, LLC

Applicant Address 121 W. Trade Street, Suite 2550 Charlotte NC 28202

Applicant Phone Number 704-561-5200

Property Owner Name H & A Investors LLC

Property Owner Address 116 Twin Oaks Place, Goldsboro, NC 27530

Property Owner Phone Number 704-735-1606

### **PART II**

Property Location SW Corner of NC 16 Business & Webbs Road

Property ID (10 digits) Portion of 4604-38-2947 Property size 1.54 +/- AC

Parcel # (5 digits) 71506 Deed Book(s) 2468 Page(s) 260

### **PART III**

Existing Zoning District ELDD B-N

Briefly describe how the property is being used and any existing structures.

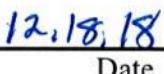
Currently this portion of the property is vacant.

Briefly explain the proposed use and/or structure which would require a Conditional Use Permit.

Gas station with convenience retail & carwash.

**APPLICATION FEE (less than 2 acres \$250, 2+ acres \$500)**  
**MUST BE RECEIVED BEFORE PROCESSING.**

*I hereby certify that all knowledge of the information provided for this application and attachments is true and correct to the best of my knowledge.*

 Applicant's Signature  Date

## **APPLICANT'S PROPOSED FINDINGS OF FACT**

Application No. **CUP #396**

Applicant **C4 CStore Holdings, LLC**

Property Location **west side of N.C 16 Business at Webbs Road**

Parcel ID# **71506 (1.5-acre portion)** Zoning District **B-N, ELDD**

Proposed Conditional Use **gas station/convenience store with automatic car wash**

### **PROPOSED FINDINGS**

1. The use will not materially endanger the public health or safety if located where proposed and developed according to plan.

**The full-movement vehicular access point for the proposed development will be located on Webbs Road Extension, approximately 250 feet west of the signalized intersection of N.C. Highway 16 and Webbs Road. As a result, this full-movement vehicular access point will have the benefit of a nearby signalized intersection, and this vehicular access point will provide safe ingress to and egress from the proposed development to Webbs Road Extension and N.C. Highway 16. The other vehicular access point will be restricted to right-in, right-out movements, which will provide safe ingress to and egress from the proposed development to N.C. Highway 16. The Applicant's Traffic Impact Analysis has determined that the proposed development will generate only a minor amount of new daily vehicular trips on adjacent and nearby roadways, and these new daily vehicular trips will only slightly impact the adjacent and nearby roadways and the study intersection. Therefore, the proposed development will not materially endanger the public health and safety from a transportation and traffic standpoint.**

**The proposed development will meet all applicable storm water, sedimentation control and environmental regulations, and the underground fuel tanks will comply with all applicable regulations so that the proposed development will not materially endanger the public health and safety from a storm water or an environmental standpoint. The site will also accommodate emergency services vehicles.**

2. The use meets all required conditions and specifications.

**The site is zoned B-N (Neighborhood Business) and is located in the Eastern Lincoln Development District (ELDD) overlay district. The proposed development, which is a gas station with convenience retail, is a use permitted in both the B-N and ELDD districts upon the issuance of a conditional use permit by the Board of Commissioners. The Applicant's site plan and building elevations comply with all applicable regulations, standards, conditions and provisions of the Unified Development Ordinance.**

3. The use will not substantially injure the value of adjoining or abutting property unless the use is a public necessity.

**The proposed development will not substantially injure the value of adjoining or abutting property. The testimony of the Applicant's certified appraiser provides that the proposed development will not substantially injure the value of adjoining or abutting property. Moreover, the parcels of land that abut each side of the site are zoned for business uses, and the site is a portion of a larger tract of land that is planned to be subdivided to create multiple lots for commercial development.**

4. The location and character of use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will be in general conformity with the Land Use Plan for the area in question.

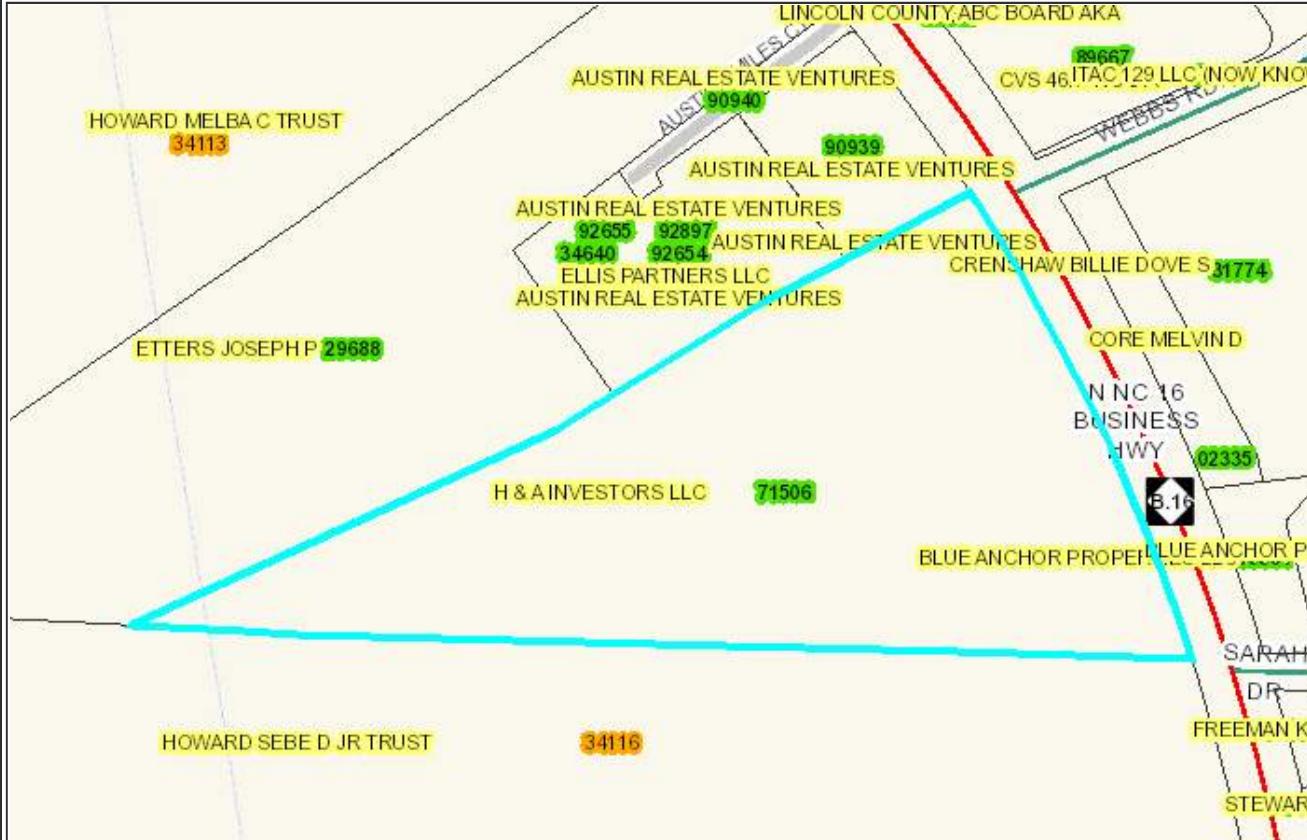
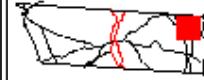
**The site is located on a minor arterial (N.C. Highway 16) in an existing commercial area and across N.C. Highway 16 from a pharmacy. The site is part of an area designated by the Land Use Plan as a Suburban Commercial Center. Therefore, the proposed development, if developed in accordance with the site plan as submitted, will be in harmony with the area in which it is to be located and it will be in general conformity with the Land Use Plan for the area.**



