



PLANNING & INSPECTIONS DEPARTMENT

Joshua L. Grant, Manager

To: Board of County Commissioners
Planning Board

From: Jeremiah Combs, Planner

Date: October 8, 2025

Re: PD #2014-2-A7
Fund 28-Denver, LLC, applicant
Parcel ID# 91819, 106322, 106323, and 106364

The following information is for use by the Lincoln County Board of Commissioners and Planning Board at their joint meeting/public hearing on November 3, 2025.

Request

The applicant is requesting to amend the terms and conditions for the Rivercross Planned Development-Mixed Use (PD-MU) district to remove the requirement of constructing a northbound left turn lane on Triangle Circle at Optimist Club Road.

The Rivercross PD-MU was initially approved in February 2015 and was subsequently amended in September 2016, November 2017, and May 2018. The approved master plan for the Rivercross PD-MU includes a 73.9-acre site for detached houses and townhouses, a 12.5-acre site for 228 apartments, and a 29.3-acre site for 100,000 square feet of commercial development and 40 townhouses. The required off-site roadway improvements for each completed phase of the development have been installed. The remaining off-site roadway improvements must be completed as part of the development of the 29.3-acre site for commercial and townhouse development, which is located on the east side of N.C. 16 Business at the intersection with Waterway Drive in Catawba Springs Township.

Pursuant to Section 9.8.7 of the Lincoln County Unified Development Ordinance (UDO), the applicant is requesting the Board of Commissioners remove the requirement to construct the northbound left turn lane on Triangle Circle at Optimist Club Road.



PLANNING & INSPECTIONS DEPARTMENT

Joshua L. Grant, Manager

Additional Information

With their application, the applicant has provided a summary of their efforts to obtain the property necessary for dedication of public road right-of-way for the turn lane and a summary of the community involvement meeting that was held on June 23, 2025 for this request.

The Planning staff recommends approval of this request; please see the proposed Statement of Consistency and Reasonableness included in this packet.



Zoning Amendment

Staff's Proposed Statement of Consistency and Reasonableness

| | |
|---------------------------|---|
| Case | PD #2014-2-A7 |
| Applicant | Fund 28-Denver, LLC |
| Parcel ID# | 91819, 106322, 106323, and 106364 |
| Location | east side of N.C. 16 Business at the intersection with Waterway Drive |
| Proposed amendment | Amend the terms and conditions for the Rivercross Planned Development-Mixed Use (PD-MU) district to remove the requirement of constructing a northbound left turn lane on Triangle Circle at Optimist Club Road |

This proposed amendment **is consistent** with the Lincoln County Land Use Plan and other adopted plans in that:

The master plan for the Rivercross Planned Development-Mixed Use (PD-MU) district will still include design elements that are expected in a Walkable Activity Center where buildings are located on small blocks with streets designed to encourage pedestrian activities.

This proposed amendment **is reasonable** in that:

Section 9.8.7.F.4 of the Lincoln County Unified Development Ordinance (UDO) required all recommended improvements identified in the Traffic Impact Analysis be required as conditions of the approval of the rezoning for this PD-MU. Section 9.8.7.F.4 also contemplates scenarios, such as this one, where an applicant is unable to obtain the right-of-way necessary to install one of the improvements that was required as a condition of the PD-MU rezoning approval.



Planned Development Rezoning Application

Lincoln County Planning and Inspections Department
Zoning Administrator
115 W. Main St., Lincolnton, NC 28092
Phone: (704) 736-8440

PART I

Applicant Name Fund 28-Denver LLC

Applicant Address 19701 Bethel Church Road Suite 202 Cornelius NC 28031

Applicant Phone Number 704-987-0000

Property Owner Name Same

Property Owner Address Same

Property Owner Phone Number Same

PART II

Property Location Rivercross Commercial Waterway Dr and Bus Hwy 16 Denver

Property ID (10 digits) See attached Property size 27 acres

Parcel # (5 digits) See attached Deed Book(s) 3227 Page(s) 619

PART III

Existing Zoning District PD-MU Proposed Zoning District PD-MU

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

Vacant

Briefly described the proposed planned development.

See attached

***SEE PLANNING DEPT. FOR PLANNED DEVELOPMENT FEES.**

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.

FUND 28-Denver, LLC

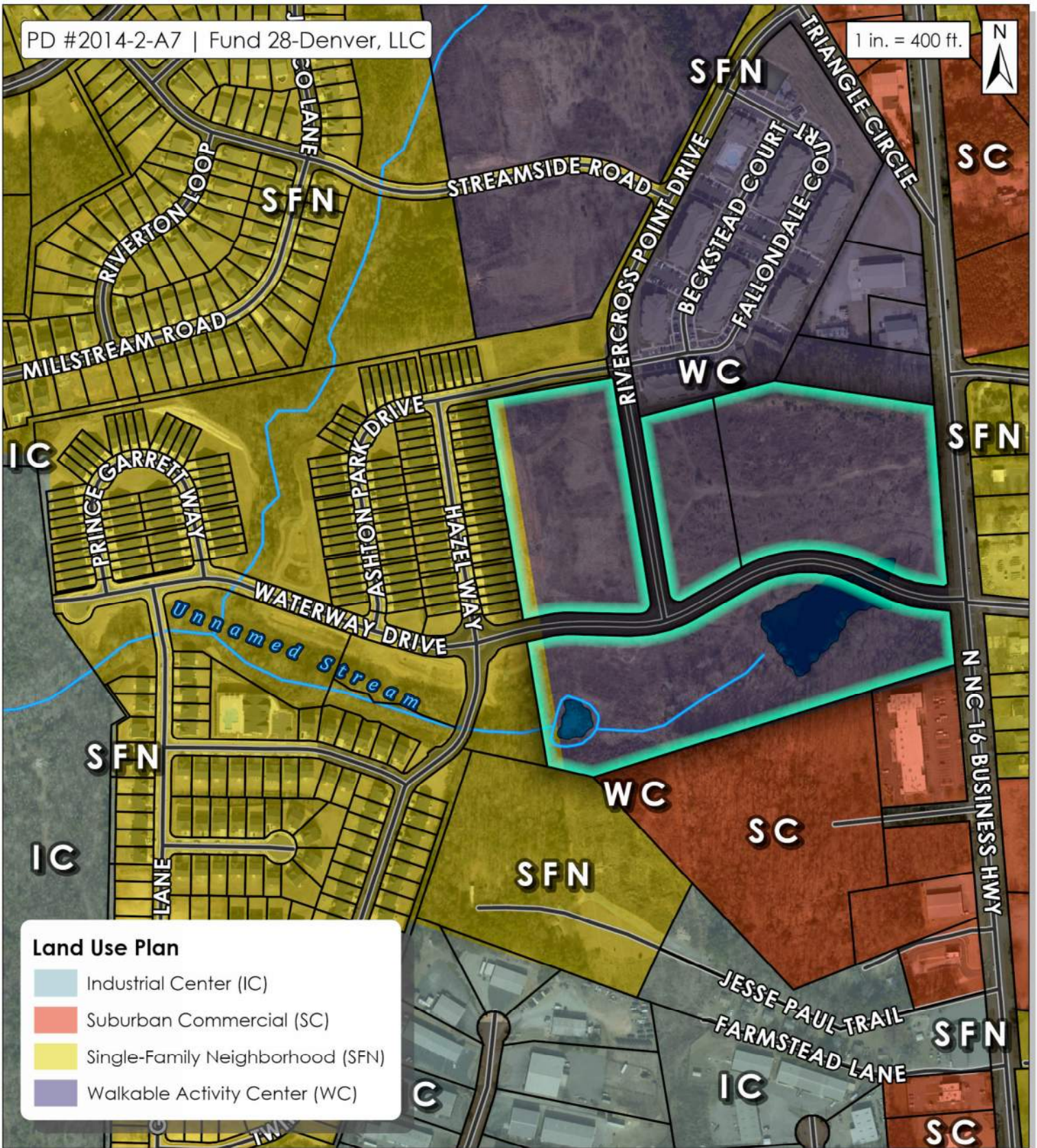
Applicant's Signature

by Anthony Brad Bowman

6/9/25

Date

Anthony Brad Bowman, Manager



Land Use Plan

- Industrial Center (IC)
- Suburban Commercial (SC)
- Single-Family Neighborhood (SFN)
- Walkable Activity Center (WC)



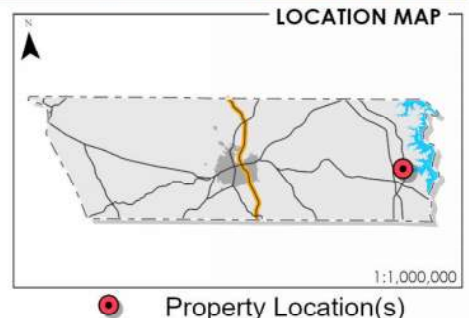
Lincoln County
Planning & Inspections
115 W. Main St
3rd Floor
Lincolnton, NC 28092

Parcel ID # 106323, 106364,
106322, 91819

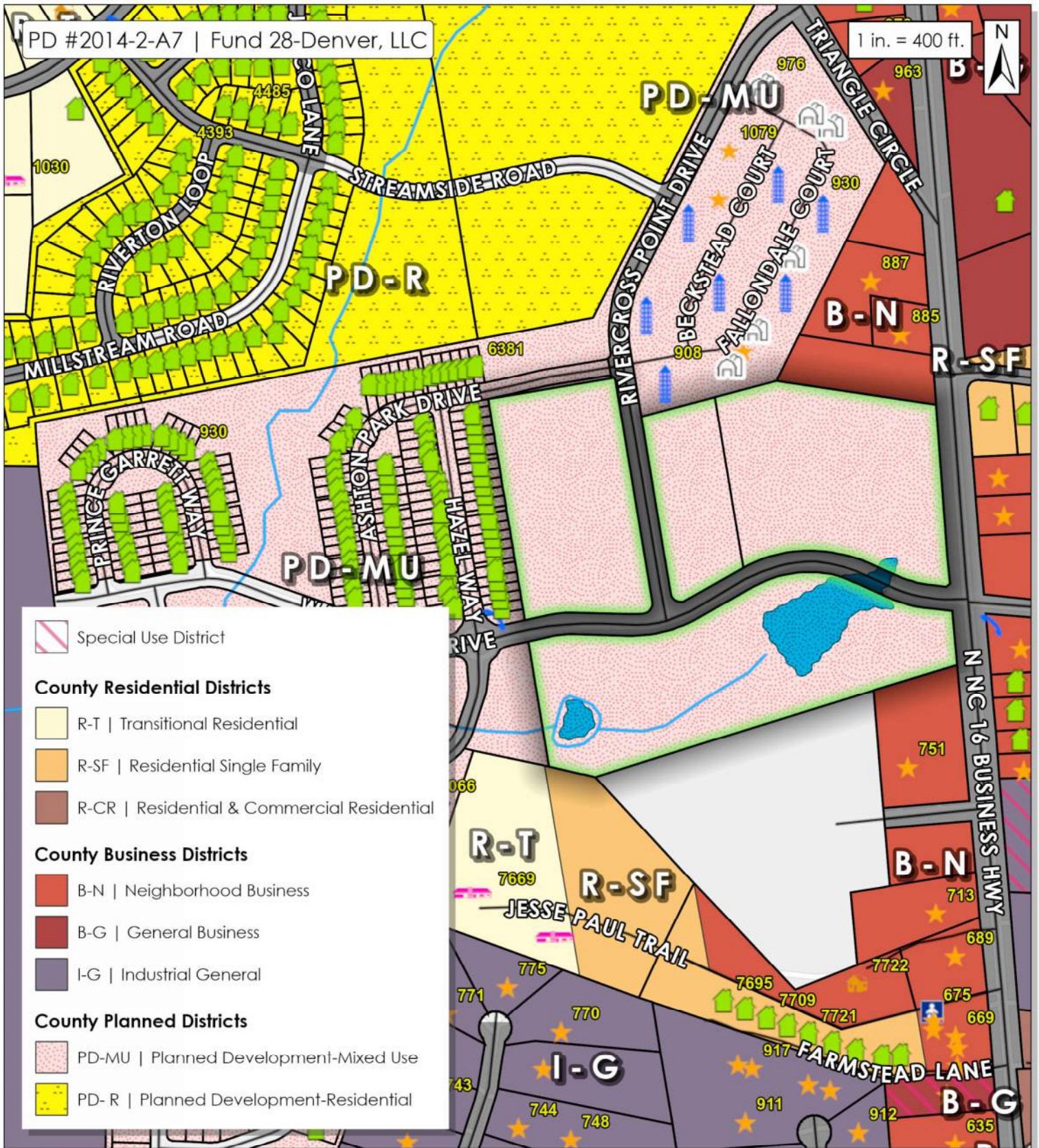
- Property Location(s)

See Attached Application for Parcel Information

LOCATION MAP



Property Location(s)

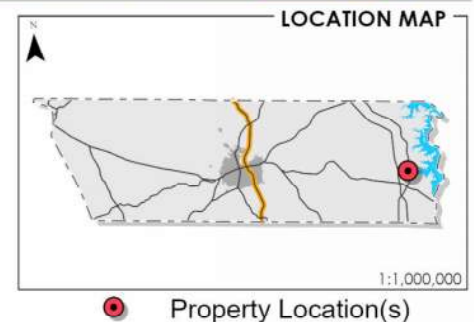


Lincoln County
Planning & Inspections
115 W. Main St
3rd Floor
Lincolnton, NC 28092

Parcel ID # 106323, 106364,
106322, 91819

- Property Location(s)

See Attached Application for Parcel Information



RIVERCROSS (COMMERCIAL), DENVER, NC

This attachment accompanies the Planned Development Rezoning Application dated June 9, 2025, made by Fund 28-Denver, LLC, (Applicant) regarding Lincoln County PD 2014-2.

Property ID: 4602598742, 4603601361, 4603503263, and 4603507235

Parcel #: 91819, 106322, 106323, and 106364

This Application is made pursuant to Lincoln County UDO §9.8.7.F.4, because one of the required offsite roadway improvements cannot be made due to inability to acquire the necessary right-of-way.

Lincoln County Unified Development Ordinance §9.8.7.F.4, anticipates scenarios where rights of way cannot be obtained and provides a process for review:

“Required improvements must correspond directly to the impact of the development proposal. If right-of-way necessary to complete a required improvement cannot be acquired by the applicant, then the rezoning case will be brought back before the Board of Commissioners for its consideration of the rezoning absent the condition of the specified road improvement originally applied to the rezoning request. The applicant must demonstrate that reasonable efforts to acquire the right-of-way necessary to complete the required improvement were made. **The Board of Commissioners shall decide whether or not to approve the rezoning given the inability of the applicant to meet all previously required conditions.**”

REQUEST:

Applicant is requesting that the Board of Commissioners approve the rezoning absent the installation of the left turn lane on Triangle Circle given the inability of the Applicant to acquire the necessary right of way despite reasonable good faith efforts to do so. Applicant will comply with the other roadway improvements required in PD 2014-2-A4.