## Lincoln County, NC

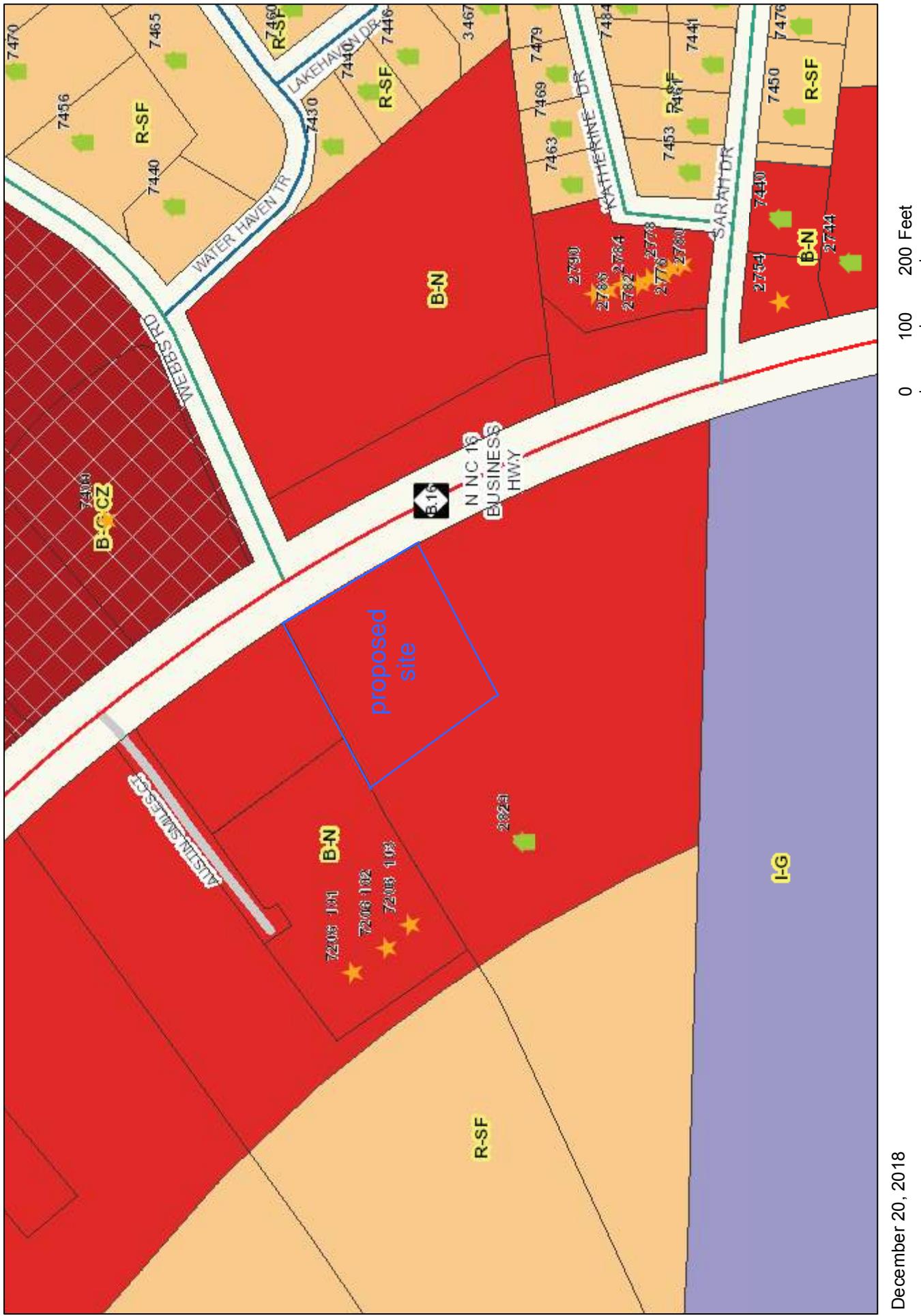
Office of the Tax Administrator, GIS Mapping Division

Lincoln County and its mapping contractors assume no legal responsibility for the information contained on this map. This map is not to be used for land conveyance. The map is based on NC State Plane Coordinate System 1983 NAD. Date: 12/19/2018 Scale: 1 Inch = 250 Feet



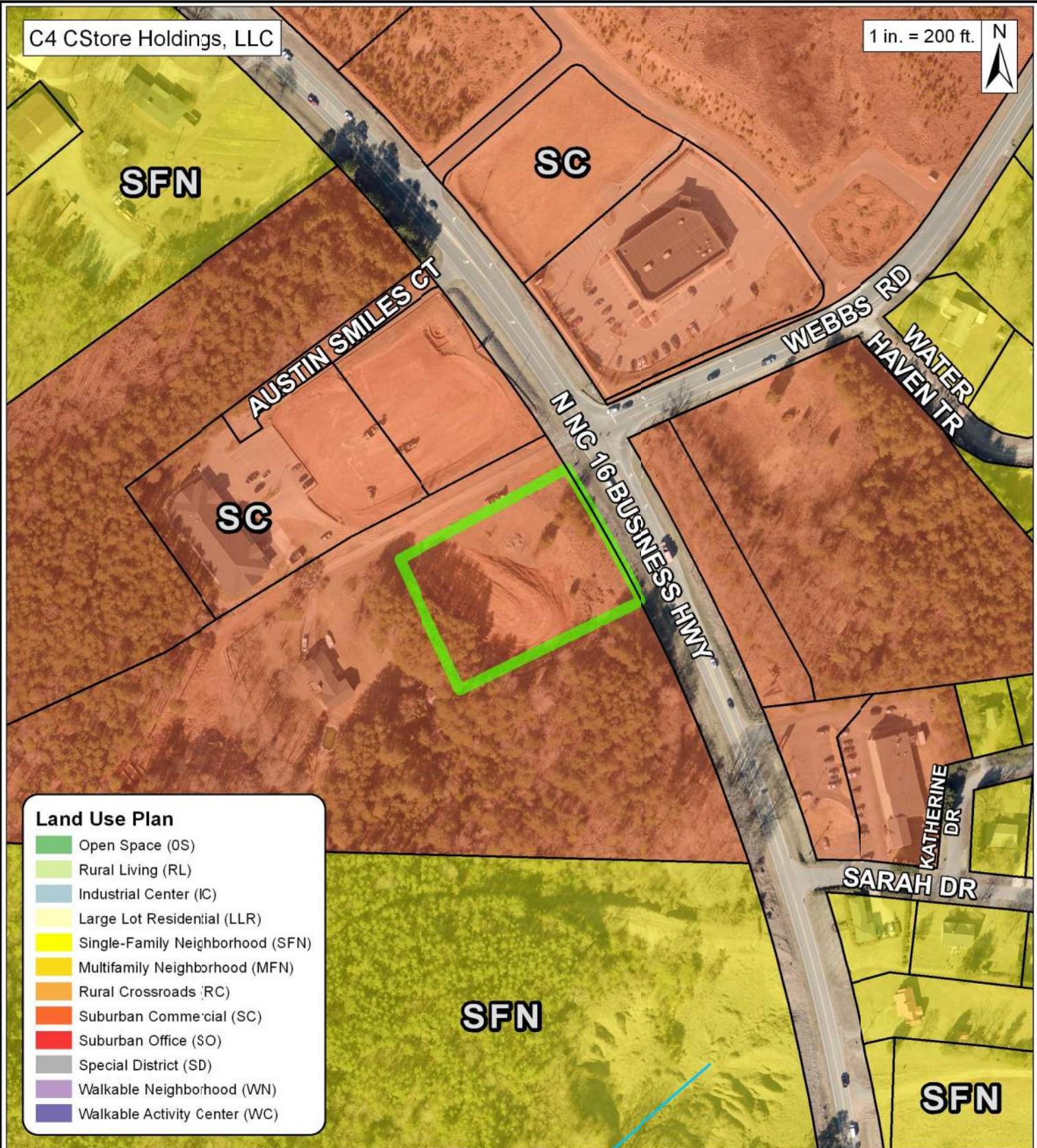
<b>Parcel ID</b>	71506	<b>Owner</b>	H & A INVESTORS LLC				
<b>Map</b>	4604	<b>Mailing</b>	116 TWIN OAKS PLACE				
<b>Account</b>	0252328	<b>Address</b>	GOLDSBORO, NC 27530				
<b>Deed</b>	2468 260	<b>Last Transaction Date</b>	07/25/2014	<b>Sale Price</b>	\$925,000		
<b>Plat</b>	<b>Subdivision</b>			<b>Lot</b>			
<b>Land Value</b>	\$520,835	<b>Improvement Value</b>	\$80,336	<b>Total Value</b>	\$601,171		
<b>Previous Parcel</b>	31079						
-----All values for Tax Year 2018 -----							
<b>Description</b>	HOMESITE OFF HWY 16			<b>Deed Acres</b>	11.155		
<b>Address</b>	2829 N NC 16 BUSINESS HWY			<b>Tax Acres</b>	10.879		
<b>Township</b>	CATAWBA SPRINGS			<b>Tax/Fire District</b>	DENVER		
<b>Main Improvement</b>	RANCH			<b>Value</b>	\$74,869		
<b>Main Sq Feet</b>	2170	<b>Stories</b>	1	<b>Year Built</b>	1979		
<b>Zoning District</b>			<b>Calc Acres</b>				
B-N	7.71			<b>Voting Precinct</b>			
R-SF	3.17			WP32	10.88		
<b>Watershed</b>			<b>Sewer District</b>				
10.88			2.39				
			SEWER				
			8.49				
<b>Census County</b>			<b>Tract</b>	<b>Block</b>			
109			071101	3003	10.88		
<b>Flood</b>	<b>Zone Description</b>			<b>Panel</b>			
X	NO FLOOD HAZARD			3710460400	10.88		

Conditional Use Permit #396  
subject property is outlined in blue



December 20, 2018

Esri, Inc., Lincoln County, NC

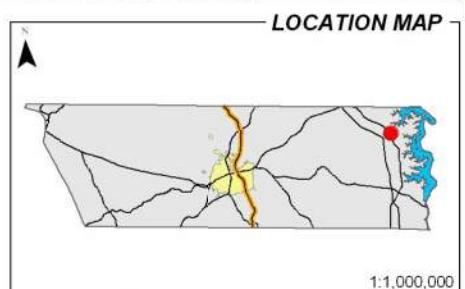


Lincoln County  
Planning & Inspections  
302 N. Academy St.  
Suite A  
Lincolnton, NC 28092

# CUP #396

- Property Location(s)

See Attached Application for Parcel Information  
Property Location(s) Outlined in Green.



1:1,000,000

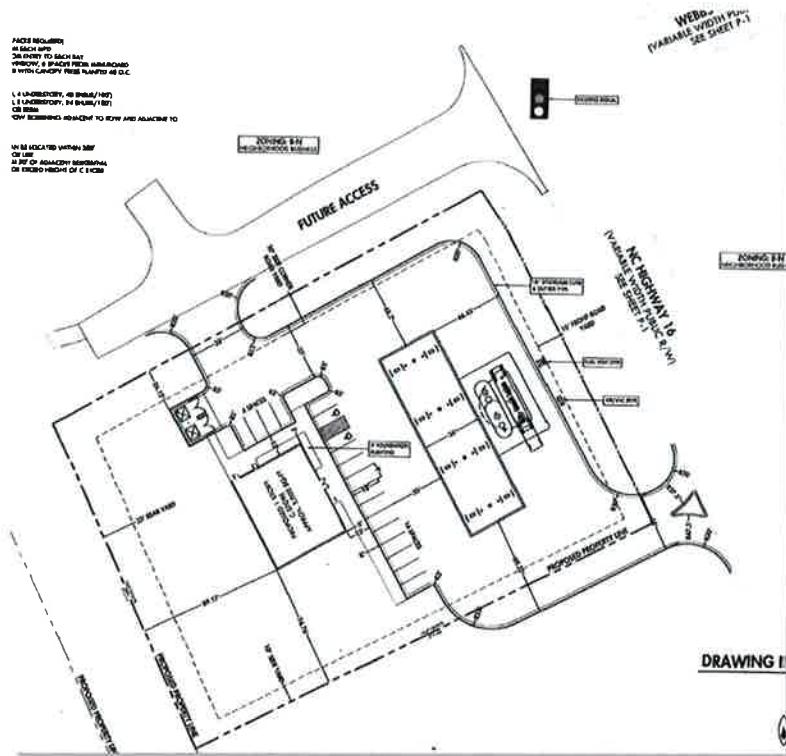
Property Location(s)



# TRAFFIC IMPACT ANALYSIS

# 7-ELEVEN NC BUSINESS 16 & WEBBS ROAD

Southwest quadrant of the intersection of NC Business 16 and Webbs Road  
Denver, North Carolina



for

## CROSSTON SOUTHEAST

DECEMBER 2018

584-006 (C-2165)



12/12/18

2459 Wilkinson Boulevard, Suite 200  
Charlotte, NC 28208

o 704.343.0608  
w [www.drgrp.com](http://www.drgrp.com)



## TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
PROPOSED DEVELOPMENT	3
AREA CONDITIONS	6
PROJECTED TRAFFIC	8
TRAFFIC ANALYSIS	13
CONCLUSIONS	19
APPENDIX	20

## LIST OF TABLES

TABLE 1: AVERAGE ANNUAL DAILY TRAFFIC VOLUMES (VEH. PER DAY)	6
TABLE 2: SITE TRIP GENERATION	8
TABLE 3: LEVELS OF SERVICE	15
TABLE 4: 2019 VEHICLE QUEUE LENGTHS	16

## LIST OF FIGURES

FIGURE 1: AREA OF INFLUENCE	4
TEST FIT EXHIBIT (SITE PLAN)	5
FIGURE 2: 2017 EXISTING PEAK HOUR TRAFFIC VOLUMES	7
FIGURE 3: SITE DIRECTIONAL DISTRIBUTION	9
FIGURE 4: 2019 NO BUILD TRAFFIC VOLUMES	10
FIGURE 5: 2019 BUILD AM TRAFFIC VOLUMES	11
FIGURE 6: 2019 BUILD PM TRAFFIC VOLUMES	12
FIGURE 7: EXISTING/FUTURE & RECOMMENDED LANEAGE	18

## **EXECUTIVE SUMMARY**

Crosland Southeast intends to construct a 3,000 SF convenience market with gas pumps on the southwest quadrant of the intersection of NC Business 16 and Webbs Road in Denver, NC. The site is expected to be fully developed in 2019 (see Figure 1).

This report provides an analysis of the traffic operations within the area of influence, according to the standards set by the North Carolina Department of Transportation's (NCDOT) "Policy on Street and Driveway Access to North Carolina Highways, Chapter 4 Part C" and Lincoln County's UDO Section 9.8 for TIAs. It provides recommended access management for the site and intersection improvements needed for mitigating traffic impacts. This study evaluates the following scenarios:

- 2018 AM & PM Peak existing traffic conditions
- 2019 No Build AM & PM Peak
- 2019 Build AM & PM Peak

The area of influence of the study site are listed below and includes an existing signalized intersection and two proposed unsignalized intersections:

1. NC Business 16 & Webbs Road/Webbs Road Extension
2. Webbs Road Extension & Proposed Access "A" (Full Movement)
3. NC Business 16 & Proposed Access "B" (RI/RO)

Access to the development is expected to occur via one full movement unsignalized location on Webbs Road Extension and one right-in-right-out (RI/RO) only location on NC Business 16, respectively (see Test Fit Exhibit (Site Plan)):

- Proposed Access "A" (Full Movement) – located approximately 250 feet west of NC Business 16.
- Proposed Access "B" (RI/RO) – located approximately 250 feet south of Webbs Road Extension.

The trip generation results indicate that the development is expected to generate 46 new AM peak hour trips and 50 new PM peak hour trips.

Currently, the signalized study intersection of NC Business 16 & Webbs Road operates with a LOS "B" in both peak hours. Typically, an intersection is said to be operating at capacity at a volume-to-capacity (v/c) ratio of 1.00 and acceptable at a LOS "D" or better. The results of the existing and future analysis scenarios are presented in Table 3.



**NC Bus. 16 Facing South at Webbs Road**



With the results of our analyses (specifics are described in the Traffic Analysis section of this report) we suggest the following improvements/modifications at the study intersections and proposed accesses:

**2019 Build w/Offsite Analysis Results/Suggested Recommendations:**

**2. Webbs Road Extension & Proposed Access “A” (unsignalized – full movement)**

We propose the following intersection configuration:

- One ingress lane and one egress lane (combined left-right lane on Access “A”)

Assuming this configuration, the worst leg of the intersection (northbound) operates at a LOS “A” in both peak hours.