BACKGROUND AND HISTORY:

The Rivercross Planned Development Rezoning and Master Plan was submitted by Sonny Crater of SBG, LLC and was originally approved in 2015 as Petition PD 2014-2. At that time, the property was a single tract under one ownership. It was subsequently subdivided into three tracts: a 74-acre single-family site, a 12-acre apartment site, and a 27-acre commercial site. After the Planned Development was approved, all tracts were subsequently sold to other owners/developers. The Applicant (Fund 28-Denver, LLC) was not involved in the original Planned Development approval in 2015, nor any of the subsequent amendments. The Applicant acquired the Commercial site in January, 2023.

Between the original approval in 2015 and 2017, multiple amendments were sought by other owners. The various on-site and off-site roadway improvements were allocated among the three sites (PD 2014-2-A; PD 2014-2-A4; and PD 2014-2-A5), which allowed the residential phase and apartment phase to move forward. Both of these phases are now complete. Significant infrastructure and roadway improvements have been installed including:

- a) NC 16 Business & Cherry Point Drive at Site Access (Waterway Drive)
 - i) Constructed right-turn lane (into the site) on southbound NC 16B with 200 feet of storage.
 - ii) Remark northbound center lane on NC 16B as a dedicated left turn lane (into the site) with 375 feet of storage
 - iii) Remark southbound center lane on NC 16B as a dedicated left turn (into Cherry Pointe Drive) with 100 feet of storage
 - iv) Constructed two exit lanes (left turn and right turn/through) at the site entrance with 250 feet of storage
 - v) Installed traffic signal
- b) Triangle Circle at Site Access (Rivercross Point Drive)
 - i) Constructed a southbound right-turn lane (into the site) with 50 feet of storage
 - ii) Constructed a northbound left-turn lane (into the site) with 100 feet of storage
 - iii) Constructed two exit lanes (right turn and left turn) at the site entrance with 100 feet of storage
- c) Optimist Club Road and Triangle Circle
 - i) Constructed a right-turn lane on eastbound Optimist Club Road with 225 feet of storage

Certain improvements to the off-site intersection at Optimist Club Road and Triangle Circle were allocated to the Commercial site in 2017 pursuant to the approval of amendment PD 2014-2-A4 sought by the owner of the 74-acre single family site, including:

1. Construct an additional 125' storage for the right-turn lane on eastbound Optimist Club Road ;
2. Construct a left-turn lane on northbound Triangle Circle with 250' storage; and
3. Pay remaining cost of installing a traffic signal at that intersection when warranted by NCDOT, or provide adequate bonding for it.

The Applicant engaged civil engineer and other consultants to design the improvements. In 2023 and 2024, the designs were submitted to NCDOT and Lincoln County departments for permitting. The Applicant was informed that the civil engineering plans for the right-turn lane storage extension improvement on Optimist Club Road required ROW agreements with two property owners. The Applicant has secured such agreements from the two owners to allow that improvement on Optimist Club to occur upon final approval of the plans.

However, with respect to the left-turn lane on northbound Triangle Circle with 250' storage, a previously unknown circumstance has made it impossible for Applicant to complete. In a technical memorandum dated December 3, 2014, the original owner/developer's traffic engineer Gavin Teng represented to the County and NCDOT that Triangle Circle had a right-of-way of approximately 60' (see page 2 of that memo attached hereto with the original TIA). This memo led to the suggested off-site roadway improvement of the left-turn lane on northbound Triangle Circle that was part of the original approval and that has been carried forward ever since. Despite this, and although Triangle Circle has been a public roadway for more than 100 years, Applicant learned during designing the improvements that NCDOT does not have its typical right-of-way secured. Instead, adjacent property owners along Triangle Circle own to the center line of Triangle Circle and NCDOT does not have recorded right-of-way interests. NCDOT has indicated it merely has rights to maintain "ditch to ditch". In order to

construct the left turn lane, Triangle Circle must be widened beyond the “ditch to ditch” maintenance area. NCDOT has placed the burden on Applicant to obtain the right-of-way from the various property owners in order to construct the left-turn lane with the required extended storage as required by NCDOT.

In August 2024, the Applicant hired a ROW Agent firm, Professional Property Services, to appraise the value of the areas to be improved, contact the owners, and negotiate agreements with them. After more than 10 months of diligent efforts by Professional Property Services, the owners of 1531 Triangle Circle and 1543 Triangle Circle have said they will not sign a ROW agreement ***at any price***. Please refer to the Field Notes and statement from Professional Property Services attached. Despite diligent efforts and more than reasonable offers of payment (at amounts in excess of appraised value), the Applicant has been unable to acquire the right-of-way required by NCDOT for Triangle Circle. **Please note that the ROW agreements that were rejected seek only the necessary area to allow the left-turn lane on northbound Triangle Circle to be constructed for the benefit of the public at large—which would be approximately 10 feet of additional width. Payments were offered at and above the appraised values with confirmation that the ROW would be used only for the public roadway purpose. The agreements do not convey any other interest or otherwise benefit Applicant, do not adjoin Applicant’s Commercial site, and seek only what is required by NCDOT.**

Although Applicant has made good faith reasonable attempts and would be willing to complete the left-turn lane on northbound Triangle Circle if the right-of-way could be obtained, Applicant lacks the authority to force those ROW agreements, and NCDOT has told the Applicant that NCDOT will not use its power of eminent domain to assist in obtaining the necessary right-of-way for that turn lane.

The Applicant explored alternatives along with NCDOT representatives and the Civil Engineers. Some of the alternatives were:

- Move the widening to the east side of Triangle Circle. This presents similar complications in right of way acquisition. At least two owners on the east side of Triangle Circle expressed the same position (they will not sell at any price). Additionally, the County utility district expressed concerns regarding the proximity of a main sewer line on the east side of Triangle Circle. Therefore, this was not an option.
- DOT offered to reduce the width of the lanes which would lessen the impact on the property owners. The property owners rejected this, reiterating they would not agree to any amount of right-of-way, period.
- Reducing the length of the stacking lane was considered. Still, the two property owners would need to approve (as would the County Board of Commissioners). And, the property owners again said they would not sell at any price.

The Applicant then engaged traffic engineer Randy Goddard, PE, of Design Resource Group, to review the situation and offer alternatives. After further analysis, taking into consideration the two owners on Triangle Circle would not sell right of way, and based on discussions with NCDOT and County staff, no additional feasible alternatives have been identified.

ADDITIONAL INFORMATION TO CONSIDER:

- The Applicant/Owner is not associated with the original developers nor was it involved in the original approval for Rivercross. The Applicant/Owner is doing its best to comply with the agreements made by the original developer and correct the challenges that are inherent in the original Planned Development approval documents.
- A virtual community meeting was held at 6 PM on June 23, 2025. Among the questions and comments were:
 - one of the residents asked why the County and original developer made the agreement to put in the improvements if DOT did not own the roadway. Brad Bowman, manager of the Applicant, replied he did not know as the Applicant was not involved in the 2014/15 Planned Development approval process and he did not believe the current staff nor County Commissioners were involved. He further went on to say that the Applicant is trying to correct the issue and install improvements that would help the area. Such improvements can only be done with approval of this application.
 - Another resident asked if the County or NCDOT can condemn the property so the improvements can be installed. Mr. Bowman answered it is his understanding that neither the County nor NCDOT have the ability to condemn because the improvements are being installed by the developer, not the County or NCDOT.
 - Another resident asked if the County or NCDOT can improve the intersection. Mr. Bowman replied that it is his understanding that neither the County nor NCDOT have funds allocated to improve this intersection.
 - Another resident asked if the applicant can give the funds to the County or NCDOT and let them do the work. Mr. Bowman replied that it is his understanding that this cannot be done due to legal issues and/or mechanisms and processes.
- Please consider the following from attached Traffic Impact Analysis that was prepared for the 2014/15 Planned Development submittal. For convenience, a highlighted copy is attached.
 - Tables 1 & 2 (pp. 4–5) of the TIA indicate the *entire* Rivercross project (single family, apartments, and commercial) would generate a total of 415 new external trips during the Weekday AM peak-hour and 838 new external trips during the Weekday PM peak-hour.
 - Of these totals, the Commercial would generate 154 Weekday AM peak-hour trips and 636 Weekday PM peak-hour trips.
 - The TIA Appendix further breaks down the Commercial site-generated trips flowing through the intersection of Optimist Club Road and Triangle Circle:
 - Commercial Weekday AM peak-hour
 - 33 trips eastbound on Optimist Club Road, turning right on Triangle Circle
 - 20 trips northbound on Triangle Circle, turning left on Optimist Club Road
 - Commercial Weekday PM peak-hour
 - 97 trips eastbound on Optimist Club Road, turning right on Triangle Circle
 - 103 trips northbound on Triangle Circle, turning left on Optimist Club Road

- Even with these additional trips flowing through the intersection, Table 3 of the TIA indicates the key impact from the development of Rivercross would be to traffic traveling eastbound on Optimist Club Road—this is an improvement the Applicant is capable of making, thus addressing the main issue identified at this intersection.
 - The TIA states (multiple times) that the Rivercross Project is not the cause of the poor service levels at nearby intersections including Triangle Circle/Optimist Club intersection. Rather, the poor service levels are due to Airlie Business Park and other development in the area.
 - The TIA points out that rights of way may need to be acquired in order to implement some of the improvements and that this issue should be reviewed. It is unclear what level of review of this occurred prior to the Rivercross PD approval and subsequent amendments.
- The Triangle/Optimist intersection situation has been a problem long before the Rivercross project existed. The issues were noted in the NC 16 Corridor Vision Plan from December 2009 (excerpt attached for convenience). Although recommendations were made to improve the intersection, neither Lincoln County nor NCDOT have had or used resources to make improvements to the intersection. The NC 16 Corridor Vision Plan was cited by the commissioners in their approval of the Rivercross project in 2015 and its subsequent amendments. Staff had articulated that the project conformed with this Plan.
- The 2020 Eastern Lincoln Mobility Study noted the need to improve the Triangle/Optimist intersection. Two alternatives were provided; one was recommended—to turn the intersection into a three-way stop. (Excerpts from the study attached for convenience).
- The developer of Rivercross Commercial can provide the improvements on Optimist Club Road and provide reasonable bonding to signalize the intersection when warranted by NCDOT. These improvements can result in service levels at or above the requirements of the UDO—ranging from LOS “A” to LOS “C”).
- NCDOT is in support of improving the Optimist/Triangle intersection with the additional right turn stacking on Optimist Club and,
- In addition to valuable traffic improvements, allowing this request also realizes long-planned benefits to the greater community in the County’s adopted NC 16 Corridor Vision Plan.

The Rivercross project did not create the traffic issues at Triangle Circle and Optimist Club. However, developing the commercial phase of the Rivercross project can provide solutions that will result major improvements in the traffic flow and Level of Service to the intersection.

APPLICANT’S REQUEST:

The Applicant respectfully requests that the Board of Commissioners:

- Consider Lincoln County Unified Development Ordinance §9.8.7.F.4, which specifically anticipates scenarios such as this and gives the Commissioners the ability to provide a remedy;
- Review the good faith efforts that the Applicant and its consultants have expended to satisfy the permit requirements to install offsite road improvements to Optimist Club and Triangle Circle; and

- Find that the Applicant has expended substantial time and money and has made reasonable, good faith efforts to satisfy the requirements; and
- Find that the Applicant cannot satisfy the requirement to install one of the offsite road improvements (the left-turn lane on northbound Triangle Circle); and
- Find that the Applicant can and is willing to satisfy the Optimist Club Road improvement and provide reasonable bonding for the signalization of the intersection prior to recording the subdivision plat of the Townhome lots or issuance of Certificate of Occupancy to the first commercial building, whichever occurs first; and
- Based on these considerations, Applicant requests that the Board of Commissioners vote to allow the Planned Development to proceed without the condition of constructing the left-turn lane on northbound Triangle Circle.

If a majority of the Board of Commissioners vote to approve the request, Lincoln County and the broader community benefit greatly and will A) enjoy improved traffic management on Optimist Club Road, and B) receive increased property taxes when this phase of Rivercross is completed. These are significant community benefits.

Without majority vote by the Board of Commissioners to approve the request, the improvements and funding for improvements to Optimist Club Road do not occur, the increased tax base from the completion of this long-approved project is not realized, and the broader community loses out on those benefits.

Without action to approve the request, the subject site is rendered valueless through no fault or lack of good faith effort by the Applicant.

May 23, 2014 Traffic Impact & Access Study
by SRS Engineering, LLC

and

December 3, 2014 Technical Memorandum
by Gavin Teng of WSP

April 8, 2014
Updated May 23, 2014

SRS Engineering, LLC
801 Mohawk Drive
West Columbia, SC 29169

Mr. Sonny Crater
Land Acquisitions Manager
Simonini Group

**RE: Traffic Impact & Access Study
Rivercross: NC 16B at Triangle Circle
Lincoln County/Denver, NC**

Dear Mr. Crater:

As requested, SRS Engineering, LLC (SRS) has completed an assessment of the traffic impacts associated with the development of the new mixed-use development, which will include residential dwellings as well as commercial land-uses to be located along Triangle Circle and North Carolina 16 Business (NC 16B) in Lincoln County/Denver, NC. This report studies intersections along NC 16B as well as Optimist Club Road as requested by NCDOT as well as addresses the recent comments dated May 12, 2014 from staff received on the prior submittal of this report dated April 8, 2014. The following provides a summary of this study's findings.

PROJECT DESCRIPTION

The project site is located on the west side of NC 16B, south of Triangle Circle and is referred to as Rivercross. The project proposal is to construct a new mixed-use development which will provide both residential dwellings units as well as commercial uses which will be located along the site's frontage of NC 16B. The development site totals 113-acres which will be developed as 220 single-family detached units, 240 apartments and 30-acres of commercial development which has been anticipated as 100,000 square-feet (sf) of general retail commercial. As scheduled, this project is planned to be constructed and occupied within a six-year period (2020). **Figure 1** (Figures located at end of report) depicts the site location in relation to the regional roadway system.

Access to/from the development is planned via two access drives, one each to/from NC 16B and Triangle Circle South. Based on the current development plan, connectivity within the site is planned which will allow travel between the residential and commercial uses planned within the site. The Triangle Circle South access is anticipated to mainly serve the apartment complex as well as a small percentage of both the single-family units and commercial uses. The NC 16B access is anticipated to serve as the main access for the commercial uses, single-family unit and a small percentage of apartment traffic. **Figure 2** depicts the current development plan proposal.

EXISTING CONDITIONS

A comprehensive field inventory of the project study area was conducted in March 2014. The field inventory included a collection of geometric data, traffic volumes and traffic control within the study area. The following sections detail the current traffic conditions and include a description of intersections serving the site and traffic flow in close proximity to the project.

Study Area Intersections

As identified by NCDOT Division Engineering staff (Div #12, District #3), eight (8) intersections were required to be analyzed in order to determine project impact on the surrounding roadway network;

1. NC 16 By-Pass at Optimist Club Road (includes north and south U-Turns);
2. NC 16B at Unity Church Road/Triangle Circle North (signalized);
3. Triangle Circle at Optimist Club Road;
4. Optimist Club Road at Rufus Road;
5. NC 16B at Triangle Circle South;
6. NC 16 B at Hagers Ferry Road (includes channelized-right movement);
7. Hagers Ferry Road at N. Pilot Knob Road; and
8. NC 73 at NC 16B (signalized).

Figure 3 illustrates the existing geometrics and traffic control for the study area intersections and roadways.

Traffic Volumes

In order to determine the existing traffic volume flow patterns within the study area, manual turning movement counts were performed. Weekday morning (7:00-9:00 AM) and evening (4:00-6:00 PM) peak period turning movement specific counts were conducted at the above referenced study area intersections. These counts included autos, heavy vehicles and pedestrian movements where applicable. It should be noted that traffic volume data for intersection #8 (NC 73 at NC 16B) was provided by NCDOT staff.

Summarized count sheets for the study area intersections are included in the Appendix of this report. **Figures 4 & 5**, graphically depict the respective 2014 Existing AM and PM peak-hour traffic volumes for the study area intersections. It should be noted that no adjustments to the collected traffic volumes (balancing) occurred with exception of the Triangle Circle at Optimist Club Road and Optimist Club Road at Rufus Road intersections and the group of intersections that make up NC 16B, Hagers Ferry Road, N. Pilot Knob Road and the right-turn movement for N. Pilot Knob Road to NC 16B north. Were slight imbalances were identified; adjustments were made (upwardly) in order to develop a balanced network for these intersections.

FUTURE CONDITIONS

The project is anticipated to be built-out over a six year period resulting in occupancy in 2020. As such, 2020 has been used for the future year analysis for purposes of this report

Future No-Build Traffic Conditions

Planned Roadway Improvements

Based on discussions with NCDOT staff, the adjacent intersection of NC 16B at Hagers Ferry Road/North Pilot Knob Road will be improved to provide the following:

1. Realign North Pilot Knob Road with Hagers Ferry Road to NC16B and construct a three-lane cross-section to allow for a westbound left-turn lane;
2. Install a right-turn lane on northbound NC 16B approach to North Pilot Knob Road;
3. Install a right-turn lane on the westbound Hagers Ferry Road approach to North Pilot Knob Road;
4. Install traffic signal control at the NC 16B at North Pilot Knob Road intersection; and
5. Remove the segment of Hagers Ferry Road between NC 16B and North Pilot Knob Road, thereby closing the intersection of NC 16B at Hagers Ferry Road and creating a STOP controlled three-legged intersection at the intersection of Hagers Ferry Road and North Pilot Knob Road.

This project has just recently been design and funded and is anticipated to be completed by 2017. Based on this, this NCDOT project has been included in both the future No-Build and Build analysis.

Background Development

Based on discussions with NCDOT staff, two projects are approved within the study area which should be accounted for in the future year analysis. First is the Carolina Ridge development which is located to the southwest of the NC 16 By-Pass at NC 73 interchange opposite East Lincoln High School. This project is to contain a total of 1,650 residential units consisting of 300 single-family dwelling units and 1,350 senior housing units. Details on traffic generated by this approved project was provided by NCDOT staff and is to be included in the future conditions analysis of this report as 100-percent build-out of this expected development.

The second development is located to the west of the proposed Rivercross development along Optimist Club Road. Airlie Park Phase I is to consist of 1,060,000 sf of industrial park use. It is planned on the south side of Optimist Club Road along Airlie Parkway extending down to the intersection of Arlie Parkway and Rufus Road. Details on traffic generated by this project was also provided by NCDOT staff and is to be included in the future conditions analysis at 60-percent of the expected build-out (Phase I) of this development.

Annual Growth Rate

NCDOT staff has identified a 2-percent annual growth rate for this study area in order to project future conditions. The anticipated 2020 No-Build AM and PM peak-hour traffic volumes, which reflect the annual 2-percent growth rate, and traffic anticipated by the afore-mentioned projects, are shown in **Figures 6 & 7**.

Site-Generated Traffic

Traffic volumes expected to be generated by the proposed project were forecasted using the Eighth Edition of the ITE *Trip Generation* manual, as published by the Institute of Transportation Engineers. Land-Use Codes #210 (Single-Family Detached), 220 (Apartments) and 820 (Shopping Center) have been used to estimate the specific site-generated traffic. These trip generation estimates have been submitted to NCDOT staff and approved for use in this report. **Table 1** depicts the anticipated site-generated traffic.

Table 1
PROJECT TRIP-GENERATION SUMMARY¹
Rivercross

| Time Period | 220 Single-Family Units (a) | 240 Apartment Units (b) | 100,000 sf General Retail (c) | 5% Internal Capture ² (d) | 20% Pass-By Credit ³ (e) | Total New Trips (Σ(a thru e)-d-e) |
|-----------------------------|--------------------------------------|----------------------------------|--|--|--|---|
| Weekday Daily | 2,150 | 1,580 | 6,800 | 530 | 1,250 | 8,750 |
| Weekday AM Peak-Hour | | | | | | |
| Enter | 41 | 24 | 94 | No Internal | 12 | 147 |
| Exit | <u>123</u> | <u>97</u> | <u>60</u> | Capture | <u>12</u> | <u>268</u> |
| Total | 164 | 121 | 154 | Taken | 24 | 415 |
| Weekday PM Peak-Hour | | | | | | |
| Enter | 135 | 98 | 312 | 25 | 57 | 463 |
| Exit | <u>79</u> | <u>52</u> | <u>324</u> | <u>22</u> | <u>57</u> | <u>375</u> |
| Total | 214 | 150 | 636 | 47 | 114 | 838 |

¹ ITE *Trip Generation* manual, 8th Ed. 2008, LUC's 210 (Single-Family), 220 (Apartment) & 820 (Shopping Center).

² Internal Capture rate due to mixed-use development of 5% assumed.

³ Pass-by percentage of 20% assumed based on adjacent roadway traffic. Applied to retail uses only after Internal Capture taken.

The calculations have broken down the development into its specific uses for estimation of trips to be generated for each use as well as pass-by trips. For this report, a 5-percent internal capture or “multi-use trips” was estimated as well as a 20-percent pass-by was assigned to the retail components of the development; both approved by NCDOT for use in this report. After accounting for internal capture and pass-by, the development can be expected to generate a total of 8,750 *new* external trips on a weekday daily basis, of which a total of 415 *new* external trips (147 entering and 268 exiting) are expected during the AM peak-hour. During the PM peak-hour, 838 *new* external trips (463 entering, 375 exiting) are expected.

Distribution Pattern

The directional distribution of site-generated traffic on the study area roadways has been based on an evaluation of existing travel patterns in the study area. Two separate patterns have been developed, one for the residential dwellings units of the development and one for the commercial retail components. The anticipated patterns, which have been approved by NCDOT staff for use in this report, are shown in **Table 2** and also depicted graphically in **Figures 8 & 9** for the respective residential and commercial uses. These distribution patterns have been applied to the site-generated traffic volumes from Table 1 to develop the site-generated specific volumes for the study area intersections illustrated in **Figures 10 & 11** for the respective AM and PM peak hours. Located in the Appendix of this report are the broken down trip assignments for the residential and commercial uses which were summed together resulting in the presented total site-generated figures (10 & 11). It should be noted that the assignment of residential trips

to the site access drives has accounted for the location/proximity of the apartments and the single family units to likely access points that residences will utilize when entering and exiting the site.

Table 2
TRIP DISTRIBUTION PATTERN
Rivercross

| Roadways | | Percent Enter/Exit | |
|--------------------|-------|--------------------|------------|
| | | Residential | Commercial |
| NC 16 | North | 10 | 20 |
| | South | 24 | 20 |
| NC 16 Business | North | 10 | 15 |
| | South | 5 | 5 |
| NC 73 | East | 20 | 7 |
| | West | 20 | 22 |
| Hagers Ferry Road | East | 2 | 2 |
| N. Pilot Knob Road | South | 5 | 5 |
| Unity Church Road | East | 2 | 2 |
| Optimist Club Road | West | 2 | 2 |
| Total | | 100 | 100 |

Note: Based on the existing traffic patterns.

Future Build Traffic Conditions

The site-generated traffic, as depicted in Figures 10 & 11 has been added to the respective 2020 No-Build traffic volumes shown in Figures 6 & 7. This results in the peak-hour Build traffic volumes, which are graphically depicted in **Figures 12 & 13**. These volumes were used as the basis to determine potential improvement measures necessary to mitigate traffic impacts caused by the project.

TRAFFIC OPERATIONS

Analysis Methodology

A primary result of capacity analysis is the assignment of Level-of-Service (LOS) to traffic facilities under various traffic flow conditions. The concept of Level-of-Service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A Level-of-Service designation provides an index to the quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six Levels-of-Service are defined for each type of facility (signalized and unsignalized intersections). They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst.

Since the Level-of-Service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of Levels-of-Service depending on the time of day, day of week, or period of a year.

Analysis Results

As part of this TIAS, capacity analyses have been performed at the study area intersections under both Existing and Future (No-Build & Build) conditions. As requested by County staff, results of these

analyses also indicate individual approaches as well as over-all service levels. **Table 3** provided the Level-of Service Summary table.

Table 3
LEVEL-OF-SERVICE SUMMARY
Rivercross

| Intersections | Approach | Existing 2014 | | | | 2020 No-Build | | | | 2020 Build | | | |
|---|--|--|----------|--------------|----------|---|----------|--------------|----------|---|----------|--------------|----------|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | | Delay (Sec) | LOS | Delay (Sec) | LOS | Delay (Sec) | LOS | Delay (Sec) | LOS | Delay (Sec) | LOS | Delay (Sec) | LOS |
| NC 16 B at Triangle Circle North/Unity Church Road (Signalized) | <i>Over-All Average</i> | 55.7 | E | 62.2 | E | 110.7 | F | 109.2 | F | 120.7 | F | 124.5 | F |
| | NB: NC 16B | 45.6 | D | 75.8 | E | 78.8 | E | 133.8 | F | 92.4 | F | 168.7 | F |
| | SB: NC 16B | 60.0 | E | 34.9 | C | 155.1 | F | 41.7 | D | 167.7 | F | 50.4 | D |
| | EB: Triangle Circle (s) | 59.3 | E | 98.1 | F | 72.6 | E | 221.2 | F | 86.4 | F | 227.4 | F |
| | WB: Unity Church Rd | 57.7 | E | 59.8 | E | 77.3 | E | 63.8 | E | 72.3 | E | 65.4 | E |
| NC 73 at NC 16 B (Signalized) | <i>Over-All Average</i> | 36.8 | D | 59.9 | E | 48.6 | D | 106.9 | F | 53.9 | D | 121.6 | F |
| | NB: NC 16B | 58.3 | E | 104.5 | F | 91.7 | F | 187.3 | F | 101.0 | F | 205.2 | F |
| | SB: NC 16B | 25.3 | C | 45.8 | D | 32.0 | C | 109.6 | F | 41.8 | D | 144.2 | F |
| | EB: NC 73 | 31.2 | C | 40.0 | D | 39.9 | D | 48.8 | D | 43.1 | D | 65.9 | E |
| | WB: NC 73 | 44.8 | D | 61.7 | E | 50.9 | D | 114.7 | F | 49.3 | D | 105.0 | F |
| NC 16B at N Pilot Knob Rd (Signalized) | <i>Over-All Average</i> NB: NC 16B SB: NC 16B WB: N Pilot Knob Rd | Future Intersection Created by NCDOT Re-Alignment Project of North Pilot Knob Road & Hagers Ferry Road | | | | 21.4 | C | 22.1 | C | 22.7 | C | 28.9 | C |
| | | | | | | 30.2 | C | 27.1 | C | 32.3 | C | 31.4 | C |
| | | | | | | 15.8 | B | 12.6 | B | 16.7 | B | 15.2 | B |
| | | | | | | 22.9 | C | 35.7 | D | 25.3 | C | 59.7 | E |
| NC 16 at Optimist Club Rd (Unsignalized) | NB: NC 16 Left | 31.4 | D | 17.3 | C | 45.6 | E | 24.6 | C | 52.7 | F | 28.9 | D |
| | SB: NC 16 Left | 15.2 | C | 38.3 | E | 27.9 | D | 101.5 | F | 31.7 | D | 247.3 | F |
| | EB: Optimist Club Rd Rt | 27.9 | D | 11.3 | B | 77.4 | F | 13.1 | B | 96.4 | F | 14.1 | B |
| | WB: Optimist Club Rd Rt | 14.5 | B | 19 | C | 20.6 | C | 186.9 | F | 31.3 | D | 350.9 | F |
| NC 16 NB U-Turn (Unsignalized) | NB U-Turn: NC 16 | 23.3 | C | 12.6 | B | 51.5 | F | 21.1 | C | 108.6 | F | 37.3 | E |
| NC 16 SB U-Turn (Unsignalized) | SB U-Turn: NC 16 | 12.6 | B | 18.8 | C | 16.3 | C | 24.1 | C | 16.8 | C | 28.1 | D |
| Optimist Club Rd at Rufus Rd (Unsignalized) | NB: Rufus Rd | 10.8 | B | 13.1 | B | 11.5 | B | 15.9 | C | 12.4 | B | 21.3 | C |
| | EB: Optimist Club Rd | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 | A |
| | WB: Optimist Club Rd | 0.2 | A | 0.6 | A | 11.5 | B | 0.6 | A | 12.4 | B | 0.6 | A |
| Optimist Club Rd at Triangle Circle (Unsignalized) | NB: Triangle Circle (S) | 7.0 | A | 5.6 | A | 7.8 | A | 6.0 | A | 8.2 | A | 7.4 | A |
| | SB: Triangle Circle (N) | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 | A |
| | EB: Optimist Club Rd | 13.0 | B | 24.4 | C | 26.7 | D | 135.3 | F | 129.3 | F | 592.1 | F |
| NC 16B at Triangle Circle South (Unsignalized) | NB: NC 16B | 1.4 | A | 5.6 | A | 5.4 | A | 9.2 | A | 8.0 | A | 17.0 | C |
| | SB: NC 16B | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 | A |
| | EB: Triangle Circle (S) | 20.7 | C | 18.5 | C | 27.7 | D | 39.3 | E | 51.2 | F | 193.9 | F |
| NC 16B at Hagers Ferry Road (Unsignalized) | NB: NC 16B SB: NC 16B WB: Hagers Ferry Rd | 0.0 | A | 0.0 | A | Three Intersections Closed by Re-Alignment Project. Two New Intersection Created, NC16B at Hagers Ferry Road (Signalized) & North Pilot Knob Road at Hagers Ferry Road (Unsignalized) | | | | Three Intersections Closed by Re-Alignment Project. Two New Intersection Created, NC16B at Hagers Ferry Road (Signalized) & North Pilot Knob Road at Hagers Ferry Road (Unsignalized) | | | |
| | | 3.3 | A | 2.8 | B | | | | | | | | |
| | | 28.9 | D | 21.7 | C | | | | | | | | |
| Hagers Ferry Road at N Pilot Knob Rd (Unsignalized) | NB: N Pilot Knob Rd EB: Hagers Ferry Rd WB: Hagers Ferry Rd | 0.1 | A | 0.4 | A | | | | | | | | |
| | | 10.6 | B | 12.3 | B | | | | | | | | |
| | | 15.8 | C | 15.0 | B | | | | | | | | |
| NC 16B at N Pilot Knob Rd Right-Turn (Unsignalized) | NB: NC 16B | 0.0 | A | 0.0 | A | | | | | | | | |
| | SB: NC 16B | 0.0 | A | 0.0 | A | | | | | | | | |
| | WB: N Pilot Knob Right | 13.5 | B | 30.8 | D | | | | | | | | |
| N Pilot Knob Rd at Hagers Ferry Road (Unsignalized) | NB: N Pilot Knob Rd SB: N Pilot Knob Rd WB: Hagers Ferry Rd | Future Intersection Created by NCDOT Re-Alignment Project | | | | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 | A |
| | | | | | | 1.4 | A | 3.3 | A | 1.4 | A | 3.3 | A |
| | | | | | | 12.4 | B | 13.5 | B | 12.7 | B | 16.5 | C |
| NC 16B at Site Access (Signalized) | <i>Over-All Average</i> NB: NC 16B SB: NC 16B EB: Site Access WB: Cherry Point | To be Constructed by Development | | | | To be Constructed by Development | | | | Unsignalized | | | |
| | | | | | | | | | | 12.5 | B | 18.0 | C |
| | | | | | | | | | | 9.0 | A | 11.3 | B |
| | | | | | | | | | | 45.8 | E | >500.0 | F |
| Triangle Circle South at Site Access (Unsignalized) | NB: Site Access EB: Triangle Circle (S) WB: Triangle Circle (S) | To be Constructed by Development | | | | To be Constructed by Development | | | | 0.5 | A | 1.1 | A |
| | | | | | | | | | | 10.8 | B | 15.4 | C |
| | | | | | | | | | | 0.0 | A | 0.0 | A |