**3. NC 16 & Proposed RI/RO Only Access “B” (unsignalized)**

We propose the following intersection configuration:

- One ingress lane and one egress lane (terminating right turn lane on Access “B”)
- Install a new concrete median on NC Business 16 to restrict the access to RI/RO only

Assuming this configuration, the worst leg of the intersection (northbound) operates at a LOS “A” in the AM peak hour and a LOS “B” during the PM peak hour.

**In summary, the minor amount of traffic associated with the proposed convenience development that is expected to be added to the roadways will only slightly impact the nearby roadways and study intersection, especially with the implementation of the recommended access configurations.**

## **PROPOSED DEVELOPMENT**

Crosland Southeast intends to construct a 3,000 SF convenience market with gas pumps on the southwest quadrant of the intersection of NC Business 16 and Webbs Road in Denver, NC. The site is expected to be fully developed in 2019 (see Figure 1).

Access to the development is expected to occur via one full movement unsignalized location on Webbs Road Extension and one right-in-right-out (RI/RO) only location on NC Business 16, respectively (see Test Fit Exhibit (Site Plan)):

- Proposed Access “A” (Full Movement) – located approximately 250 feet west of NC Business 16.
- Proposed Access “B” (RI/RO) – located approximately 250 feet south of Webbs Road Extension.



**NC Bus. 16 Facing North at Webbs Road**

## LEGEND



Traffic Signal



Stop Sign Control



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## 7-ELEVEN NC BUSINESS 16 & WEBBS ROAD TIA

DENVER, NC

CROSSLAND SOUTHEAST  
121 WEST TRADE STREET SUITE 2550  
CHARLOTTE, NC 28202

## AREA OF INFLUENCE



SCALE: 1" = 300'

0 150' 300' N

PROJECT #: 584-006  
DRAWN BY: ART  
CHECKED BY: REG

NOVEMBER 2018

REVISIONS:

1.

Figure 1

## TEST FIT DEVELOPMENT SUMMARY

ZONING: B-N (NEIGHBORHOOD BUSINESS WITH ELD OVERLAY (EASTERN LINCOLN DEVELOPMENT DISTRICT)

SETBACKS:

- FRONT - 15' MIN, 90' MAX ROAD YARD
- SIDE CORNER - 20' ROAD YARD
- SIDE : 10' INTERIOR, 20' ADJACENT TO RESIDENTIAL OR CORNERSIDE YARD REAR - 20' (3D' ADJACENT TO RESIDENTIAL) YARD

BUILDING COVERAGE LIMIT: 50%  
ISA COVERAGE LIMIT: 75%

BUILDING HEIGHT: 35 FT

PARKING: 1 SPACE PER 350 GFA (9 SPACES REQUIRED)

STACKING: 19'X9' W/ 2 SPACES FROM EACH MPD

AUTO CARWASH 4 SPACES FROM ENTRY TO EACH BAY

DRIVE THRU 4 SPACES FROM WINDOW, 6 SPACES FROM MENUBOARD

LANDSCAPE BUFFERS: 15' STREET YARD WITH CANOPY TREES PLANTED 40 O.C.

TYPE 'C' ADJACENT TO RESIDENTIAL

REQUIREMENTS:

40' WIDTH (4 CANOPY, 4 EVERGREEN, 4 UNDERSTORY, 48 SHRUB/100')

70' WIDTH (2 CANOPY, 2 EVERGREEN, 2 UNDERSTORY, 24 SHRUB/100')

-CAN BE REDUCED WITH WALL OR BERM

-LOT WOULD REQUIRE SHRUB ROW SCREENING ADJACENT TO ROW AND ADJACENT TO RESIDENTIAL.

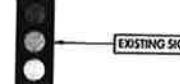
CONDITIONS:

- NO STRUCTURE OR CANOPY CAN BE LOCATED WITHIN 200' OF ADJACENT RESIDENTIAL ZONING OR USE
- GAS PUMPS CANNOT BE WITHIN 20' OF ADJACENT RESIDENTIAL
- CANOPY CANNOT EXCEED 20' OR EXCEED HEIGHT OF C-STORE BUILDING.

LOT ACREAGE: 1.54

ZONING: B-N  
NEIGHBORHOOD BUSINESS

FUTURE ACCESS



WEBBS ROAD  
(VARIABLE WIDTH PUBLIC R/W)  
SEE SHEET P-1

ZONING: B-N  
NEIGHBORHOOD BUSINESS

NC HIGHWAY 16  
VARIABLE WIDTH PUBLIC R/W  
SEE SHEET P-1



30 0 30 60  
SCALE: 1" = 30'



30 0 30 60  
SCALE: 1" = 30'

**OAK**  
ENGINEERING  
828 EAST BLVD - CHARLOTTE, NC 28203  
NORTH CAROLINA FIRM LICENSE #P1742  
oak engineering



**7-ELEVEN**  
HIGHWAY 16  
DENVER, NORTH CAROLINA  
TEST FIT EXHIBIT

REVISIONS:  
1. 10/11/18 - PER NCDOT COMMENTS

EX1  
SHEET 1 OF 1  
PROJECT #: 018.CSE.001  
DRAWN BY: JJB  
CHECKED BY: GTW  
ENGINEER LIB

## AREA CONDITIONS

The area of influence of the study site are listed below and includes an existing signalized intersection and two proposed unsignalized intersections:

1. NC Business 16 & Webbs Road/Webbs Road Extension
2. Webbs Road Extension & Proposed Access "A" (Full Movement)
3. NC Business 16 & Proposed Access "B" (RI/RO)



**NC Bus. 16 Facing South  
Along Site**



**Webbs Road Facing East  
Near NC Bus. 16**

According to NCDOT's Roadway Functional Classification information NC 16 (SR 1383) is a minor arterial with a posted speed limit of 45 mph. NC 16 is two lanes wide (one lane in each direction) and is rural in nature along the site. The roadway has no curb/gutter, bike lanes, planting strips, or sidewalk.

According to NCDOT's Roadway Functional Classification information Webbs Road (SR 1383) is a local roadway with a posted speed limit of 55 mph (per the NCDOT provided signal plan). Webbs Road is a two lanes wide (one lane in each direction) with occasional median (delineators) and turn lanes. The roadway has no curb/gutter, bike lanes, planting strips, or sidewalk.

Morning (7-9 AM) and afternoon (4-6 PM) peak period turning movement counts were conducted at the existing intersection between Tuesday November 13, 2018 (while school was in session). Figure 2 shows the 2018 existing traffic volumes for the AM and PM peak hours.

In addition to the intersection turning movement counts, NCDOT is the source for average annual two-way daily traffic (AADT) volumes within the area of influence. The AADT volumes are depicted in Table 1.

**Table 1: Average Annual Daily Traffic Volumes (veh. per day)**

Roadway	AADT (Year)
NC Business 16 north of Webbs Rd.	13,000 (2017)
Webbs Rd. east of NC Business 16	8,100 (2015)

7-ELEVEN NC BUSINESS 16 & WEBBS  
 ROAD TIA

DENVER, NC

 CROSSLAND SOUTHEAST  
 121 WEST TRADE STREET SUITE 2550  
 CHARLOTTE, NC 28202

 2018 EXISTING  
 PEAK HOUR  
 VOLUMES

 PROJECT #: 584-006  
 DRAWN BY: ART  
 CHECKED BY: REG

NOVEMBER 2018

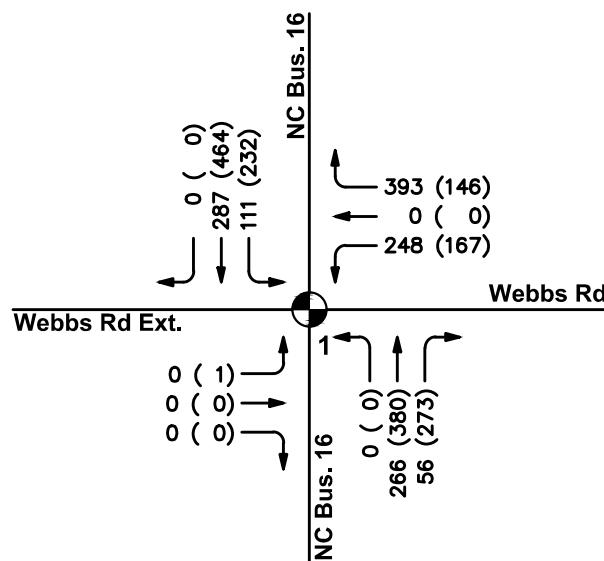
REVISIONS:

1.