Key/Notes:

1. Analysis completed using the HCM methodology for the unsignalized intersections and the percentile methodology for the signalized intersections as requested by NCDOT staff.

Bolded indicate failing conditions.

Indicates intersection operates with failing conditions during one or more peak-hours due to background traffic/existing constraints, not directly caused by project traffic.

Indicates intersection or approach operates with failing conditions during one or more peak-hours due to project traffic.

As shown in Table 3, under 2014 Existing traffic volume conditions, the signalized study area intersection of NC 16B at Triangle Circle North/Unity Church Road operates at an over-all LOS E during both the AM and PM peak-hours. Further review of this analysis indicates that the eastbound and westbound approach operations, which operate under split phasing, operate poorly during both the AM and PM peak hours and is the main reason for the over-all poor service levels as well as the northbound approach of NC 16B which operates under constrained operations (PM peak-hour). The signalized intersection of NC 73 at NC 16B operates at an acceptable service level during the AM peak-hour and a poor service level (LOS E) during the PM peak-hour. The main reason this intersection operates poorly are the large peak-hour volumes of traffic which cannot be accommodated with the current lane geometry with an emphasis on the northbound approach of NC 16B which operates poorly during both the AM and PM peak hours. Analysis for the unsignalized study area intersections indicate that currently, each intersection operates at acceptable service levels during both peak-hours studied with exception of a single movement at the NC 16 By-Pass at Optimist Club Road intersection where the southbound left-turn movement from NC 16 By-Pass to eastbound Optimist Club Road movement currently operates at a LOS E.

Under future 2020 No-Build traffic volume conditions, which account for the addition of a normal annual growth (2% per-year) and traffic anticipated by the Airlie Park Phase I (60-percent) and Carolina Ridge developments, operations at the study area intersections are anticipated to change significantly when compared to Existing Conditions. Under this condition, the signalized study area intersection of NC 16B at Triangle Circle North/Unity Church Road will continue to operate poorly during both peak hours studied (LOS F). The NC 73 at NC 16B intersection is expected to operate at a LOS D during the AM peak-hour and a LOS F during the PM peak-hour. Three of the unsignalized intersections in the study area are also expected to operate poorly; the NC 16 at Optimist Club Road, Optimist Club Road at Triangle Circle and NC 16B at Triangle Circle South, are each expected to operate poorly during one or more of the peak hours studied. These poor service levels are not due to the proposed Rivercross, but rather anticipated growth in the area. This is especially true in the along the Triangle Circle intersections and Optimist Club Road intersections which are being impacted by the anticipated annual growth as well as the large scale Airlie Industrial Park (60%) which is going to be provided access to/from Optimist Club Road. It should be noted that the planned NCDOT roadway projects re-aligning the NC 16B at Hagers Ferry Road and North Pilot Knob Road at Hagers Ferry Road intersection is anticipated to result in acceptable service levels at the newly aligned intersections.

Under 2020 Build conditions, which include the addition of traffic related to the Rivercross development, the same intersections that operated poorly under the No-Build condition will continue to operate poorly with some additional delay. The signalized intersections of NC 16B at Triangle Circle North/Unity Church Road and NC 73 at NC 16B both operated poorly under the Existing and No-Build conditions and therefore continue to do so under the Build condition. The same is true for the unsignalized intersections of NC 16 at Optimist Club Road, Optimist Club Road at Triangle Circle and NC 16B at Triangle Circle South. The project does result in an incremental impact at these intersections, but is not the direct cause for the poor conditions as they each operated poorly during one or more of the peak hours studied under No-Build conditions.

The project is not the cause of any intersection to deteriorate from an over-all acceptable service level to an unacceptable service level. Two intersections have one approach each that deteriorates to poor conditions due to the addition of project traffic. The NC 16B at NC 73 intersection eastbound approach, (PM peak-hour) which operates at an over-all poor conditions under Existing, No-Build and Build and the new NC 16B at North Pilot Knob Road intersection (PM peak-hour), which operates at an over-all service level.

The proposed site access drive located along Triangle Circle South is expected to operate at good service levels during both peak hours. The access along NC 16B opposite Cherry Point Drive will operate poorly during both peak hours without additional infra-structure and/or traffic control improvements. A detail for the access drives geometries and traffic controls are described in the next section of this report.

MITIGATION

The final phase of the analysis process is to identify mitigating measures which may either minimize the impact of the project on the transportation system or tend to alleviate poor service levels not caused by the project. The following describes measures necessary to mitigate the project's impact.

Proposed Site Access Drives

The project proposes one access drive to/from NC 16B, and one access to/from Triangle Circle South. The specific geometric and traffic control requirements for each proposed access driveway is discussed in detail below:

NC 16B Access Drive

This access is to be located opposite Cherry Point Drive approximately 1,130-feet south of the NC 16B at Triangle Circle South intersection. The following describes the suggested geometry for this proposed access:

- ***Eastbound (Site Access) Approach:*** Construct site drive to provide a three-lane cross-section with one lane entering the site and two lanes exiting the site designated as a separate left-turn lane and a shared through/right-turn lane;
- ***Westbound (Cherry Point Drive) Approach:*** Existing geometry of a two lane cross-section; one lane entering and one lane exiting; Cherry Point Drive is anticipated to remain however, it is advisable (due to right-of way constraints) to widen the Cherry Point Drive approach to provide a separate left-turn lane and a shared through/right-turn lane which would align with the proposed site access;
- ***Northbound (NC 16B) Approach:*** A pseudo left-turn lane for traffic entering the site will be provided by the existing center left-turn lane located within NC 16B;
- ***Southbound (NC 16B) Approach:*** Construct a separate right-turn lane for traffic entering the site. This lane should provide a 200-foot length turning lane and a 100-foot taper; and
- ***Traffic Control:*** Place intersection under STOP sign control where vehicles exiting the site will be required to stop.

Initially, this intersection should be placed under STOP sign control. As later phases of the residential units come on-line along with the commercial retail portion of the site, traffic control at this intersection may need to be improved to potentially traffic signal control. It is suggested that once constructed and occupied in later phases, this intersection should be monitored in order to determine if signalization should be installed. When signalized, the northbound left-turn movement from NC 16B should be provided a formal turning lane with a storage length of at least 300-feet and a 100-foot taper. This would result in an impact to the two-way left-turn lane in front of the Westpointe Shops located to the south.

If/when signalization is installed, at full build-out of the site; this intersection would improve to the following operations (percentile methodology):

- AM Peak-Hour: LOS C, delay=29.5 sec., and
- PM Peak-Hour: LOS D, delay=54.6 sec.

Triangle Circle South Access Drive

This access is to be located opposite a private residence drive approximately 670-feet northwest of the NC 16B at Triangle Circle South intersection. The following describes the suggested geometry for this proposed access:

- **Northbound (Site Access) Approach:** Construct site drive to provide a three-lane cross-section with one lane entering the site and two lanes exiting the site designated as a separate left-turn lane and a separate right-turn lane;
- **Eastbound (Triangle Circle South) Approach:** Anticipated right-turning traffic entering the site as this intersection should be provided a separate right-turn lane. This lane should provide a 150-length and a 100-foot taper;
- **Westbound (Triangle Circle South) Approach:** The volume of expected left-turns movements from Triangle Circle South entering the site is nearly meets warrants for a separate left-turn lane. Given the separation between this access and the NC 16B intersection, it is suggested that a separate left-turn for site-generated traffic be provided. This lane should provide a 150-foot storage length. Exact taper will depend on the method chosen to widen Triangle Circle South whether it be symmetrical or a-symmetrical; and
- **Traffic Control:** Place intersection under STOP sign control where vehicles exiting the site will be required to stop.

Sight Distance Considerations

All previously-cited access drive intersections should be designed/constructed to meet current applicable NCDOT/County standards and/or guidelines in terms of sight distance. It is assumed that the project's civil engineer will depicted the sight distances within the site plan/submittal information.

Off-Site Study Area Intersections

As shown in Table 3, the project has only a minimal impact on the adjacent off-site signalized study area intersections of both NC 16B at Triangle Circle North/Unity Church Road and NC 73 at NC 16B. While both of these intersections are expected to operate poorly under one or more of the peak hours under the Build condition; they also operated poorly under both Existing and No-Build conditions. As such, the project is not the cause of these poor service levels.

The unsignalized study area intersections are similar in that project traffic is not the direct cause of the presented poor service levels. The following intersections operate poorly under Build conditions, but also under No-Build conditions:

- NC 16 at Optimist Club Road;
- Optimist Club Road at Triangle Circle; and
- NC 16B at Triangle Circle South;

Approaches at two intersections are expected to operate poorly due to the Rivercross development, the eastbound approach of the NC 16B at NC 73 intersection (intersection operates poorly under all conditions studied) and the westbound approach of the NC 16B at North Pilot Knob Road intersection where the over all intersection operates at a LOS C, but the eastbound approach is anticipated to degrade from a LOS D to a LOS F under the Build condition. Based on the over-all service levels under the studied Existing, No-Build and Build at these intersections, no improvements are recommended at this time.

It should be noted that Lincoln County specifically requested the Optimist Club Road at Triangle Circle intersection be reviewed for potential improvements due to the proximity of this intersection to the site and the access drives. This intersection serves a significant volume of traffic due to it being used as a commuter route between NC 16B and NC 16 and the future Airlie Industrial Park. It is anticipated to operate poorly under both No-Build and Build conditions. The following improvements have been reviewed in order to improve both operations and vehicular circulation at this intersection:

- Northbound Triangle Circle South- If possible, widen roadway to provide separate northbound left-turn lane from Triangle Circle to Optimist Club Road; and
- Eastbound Optimist Club Road- If possible, widen roadway to provide a separate eastbound right-turn lane from Optimist Club Road to Triangle Circle.

The feasibility of providing these two separate turning lanes must review at a minimum two things, first is adequate right-of-way available (or can it be obtained) to provide either turning lane which will be reviewed by the project's Site/Civil Engineer. Secondly, the existing constraint of the adjacent Rufus Road intersection located just to the east of Triangle Circle along Optimist Club Road must be accounted for which may provide design challenges in providing this separate right-turn lane. This will also be reviewed by the project's Site/Civil Engineer in order to determine its feasibility.

If both of these improvements are implemented at this intersection, the delay for the minor street left-turn movement (Optimist Club to northbound Triangle Circle) will nearly be halved as compared to the Build conditions however this movement will continue to operate at a LOS F.

Discussions with NCDOT has lead to the review of the two intersection of NC 16B at Triangle North/Unity Church Road and NC 16B at NC 73. Both of these intersections operate poorly under Existing conditions and therefore, the poor operations under the Build conditions are not due to project traffic. As requested, improvements have been reviewed at each intersection in order to enhance operations however; the feasibility of these improvements must be reviewed.

- NC 16B at Triangle Circle North/Unity Church Road- The main reason for poor conditions at this intersection are two fold, first the signal operations of split phasing where the eastbound and westbound approaches occur under separate phases, and secondly the high traffic volumes entering and exiting both Triangle Circle north and Unity Church Road.
 1. Widen both the eastbound and westbound approaches in order to provide separate left-turn lane and a shared through/right-turn lane;
 2. Construct a northbound right-turn lane to serve the heavy volume of traffic from NC 16B to Unity Church Road. This lane should be a minimum of 200-feet in length with a 100-foot taper.
 3. Construct a southbound right-turn lane to serve the heavy volume of traffic from NC 16B to Triangle Circle north. This lane should be a minimum of 200-feet in length with a 100-foot taper.

4. With these improvements Investigate the potential of operating under protected/permitted phasing rather than under the current split phasing

Review of these infra-structure improvements will require right-of-way along both Triangle Circle north as well as Unity Church Road in addition to the right-turn lane northbound on NC 16B. Impact to the adjacent Daytona Pitt Stop (southeast quadrant of intersection), Carolina Trust Bank (southwest quadrant) and CITGO (northwest quadrant) are likely from a right-of-way standpoint as well as impact to their respective existing access drives which would require modification or removal to achieve the improvement

- NC 73 at NC 16B- NCDOT staff has indicated that they are reviewing the potential of adding an additional through lane in the eastbound direction of NC 73 that would merge to the existing one-operating lane once through the intersection.

Review of this improvement may require right-of-way along the south side of NC 73 from Rite Aid and Waterside Crossing. While it has been indicated that the eastbound through lane might be shared with the right-turn movement, the right-turn movement is over 300 vehicles during the AM peak-hour and nearly 300 during the PM peak-hour. Based on this a separate right-turn lane for this movement should continue to be provided.

The NC 16 at Optimist Club Road intersection currently has a single approach/conflict movement that operates poorly being the southbound left-turn movement from southbound NC 16 to eastbound Optimist Club Road during the PM peak-hour. Future 2020 No-Build conditions indicate five movements that will operate poorly at this intersection without the project:

1. NC 16 Northbound left-turn to westbound Optimist Club Road;
2. NC 16 Southbound left-turn to eastbound Optimist Club Road;
3. Eastbound right-turn from Optimist Club Road to southbound NC 16;
4. Westbound right-turn from Optimist Club Road to northbound NC 16; and
5. Northbound U-turn from NC 16 north to NC 16 south.

These movements are anticipated to operate poorly under this condition due to growth of traffic in area as well as the high volume of peak directional traffic traveling NC 16.

Future Build conditions indicate that the same five intersection movements listed above will continue to operate poorly when project traffic is accounted for.

The critical movement appears to be the northbound directional flow of NC 16 which accounts for the poor operations at the southbound left-turn and the westbound right-turn. One solution to this capacity issue maybe to place this intersection under "half signal" control which would control the northbound NC 16, westbound right-turn and southbound left-turn movements. This signalization would have an insignificant effect on the southbound NC 16 movements but would improve operations for tow movements that have the greatest delay at this intersection being the southbound left-turn and the westbound right-turn movements. Planning of this traffic signal should be considered as growth along Optimist Club Road increases under the No-Build condition mainly due to the planned industrial park.

SUMMARY

SRS has completed a Traffic Impact Study relative to the development of the new mixed-use project known as Rivercross to be located along NC 16B at Triangle Circle South in Lincoln County/Denver, NC. As proposed, a total of 330 residential units are being planned (220 single-family detached units and 110 apartments) as well as 100,000 sf of commercial retail is being planned and is expected to be built/occupied by 2020.

The project will construct the access drives and roadway improvements at these access drives in order to support the project traffic. Recommendations have been made pertaining to the site access drive(s) which will serve the development, with the main access being located along NC 16B opposite Cherry Point Drive and the second located along Triangle Circle South.

In addition, the project will review the potential of improving the adjacent intersection of Optimist Club Road at Triangle Circle in order to add separate turning lanes along both Optimist Club Road (eastbound approach) at Triangle Circle South (northbound approach) which will aid traffic flow and circulation through this intersection.

Analysis conducted for this report indicate that under Existing conditions, the two signalized intersections of NC 16B at Triangle Circle North/Unity Church Road and NC 73 at NC 16B both operate poorly during the PM peak-hour and acceptably during the AM peak-hour.

Unsignalized intersections are similar being that most intersections defined within the study area operate acceptably under current conditions and degrade to poor conditions under the No-Build scenario prior to the addition of project traffic. Much of the reasoning for this is due to regional growth in the area which includes the 2-percent annual growth as well as the Airlie Park Phase I Industrial Park and the Carolina Ridge development.

Further review of the operations in the study area as well as the projected traffic volumes indicates that NC 16B currently serves a significant volume of through traffic within the study area. This three-lane roadway serves nearly 2,000 two-way trips during the AM peak-hour and 1,500-1,600 two-way trips during the PM peak-hour. Estimated daily trips are likely 15,000 trips a day which is significant for a three-lane arterial.

Recommendations to accommodate the two proposed site access drives have been made which include turning lanes, suggested traffic control and possible enhancements as the Rivercross builds out. Specifically the site access to/from NC 16B may require traffic signalization if/when traffic signal warrants are met.

If you have any questions or comments regarding any information contained within this report, please contact me at (803) 361 3265.

Regards,



SRS ENGINEERING, LLC

Todd E. Salvagin
Principal

Attachments

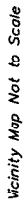


P.O. BOX 7448
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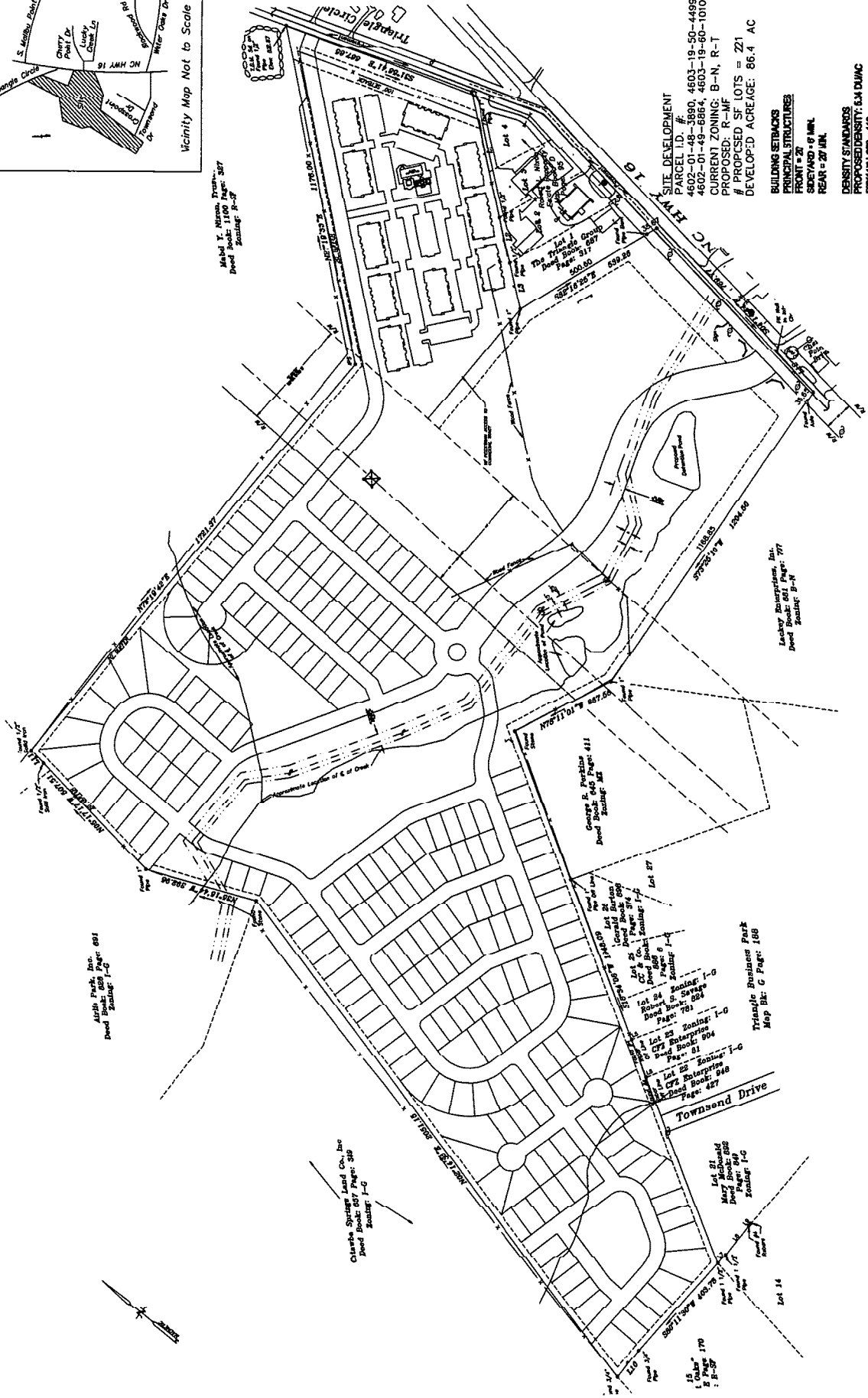
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 EXPIRATION DATE 1" = 150'
 JOB NUMBER SKETCH
 DRAWN BY DKR
 CHECKED BY DKR

PRELIMINARY SKETCH
RIVERCROSS SUBDIVISION
DENVER, NC
PREPARED FOR - STIMONINI GROUP

180



Mabel Y. Nixon, Trustee.
 Mabel Y. Nixon, Trustee.
 Deed Book: 1100 Page: 327
 Volume: R-57



SITE DEVELOPMENT
PARCEL I.D. #:
 4602-01-48-3880, 4603-19-50-4498
 4602-01-49-6884, 4603-19-60-1010
CURRENT ZONING: B-N, R-T
PROPOSED: R-MF
PROPOSED SF LOTS = 221
DEVELOPED ACREAGE: 86.4 AC

BUILDING SETBACKS PRINCIPAL STRUCTURES

FRONT = 24
SIDEYARD = 8 MIN.
REAR = 20 MIN.