**LEGEND**

- Traffic Signal
- Stop Sign Control
- Directional Movement

**VOLUMES: AM (PM)**



**Count data for int. #1 was collected on  
 Tuesday, November 13 2018 .**

## PROJECTED TRAFFIC

The projected background peak hour traffic volumes used in the analyses were developed from the existing (year 2018) peak-hour-turning-movement-count data. The existing intersection turning-movement volumes were increased using a 1 percent per year growth rate for the area to obtain 2019 background volumes (which was approved by NCDOT and Lincoln County). The projected traffic volumes used in the horizon year 2019 analysis are a compilation of two values: background traffic and site trip generation.

The daily and peak-hour-trip-generation data for the development is presented in Table 2. The trips generated by the site are obtained from the Institute of Transportation Engineers, Trip Generation Manual, 10<sup>th</sup> Edition, 2017.

**Table 2: Site Trip Generation**

Land Use [ITE Code]	Weekday Daily	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Convenience w/ Gas [853]	3,000 SF	1,873	61	122	74	74	148
NCDOT Passby-Reduction*		-174	-38	-76	-49	-49	-98
<b>Total Trips</b>	<b>1,699</b>	<b>23</b>	<b>23</b>	<b>46</b>	<b>25</b>	<b>25</b>	<b>50</b>

Reference: Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC. 2017.

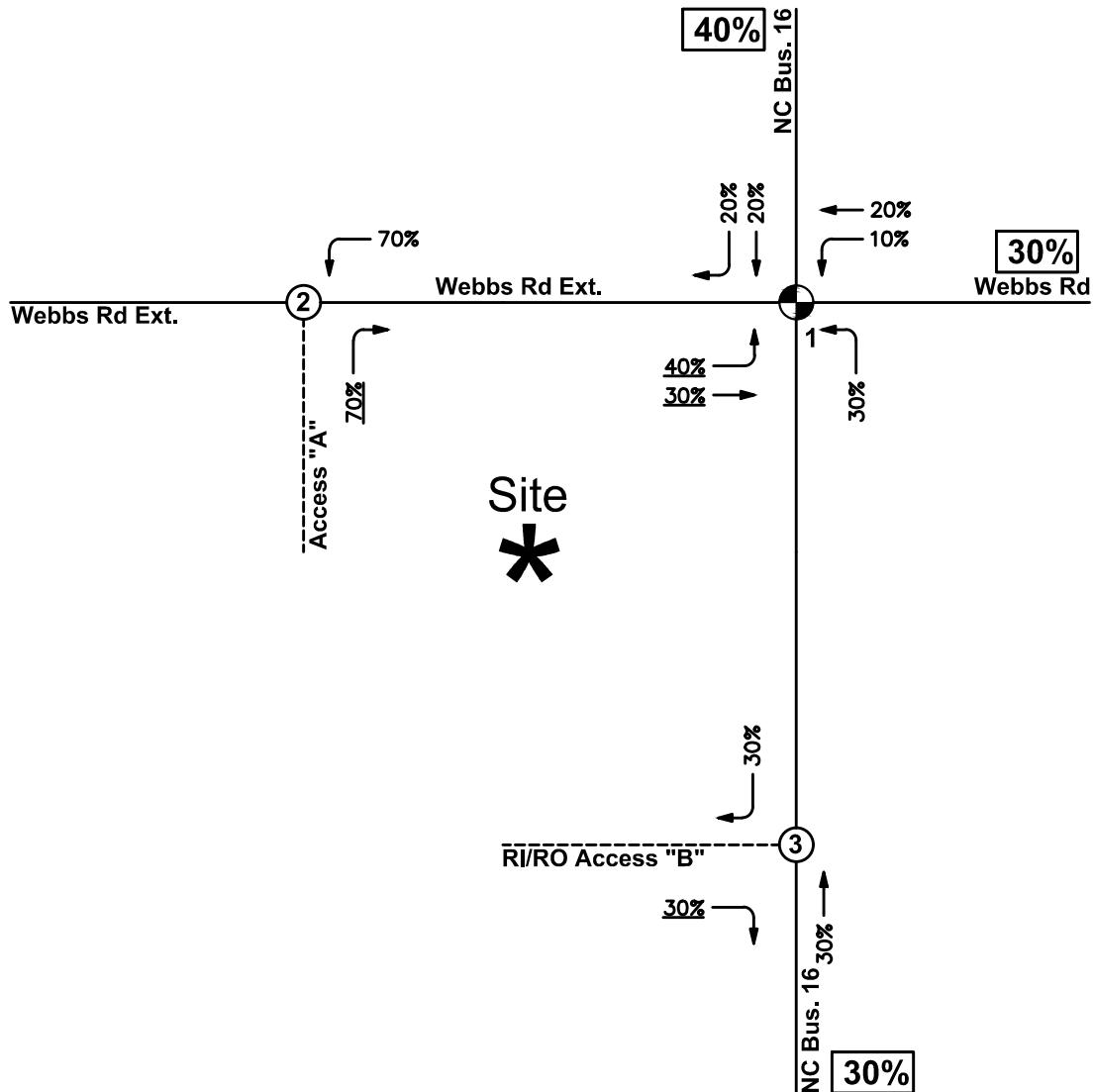
\* Passby Reduction was calculated using NCDOT Congestion Management Rate vs. Equation Spreadsheet (i.e % Passby LUC [853] AM = 63% & PM= 66%)

The trip generation results indicate that the development is expected to generate 46 new AM peak hour trips and 50 new PM peak hour trips.

Per the Lincoln County and NCDOT approved scoping document, no nearby approved (offsite) developments are included in the analysis for 2019.

The directional trip distribution of the site traffic is provided in Figure 3. The trip assignments for the 2019 AM and PM peak hour traffic volumes are presented in Figures 4 through 6. The background traffic is indicated to the far left of the movement arrows, followed by the site traffic in parentheses. The two volumes are added to obtain the projected total traffic for that movement:

$$\text{Background} + (\text{Site}) = \text{Total}$$



## 7-ELEVEN NC BUSINESS 16 & WEBBS ROAD TIA

DENVER, NC

 CROSSLAND SOUTHEAST  
 121 WEST TRADE STREET SUITE 2550  
 CHARLOTTE, NC 28202

### SITE DIRECTIONAL DISTRIBUTION


 PROJECT #: 584-006  
 DRAWN BY: ART  
 CHECKED BY: REG

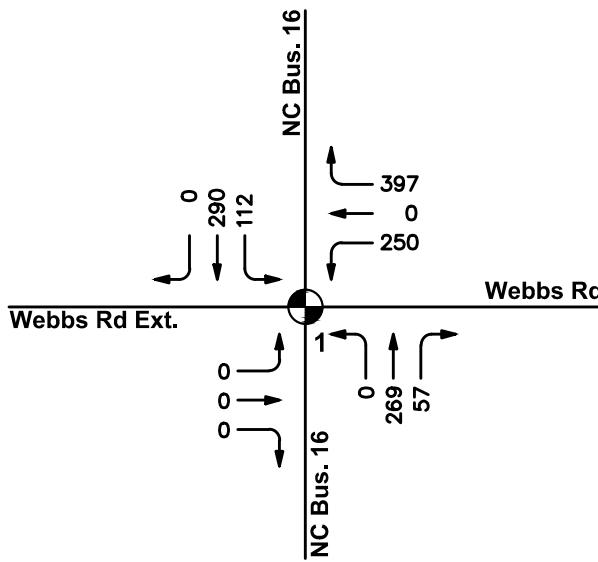
NOVEMBER 2018

REVISIONS:

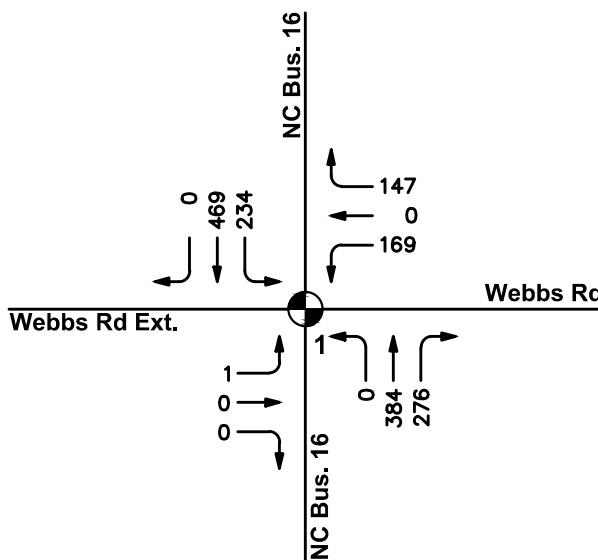
1.