DENSITY STANDARDS
PROPOSED DENSITY: 6.34 DU/AC
62X115' LOTS = 112
62X115' LOTS = 108
APARTMENTS = 240
TOTAL UNITS: 481

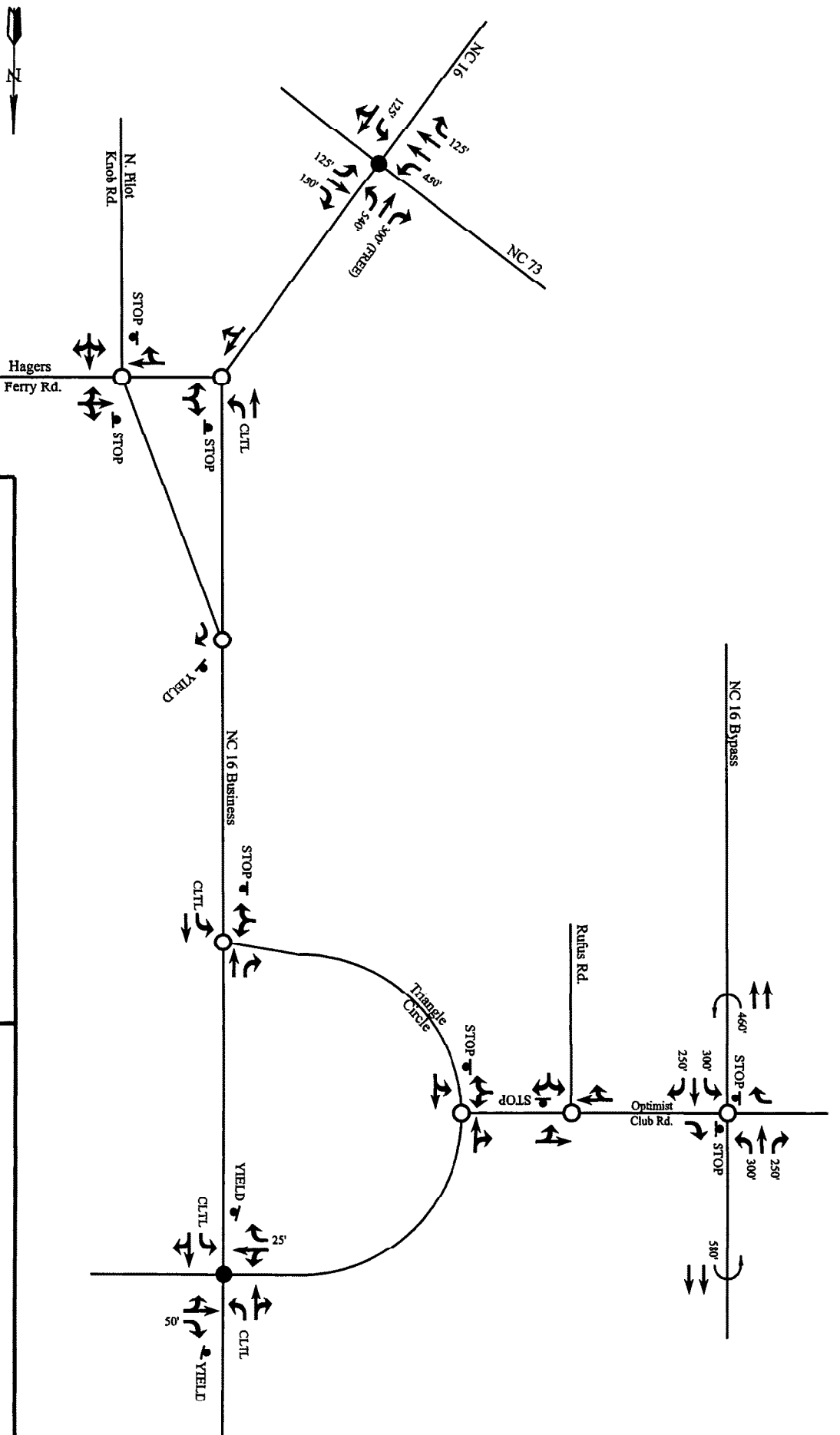


Figure 3
EXISTING GEOMETRY &
TRAFFIC CONTROL

Rivercross: Denver, NC



Not To Scale

- = Signalized Intersection
- = Unsignalized Intersection

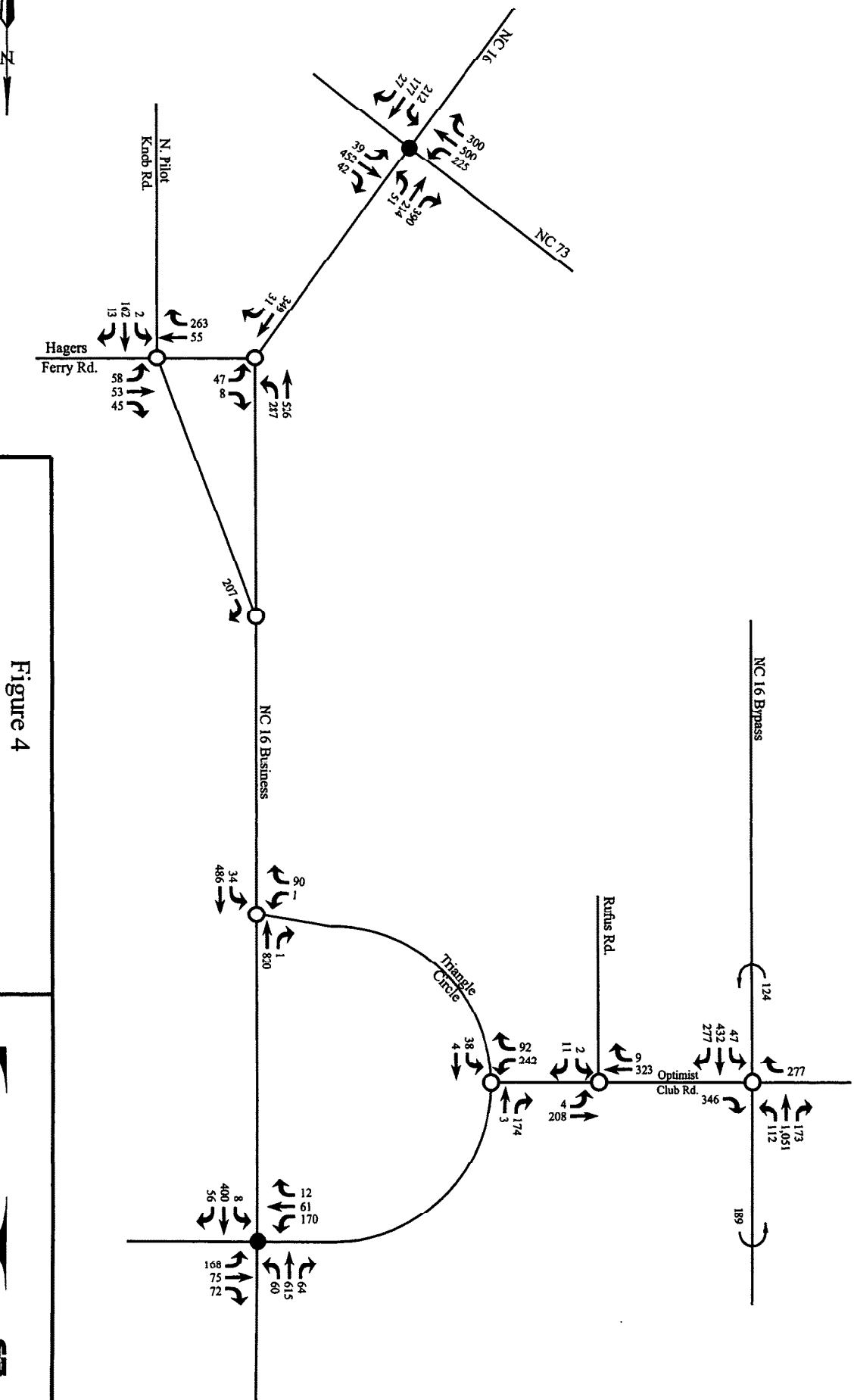


Figure 4

EXISTING 2014 TRAFFIC VOLUMES
AM PEAK HOUR
Rivercross: Denver, NC



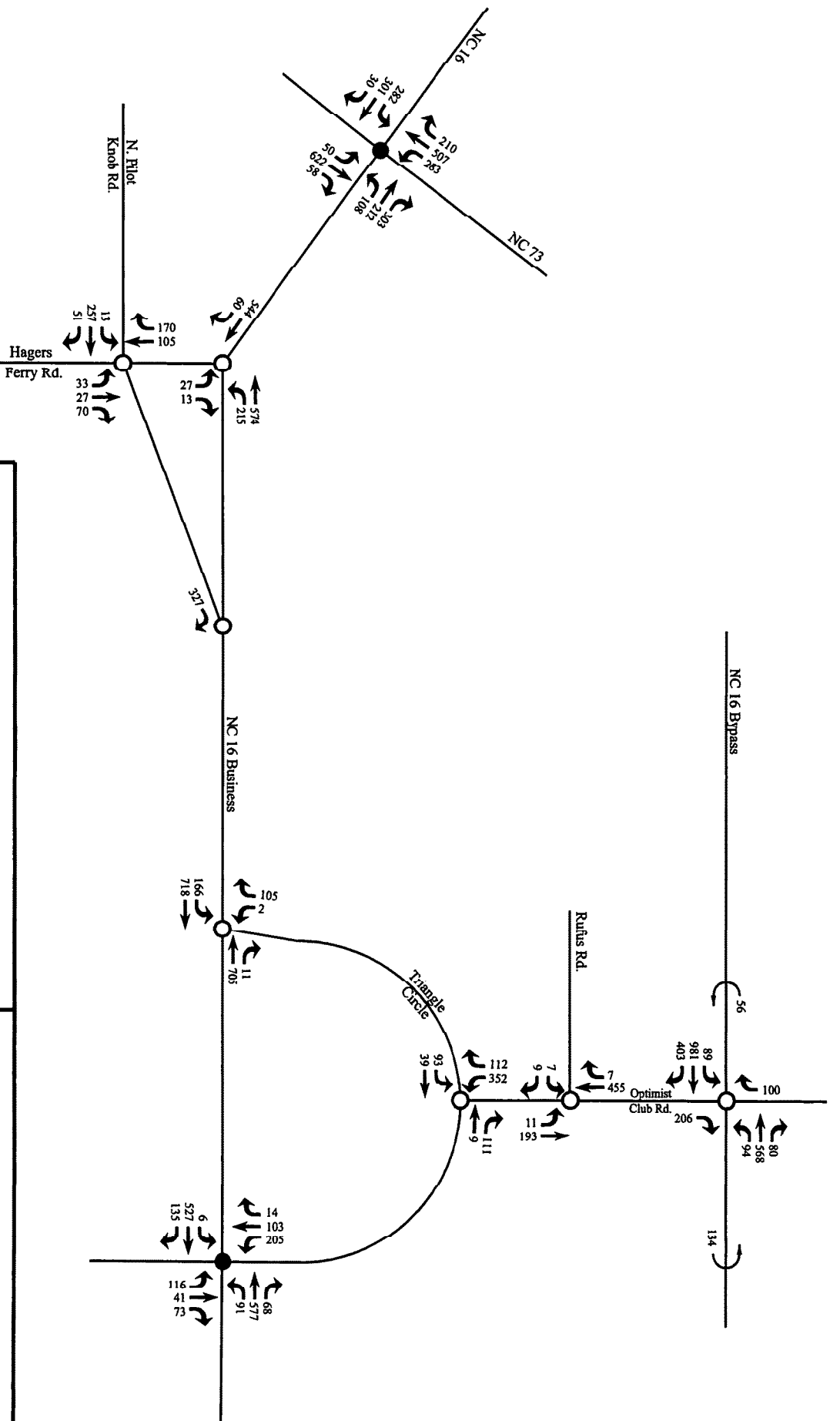
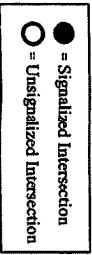