Figure 3

## NO BUILD AM PEAK HOUR VOLUMES



## NO BUILD PM PEAK HOUR VOLUMES



### LEGEND

- Traffic Signal
- Stop Sign Control
- Directional Movement

**VOLUMES:** Grown Background Volumes

## 7-ELEVEN NC BUSINESS 16 & WEBBS ROAD TIA

DENVER, NC

CROSSLAND SOUTHEAST  
121 WEST TRADE STREET SUITE 2550  
CHARLOTTE, NC 28202

2019 NO BUILD  
AM & PM PEAK  
HOUR VOLUMES

0 NTS N  
SCALE: NTS

PROJECT #: 584-006  
DRAWN BY: ART  
CHECKED BY: REG

NOVEMBER 2018

REVISIONS:

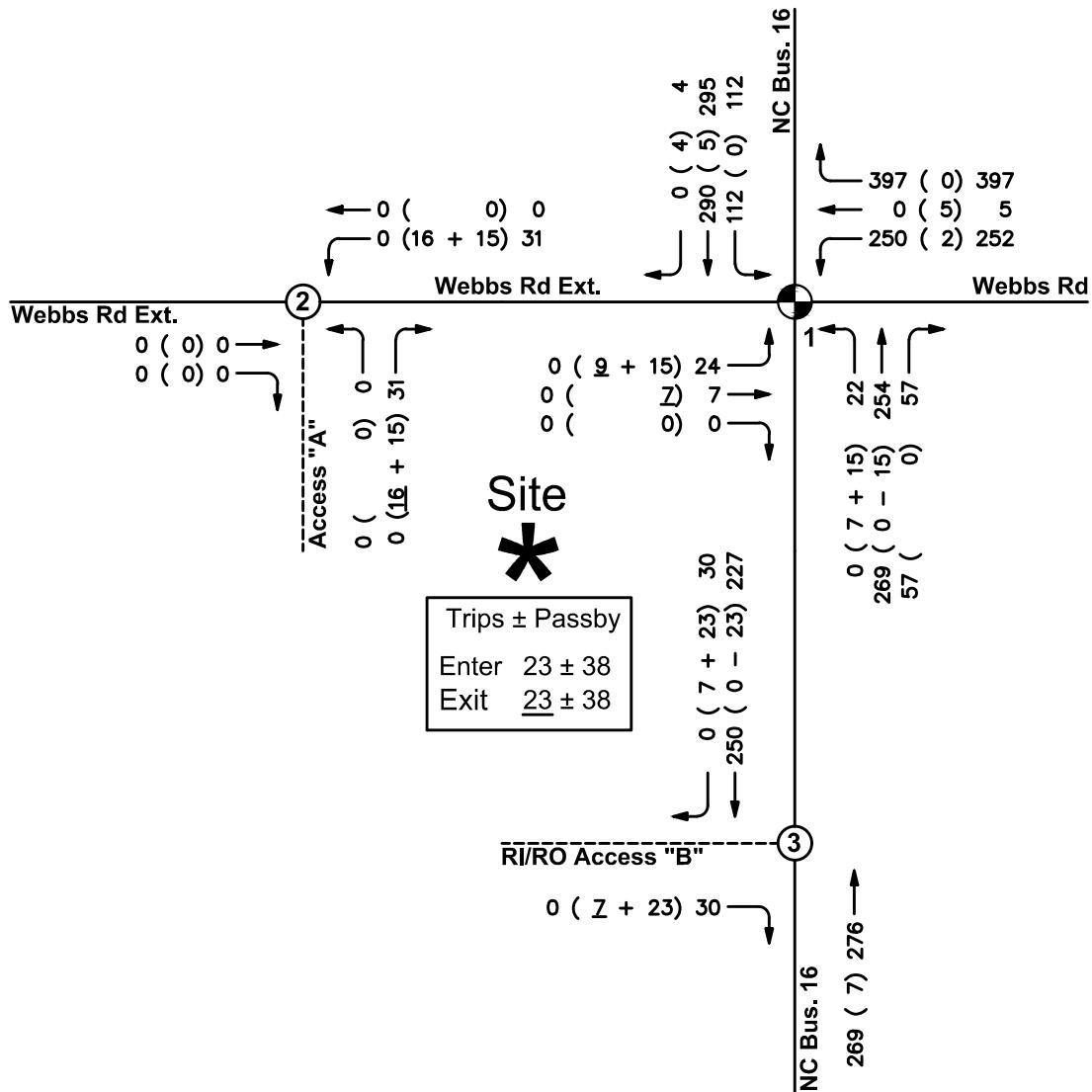
1.

Figure 4



LANDSCAPE ARCHITECTURE  
CIVIL ENGINEERING  
TRANSPORTATION PLANNING

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7-ELEVEN NC BUSINESS 16 & WEBBS  
ROAD TA

ROAD TIPS DENVER NO.

DENVER NC

**CROSLAND SOUTHEAST**  
1121 WEST TRADE STREET SUITE 2550  
CHARLOTTE NC 28202

## 2019 BUILD AM PEAK HOUR VOLUMES



PROJECT #: 584-006  
DRAWN BY: ART  
CHECKED BY: REG

NOVEMBER 20

## REVISIONS:

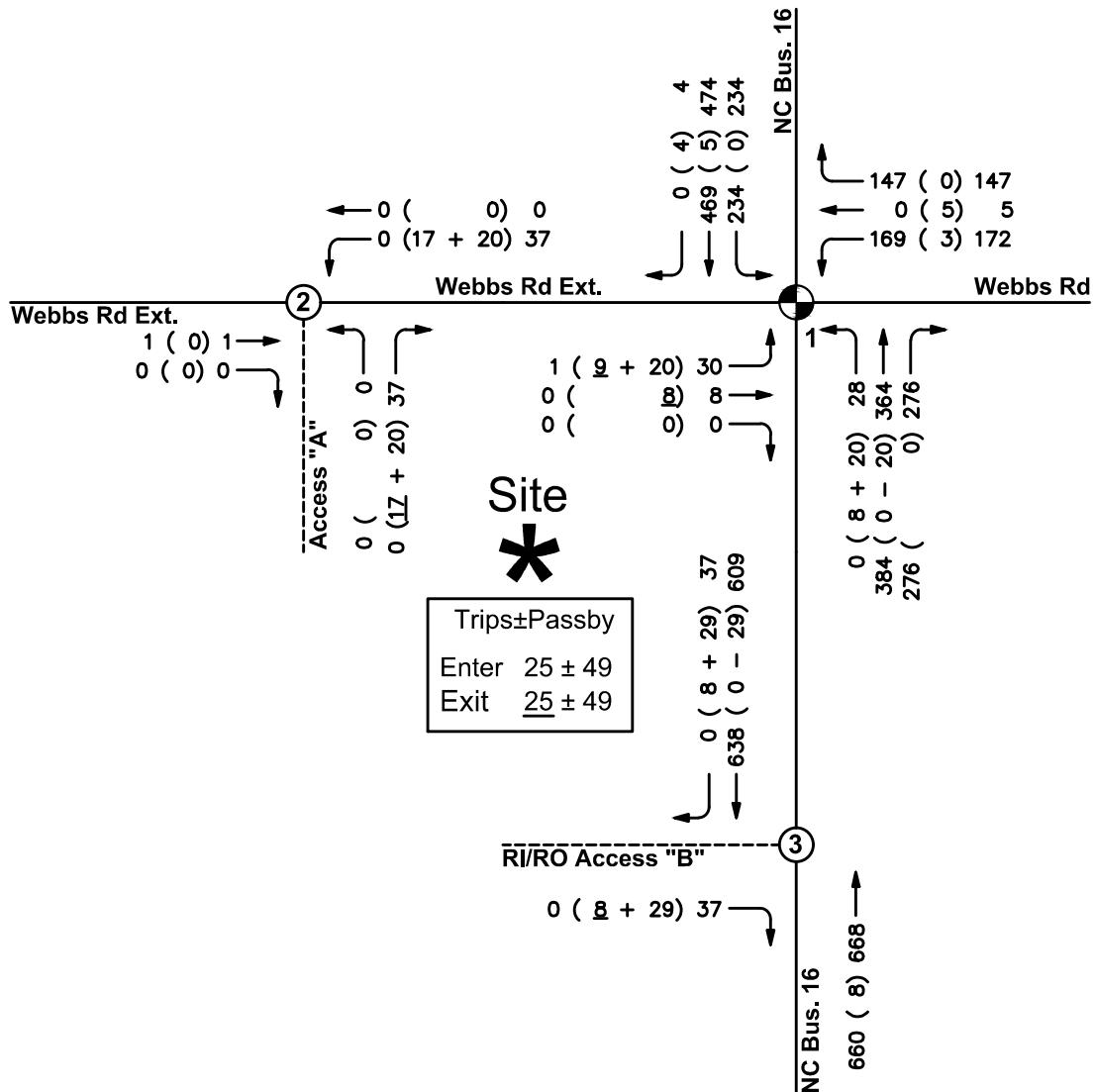
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Figure 5