Figure 5

EXISTING 2014 TRAFFIC VOLUMES

PM PEAK HOUR

Rivercross, Denver, NC



Not To Scale

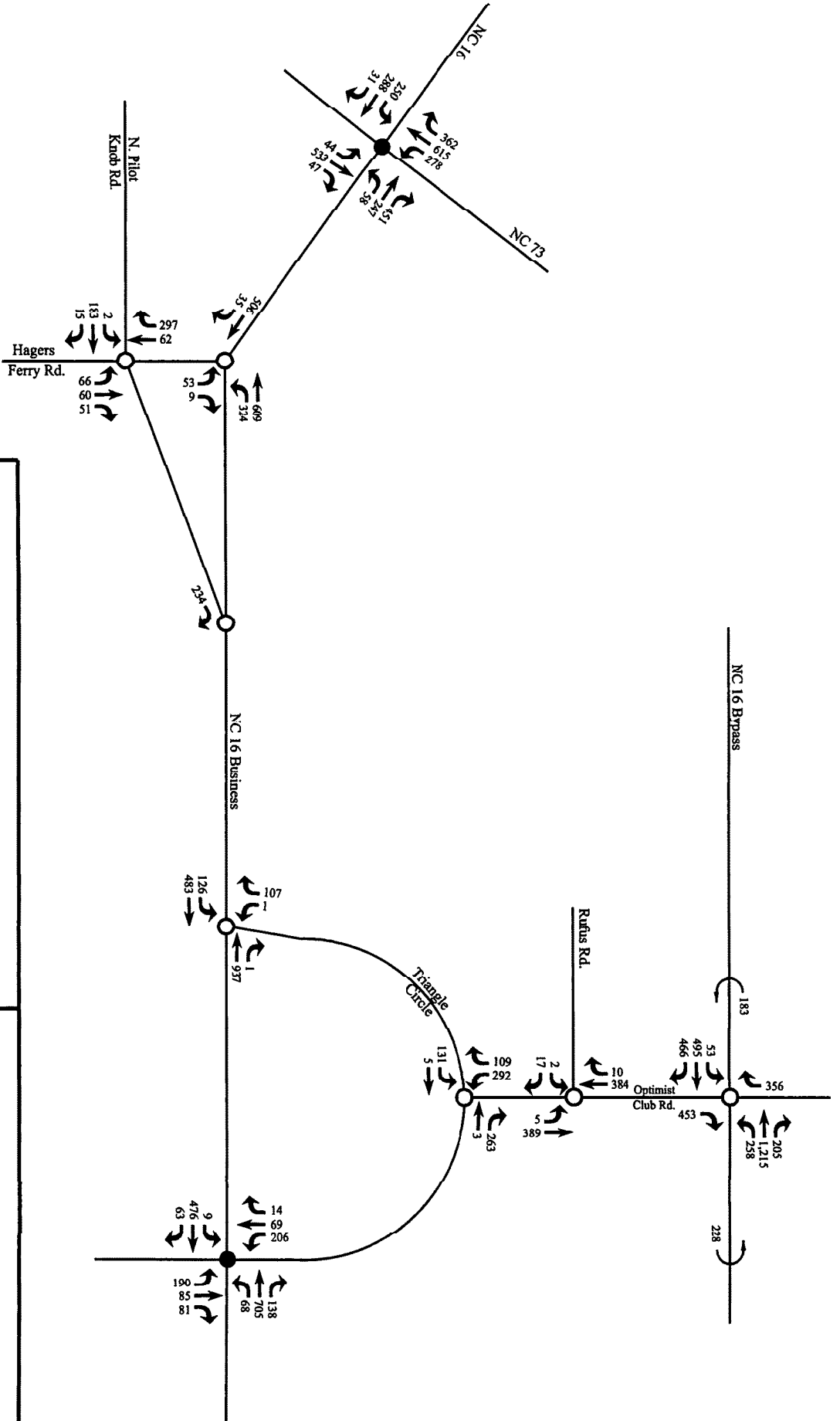


Figure 6

2020 NO-BUILD TRAFFIC VOLUMES
AM PEAK HOUR
Rivercross, Denver, NC



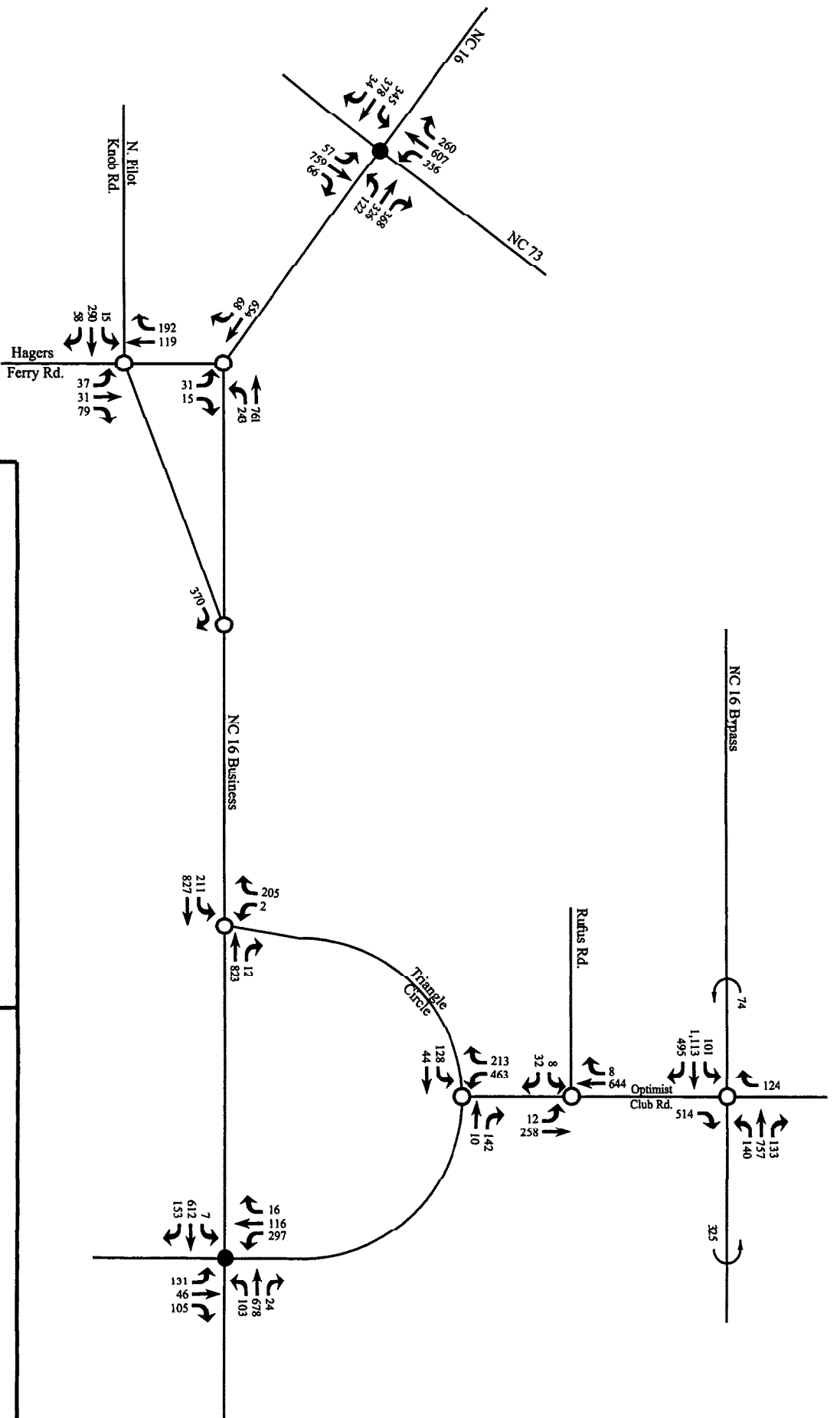


Figure 7

2020 NO-BUILD TRAFFIC VOLUMES
PM PEAK HOUR
Rivercross: Denver, NC

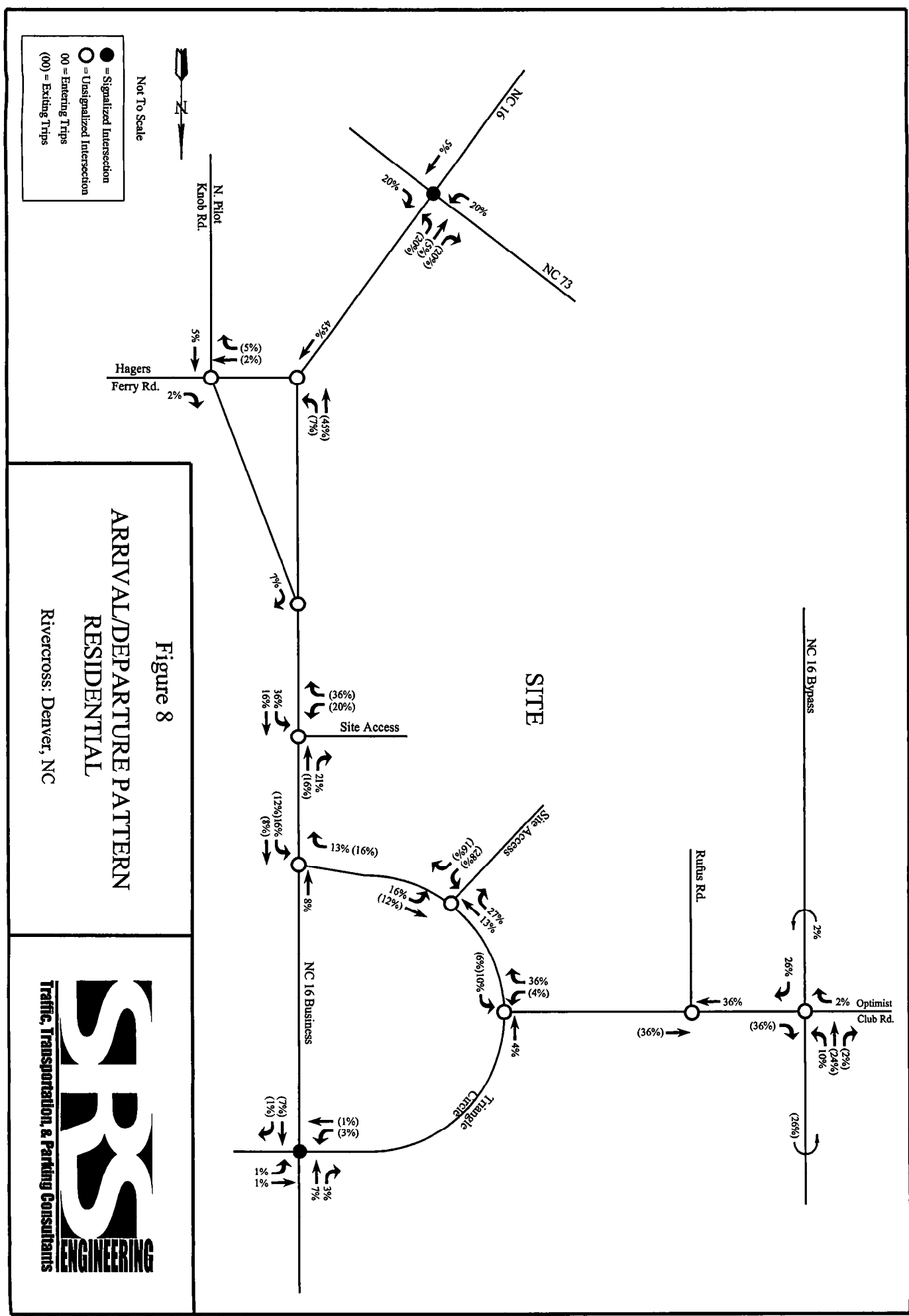
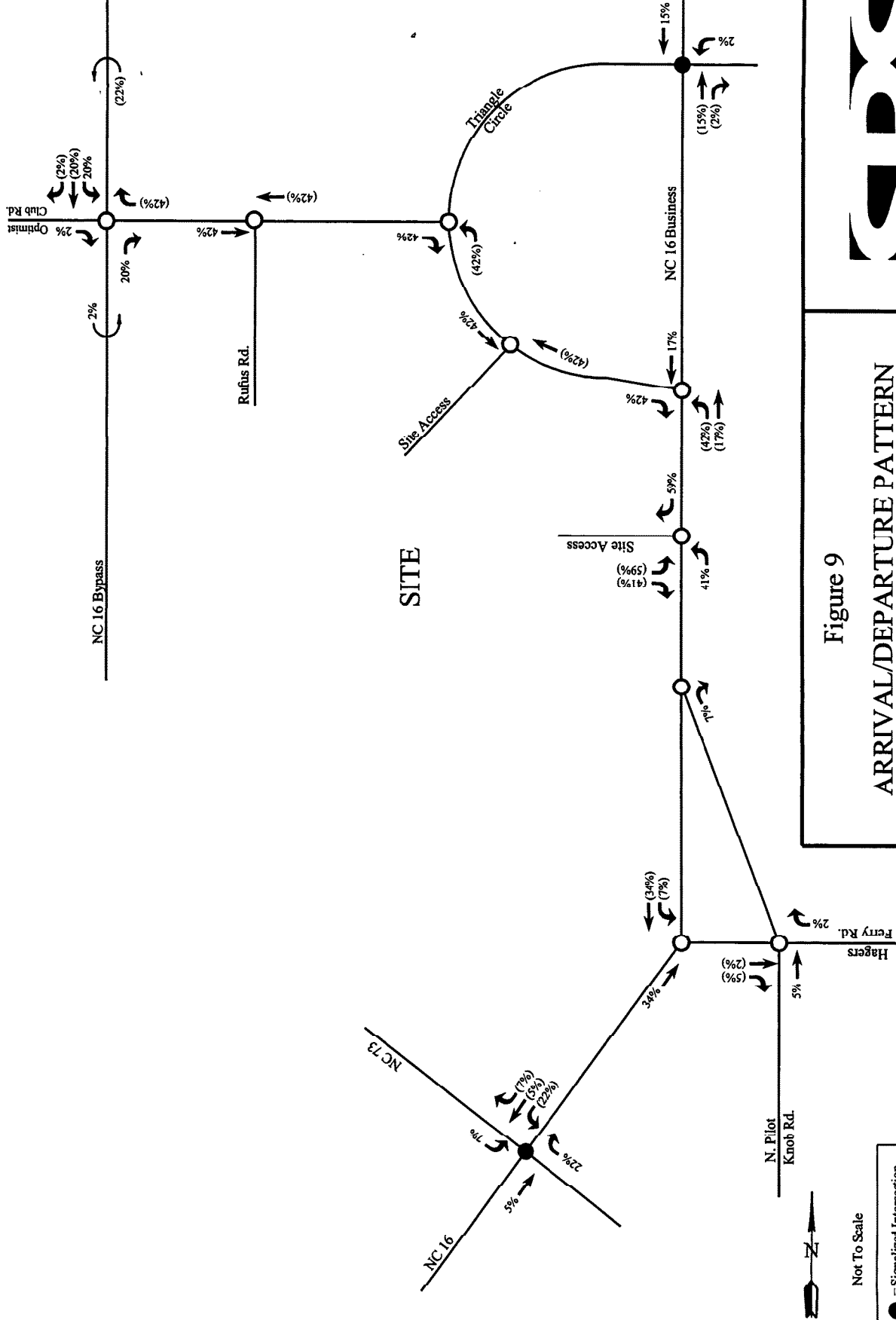
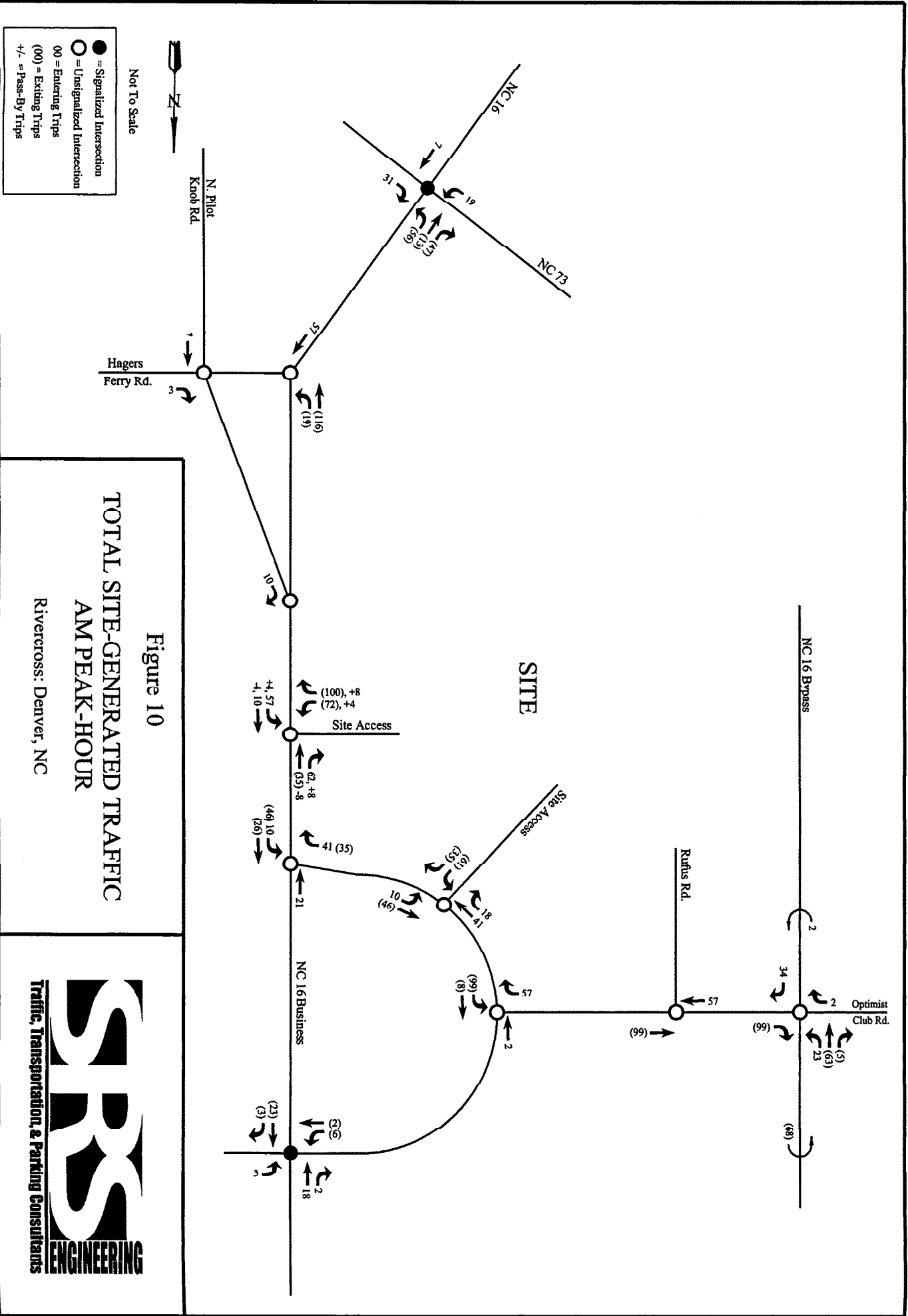


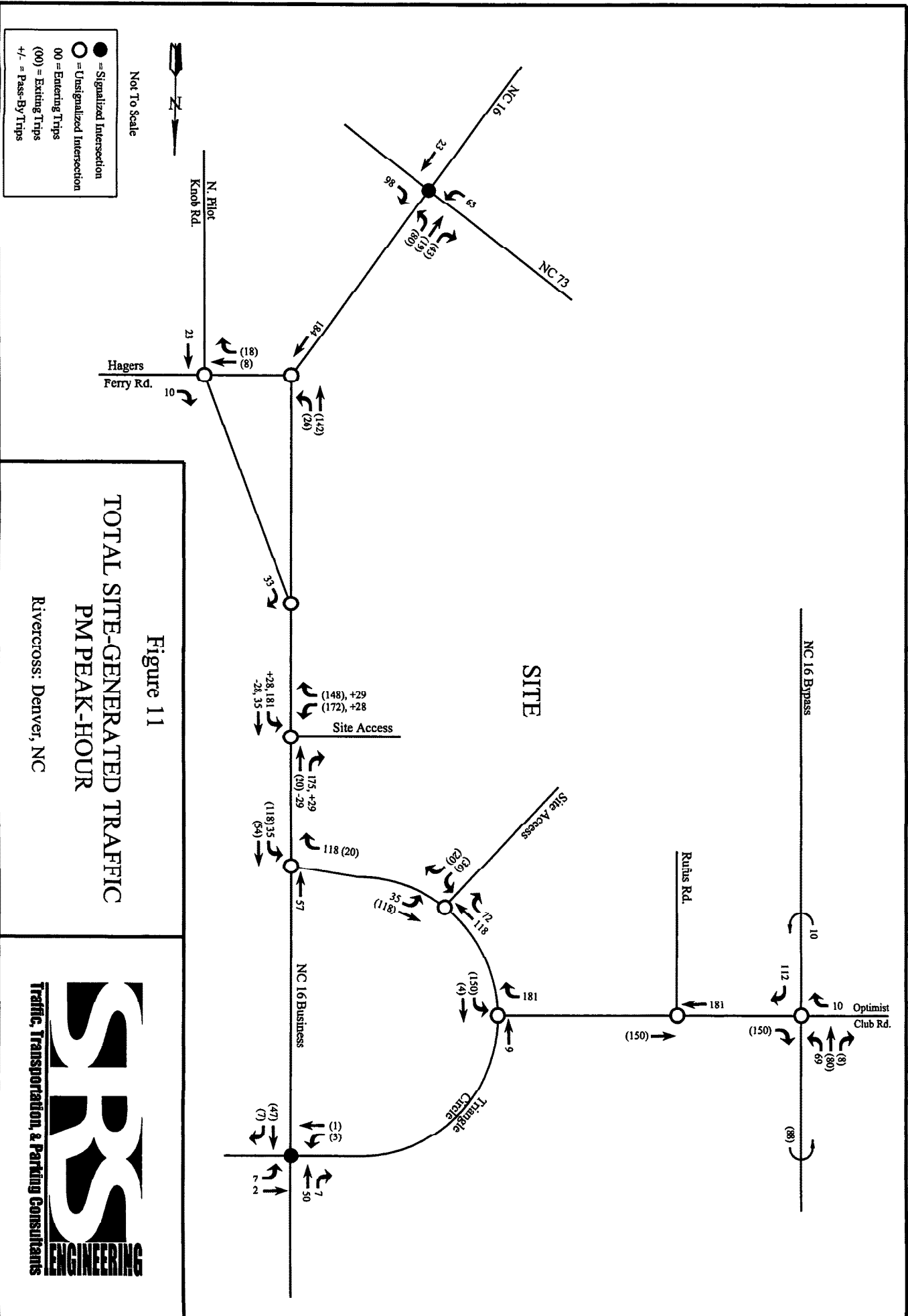
Figure 8
ARRIVAL/DEPARTURE PATTERN
RESIDENTIAL
Rivercross: Denver, NC

Figure 9
ARRIVAL/DEPARTURE PATTERN
COMMERCIAL USES
Rivercross: Denver, NC

- Not To Scale
- = Signalized Intersection
 - = Unsignalized Intersection
 - 00 = Entering Trips
 - (00) = Exiting Trips