**LEGEND**

- Traffic Signal
- Stop Sign Control
- Directional Movement

**VOLUMES:** Background (Site ± Passby) Total



**7-ELEVEN NC BUSINESS 16 & WEBBS  
ROAD TIA**

DENVER, NC

CROSSLAND SOUTHEAST  
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**2019 BUILD PM  
PEAK HOUR  
VOLUMES**



PROJECT #: 584-006  
DRAWN BY: ART  
CHECKED BY: REG

NOVEMBER 2018

REVISIONS:

1.

**Figure 6**

## TRAFFIC ANALYSIS

The intersections identified within the area of influence were analyzed to identify the traffic impact that the development has under the build scenario. The traffic analysis is based on the LOS analysis at the identified intersections. The intersections were analyzed assuming the completion of the project in 2019.

LOS is a qualitative measurement of traffic operations. It is a measure of delay time. The Transportation Research Board's Highway Capacity Manual<sup>1</sup> (HCM) defines six levels of service for intersections with LOS "A" representing the best operating condition and LOS "F" the worst. The table below gives the criteria for both signalized (Exhibit 19-8) and unsignalized (Exhibit 20-2) intersections.

Intersection LOS	Exhibit 19-8 Signalized Intersection Control Delay per Vehicle (sec/vehicle)	Exhibit 20-2 Unsignalized Intersection Control Delay per Vehicle (sec/vehicle)
A	$\leq 10.0$	$\leq 10.0$
B	$> 10.0$ and $< 20.0$	$> 10.0$ and $< 15.0$
C	$> 20.0$ and $\leq 35.0$	$> 15.0$ and $\leq 25.0$
D	$> 35.0$ and $\leq 55.0$	$> 25.0$ and $\leq 35.0$
E	$> 55.0$ and $\leq 80.0$	$> 35.0$ and $\leq 50.0$
F	$> 80.0$	$> 50.0$

SYNCHRO 9.3 was the software tool used in determining the delay, capacity and corresponding level of service at the study intersections. The intersection worksheet reports are provided in the Appendix.

For the analysis of unsignalized intersections, the vehicular movements that must stop at the intersection experience delay (i.e. the minor leg of the intersection). For descriptive purposes:

- LOS results between "A" and "C" for the side (minor) street approach are assumed to represent short vehicle delays
- LOS results between "D" and "E" for the side (minor) street approach are assumed to represent moderate delays
- LOS results of "F" for the side (minor) street approach is assumed to represent long delays.

It should be noted that stop sign controlled streets/driveways intersecting major streets typically experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay.

This report provides analysis of the traffic operations within the area of influence, according to the standards set by the North Carolina Department of Transportation's (NCDOT) "Policy on Street and Driveway Access to North Carolina Highways, Chapter 4 Part C" and Lincoln County's UDO Section 9.8 for TIAs. It provides intersection improvements needed for mitigating traffic impacts. This study evaluates the following scenarios:

<sup>1</sup> National Research Council. Transportation Research Board. Highway Capacity Manual 6<sup>th</sup> Ed., Washington, DC. 2016.



- 2018 AM & PM Peak existing traffic conditions
- 2019 No Build AM & PM Peak
- 2019 Build AM & PM Peak

Currently, the signalized study intersection of NC Business 16 & Webbs Road operates with a LOS "B" in both peak hours. Typically, an intersection is said to be operating at capacity at a volume-to-capacity (v/c) ratio of 1.00 and acceptable at a LOS "D" or better. The results of the existing and future analysis scenarios are presented in Table 3.

**NCDOT ANALYSIS REQUIREMENTS** - In order to determine the mitigation responsibility of the developer, this study compares 2019 Build results to the 2019 No Build results (see Table 3).

Chapter 5, Section J of the *July 2003 NCDOT Policy on Street and Driveway Access to North Carolina Highways*, the applicant shall be required to identify mitigation improvements to the roadway network if at least one of the following conditions exists when comparing base network conditions to project conditions:

- *The total average delay at an intersection or an individual approach increases by 25% or greater, while maintaining the same level of service,*
- *The Level of Service (LOS) degrades by at least one level at an intersection or an individual approach,*
- *Or the Level of Service is "F" for an intersection or an individual approach.*

This section of the access policy also states that, *mitigation improvements shall be identified when the analysis indicates that the 95<sup>th</sup> percentile queue exceeds the storage capacity of the existing lane.*

**LINCOLN COUNTY ANALYSIS REQUIREMENTS** - In order to determine the mitigation responsibility of the developer, this study compares 2019 Build results to the 2019 No Build results (see Table 3).

Lincoln County's UDO Section 9.8 for TIAs indicates the county shall utilize means by which to maintain a minimum Grade "C" level of service for intersections affected by proposed developments through impacts mandated or suggested by traffic impact analyses and through adherence to level-of-service criteria described as follows:

- *Where a proposed development lowers any intersection leg impacted by said development below a Grade "C", the developer will be required to provide those transportation improvements necessary to retain a Grade "C".*
- *Where an existing intersection is rated below Grade "C" prior to any proposed development, the developer will be required to maintain existing transportation levels for any/all legs impacted. Final intersection grades shall include the impact of the proposed development.*

**Table 3: Levels of Service**

Intersection	Intersection/ Approach	AM Peak			PM Peak		
		Delay (sec/veh)	Capacity (v/c)	LOS	Delay (sec/veh)	Capacity (v/c)	LOS
<b>2018 Existing Conditions</b>							
1. NC Bus.16 & Webbs Rd./Webbs Rd. Ext.	<i>Intersection</i>	12.0	0.60	B	12.5	0.62	B
<b>2019 No Build w/Offsite</b>							
1. NC Bus. 16 & Webbs Rd./ Webbs Rd. Ext.	<i>Intersection</i>	<b>28.5</b>	<b>0.72</b>	<b>C</b>	<b>25.9</b>	<b>0.70</b>	<b>C</b>
	Northbound	34.4	-	C	28.7	-	C
	Southbound	26.4	-	C	20.9	-	C
	Eastbound	17.0	-	B	23.6	-	C
	Westbound	27.0	-	C	31.3	-	C
<b>2019 Build w/Offsite</b>							
1. NC Bus. 16 & Webbs Rd./Webbs Rd. Ext.	<i>Intersection</i>	<b>28.6</b>	<b>0.72</b>	<b>C</b>	<b>26.7</b>	<b>0.69</b>	<b>C</b>
	Northbound	34.3	-	C	29.2	-	C
	Southbound	28.3	-	C	22.6	-	C
	Eastbound	18.1	-	B	24.1	-	C
	Westbound	26.6	-	C	30.6	-	C
2. Webbs Rd. Ext. & Prop. Access "A"	<i>Intersection</i>	-	-	-	-	-	-
	Northbound	8.5	-	A	8.5	-	A
	Eastbound	0.0	-	A	0.0	-	A
	Westbound	6.5	-	A	6.7	-	A
3. NC Bus. 16 & Prop. RIRO Access "B"	<i>Intersection</i>	-	-	-	-	-	-
	Northbound	0.0	-	A	0.0	-	A
	Southbound	0.0	-	A	0.0	-	A
	Eastbound	9.9	-	A	13.2	-	B

Table 4 shows the 2019 maximum queue lengths calculated by SimTraffic 9.3, a traffic simulation software application for unsignalized and signalized intersections, or the calculated 95<sup>th</sup> % queue in Synchro 9, - whichever produced the higher length.

**Table 4: 2019 Vehicle Queue Lengths**

Intersection/ Direction	Existing (Proposed) Storage (feet)		AM Peak Queue Length (ft)			PM Peak Queue Length (ft)			
	Left	Right	Left	Thru	Right	Left	Thru	Right	
<b>2019 No Build</b>									
1. NC Bus. 16 & Webbs Rd./Webbs Rd. Ext.	NB	100'	100'	35'	264'	172'	87'	270'	197'
	SB	250'	-	142'	221'		219'	228'	
	EB	Term.	100'	35'	31'		31'	35'	
	WB	Term.	550'	187'	262'		147'	148'	
<b>2019 Build</b>									
1. NC Bus. 16 & Webbs Rd./Webbs Rd. Ext.	NB	100'	100'	89'	204'	134'	94'	220'	197'
	SB	250'	-	167'	256'		224'	252'	
	EB	Term.	100'	66'	31'		61'	39'	
	WB	Term.	550'	193'	282'		179'	144'	
2. Webbs Rd. Ext. & Prop Access "A"	NB	Term.	Term.	25'	-	46'	25'	-	46'
	EB	-	-	-	0'		-	0'	
	WB	-	-	17'	-		6'	-	
3. NC Bus. 16 & RI/RO Access "B"	NB	-	-	-	49'	-	-	151'	-
	SB	-	-	-	0'		-	9'	
	EB	-	Term.	-	-	57'	-	-	56'

**2019 No Build w/Offsite Analysis Results:**

**1. NC 16 & Webbs Road/Webbs Road Extension (signalized)**

The intersection operates with a LOS "C" in the AM and PM peak hours.

**2019 Build w/Offsite Analysis Results/Suggested Recommendations:**

**When comparing the results of the 2019 No Build traffic and the 2019 Build traffic, the study intersection adheres to all NCDOT and Lincoln County parameters during both peak hours.**

**1. NC 16 & Webbs Road/Webbs Road Extension (signalized)**

When comparing the impact of the 2019 buildout to the 2019 No Build conditions the intersection remains a LOS "C" in the both peak hours. The increase in intersection vehicle delay is less than 1% in the AM peak hour and is 4% in the PM peak hour. In addition, all approaches meet all parameters during both peak hours. **The minor traffic associated with the proposed development results in no net loss of LOS for the intersection or any of the approaches during either peak (maintains Lincoln County's requirement of LOS "C") and results in minor increases in delay; therefore, no improvements are recommended at the study intersection.**



## **2. Webbs Road Extension & Proposed Access “A” (unsignalized – full movement)**

We propose the following intersection configuration:

- One ingress lane and one egress lane (combined left-right lane on Access “A”)

Assuming this configuration, the worst leg of the intersection (northbound) operates at a LOS “A” in both peak hours.

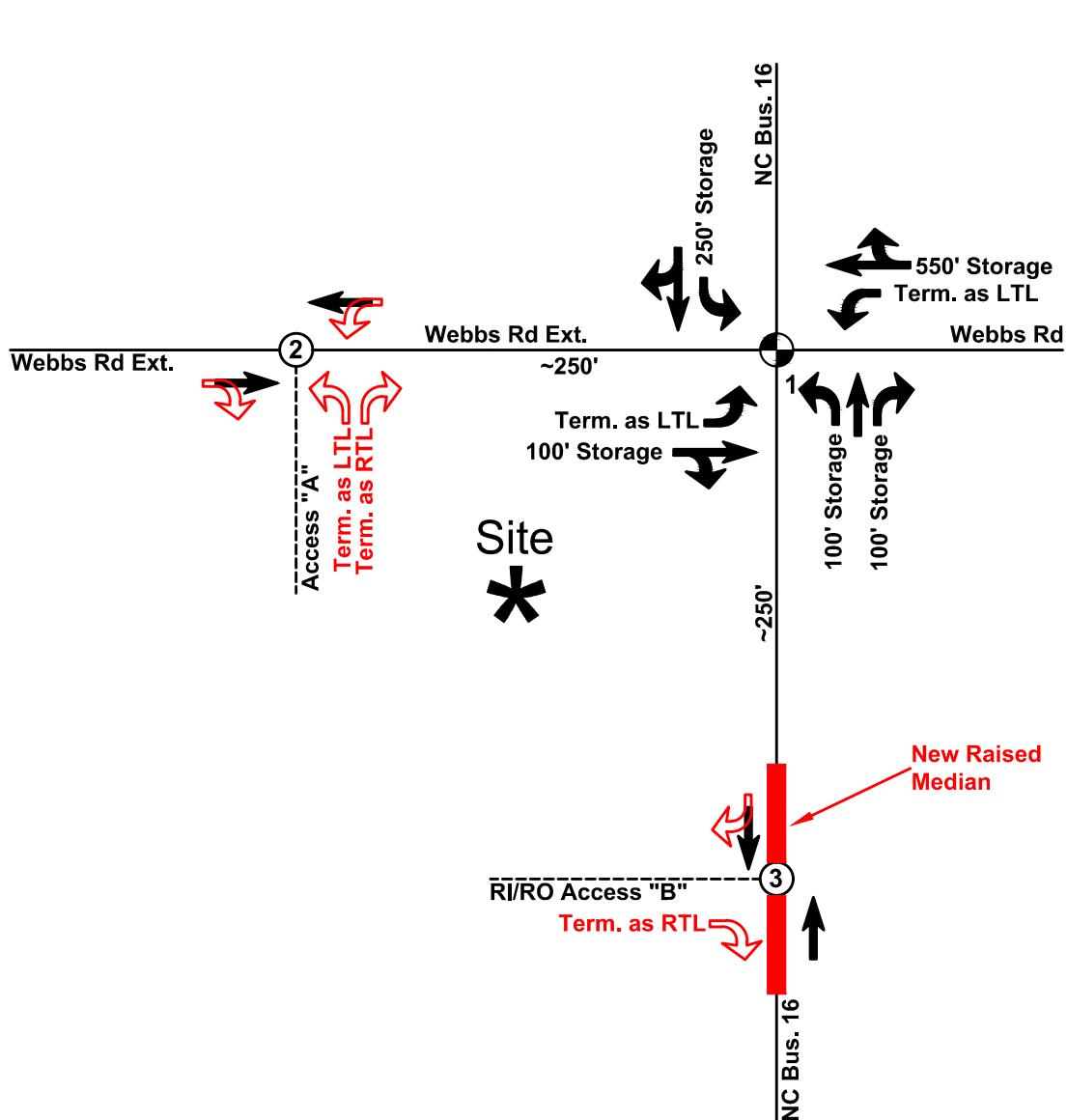
## **3. NC 16 & Proposed RI/RO Only Access “B” (unsignalized)**

We propose the following intersection configuration:

- One ingress lane and one egress lane (terminating right turn lane on Access “B”)
- Install a new concrete median on NC Business 16 to restrict the access to RI/RO only

Assuming this configuration, the worst leg of the intersection (northbound) operates at a LOS “A” in the AM peak hour and a LOS “B” during the PM peak hour.

The existing/future and recommended laneage is shown on Figure 7.

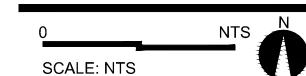


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DENVER, NC

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**EXISTING/FUTURE  
 & RECOMMENDED  
 LANEAGE**



PROJECT #: 584-006  
 DRAWN BY: ART  
 CHECKED BY: REG

DECEMBER 2018

REVISIONS:

1.

**Figure 7**



## **CONCLUSIONS**

**In summary, the minor amount of traffic associated with the proposed convenience development that is expected to be added to the roadways will only slightly impact the nearby roadways and study intersection, especially with the implementation of the recommended access configurations.**



## APPENDIX