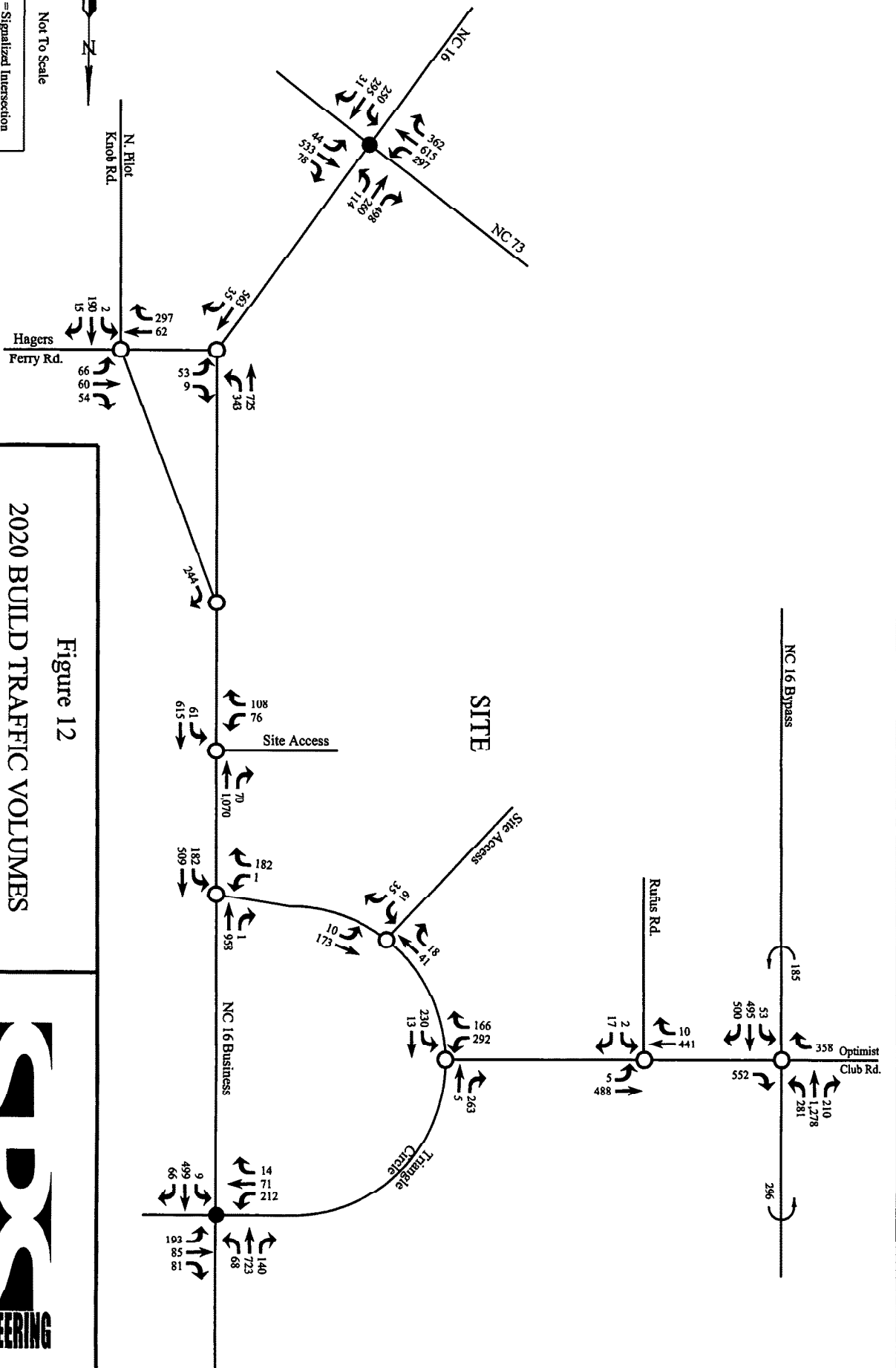






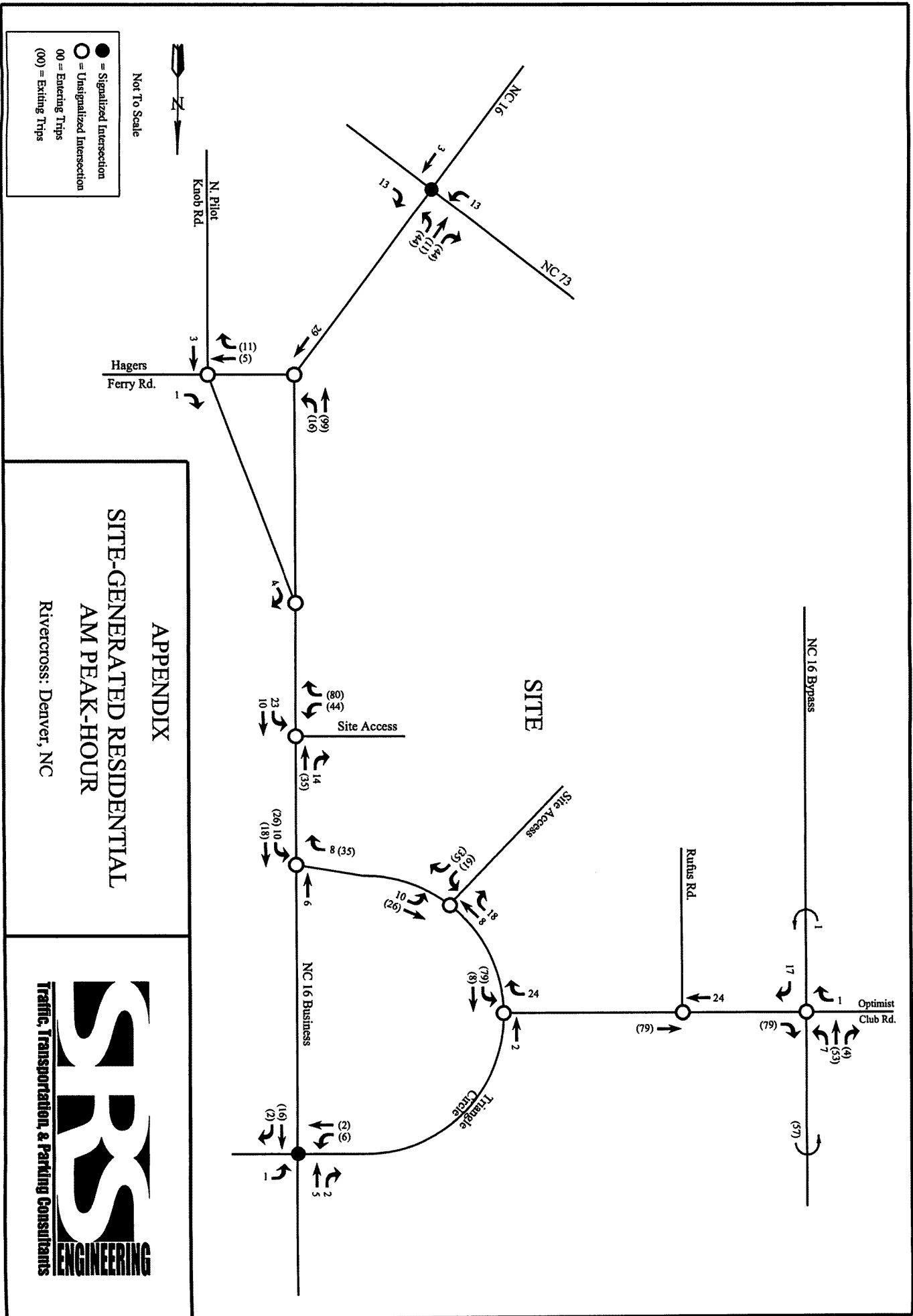
Not To Scale

Figure 12
2020 BUILD TRAFFIC VOLUMES
AM PEAK-HOUR
Rivercross: Denver, NC



APPENDIX
(1 of 2)

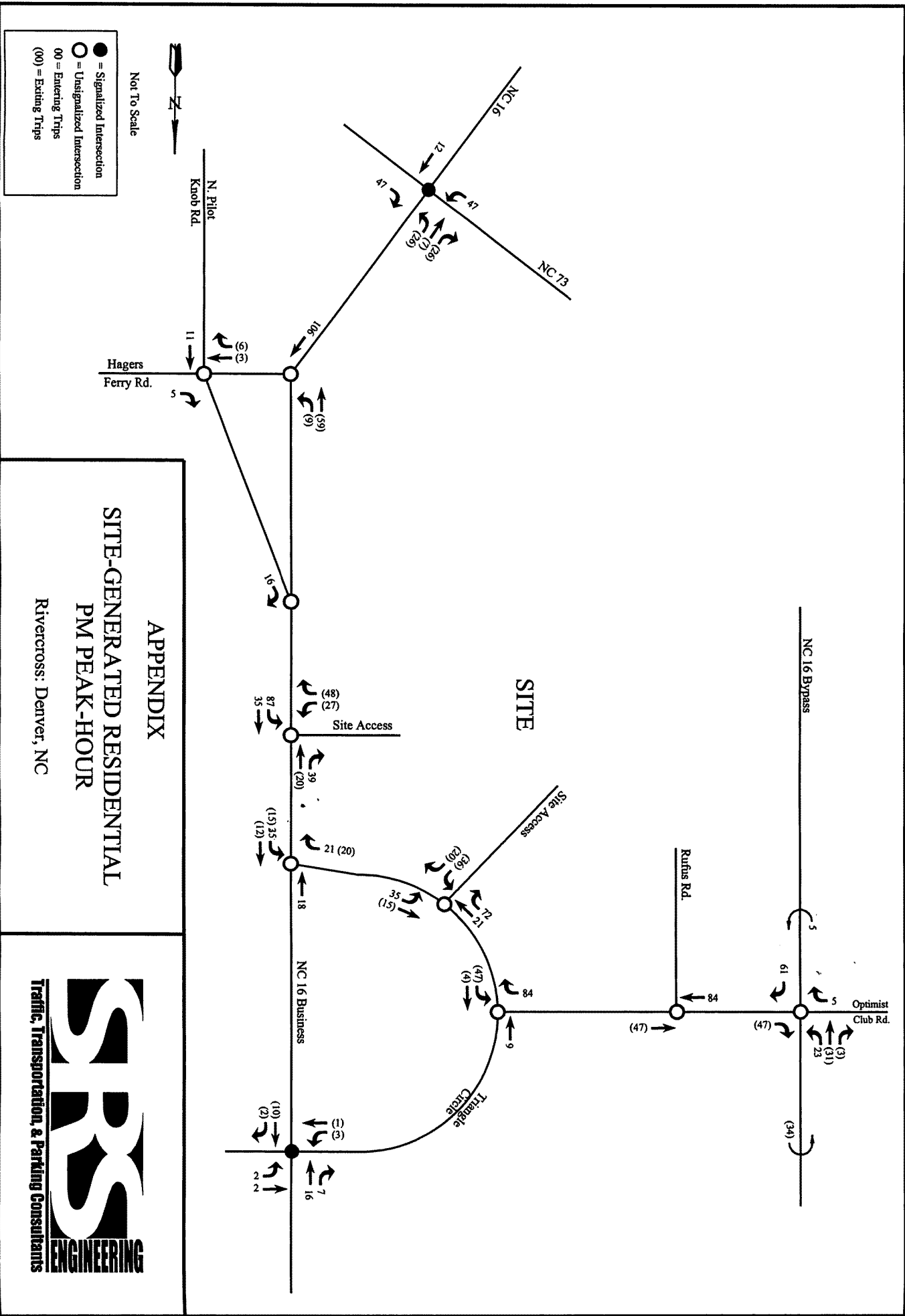
**SITE-GENERATED TRAFFIC
RESIDENTIAL & COMMERCIAL**



APPENDIX
SITE-GENERATED RESIDENTIAL
AM PEAK-HOUR

Rivercross: Denver, NC





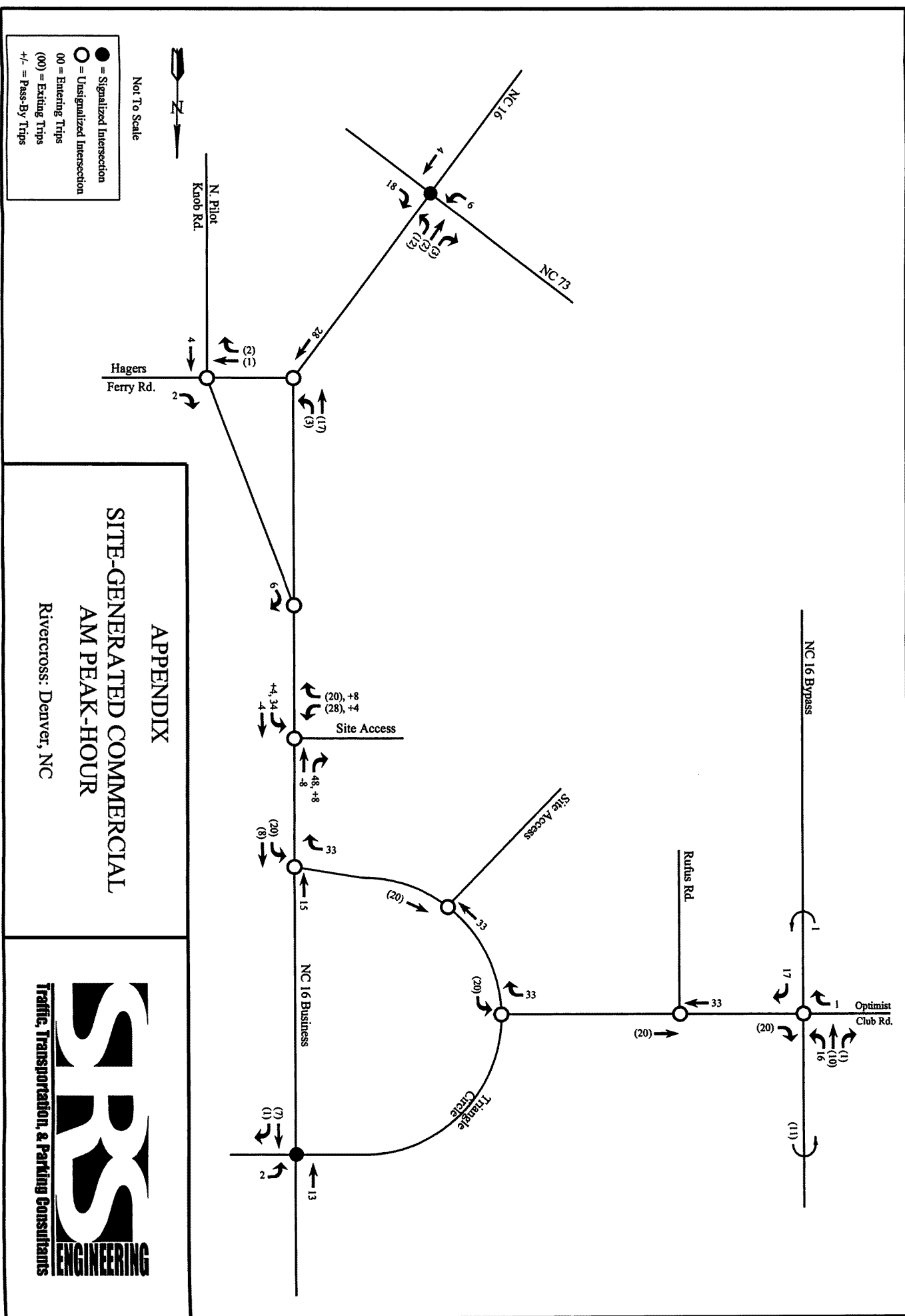
APPENDIX

SITE-GENERATED RESIDENTIAL

PM PEAK-HOUR

Rivercross: Denver, NC





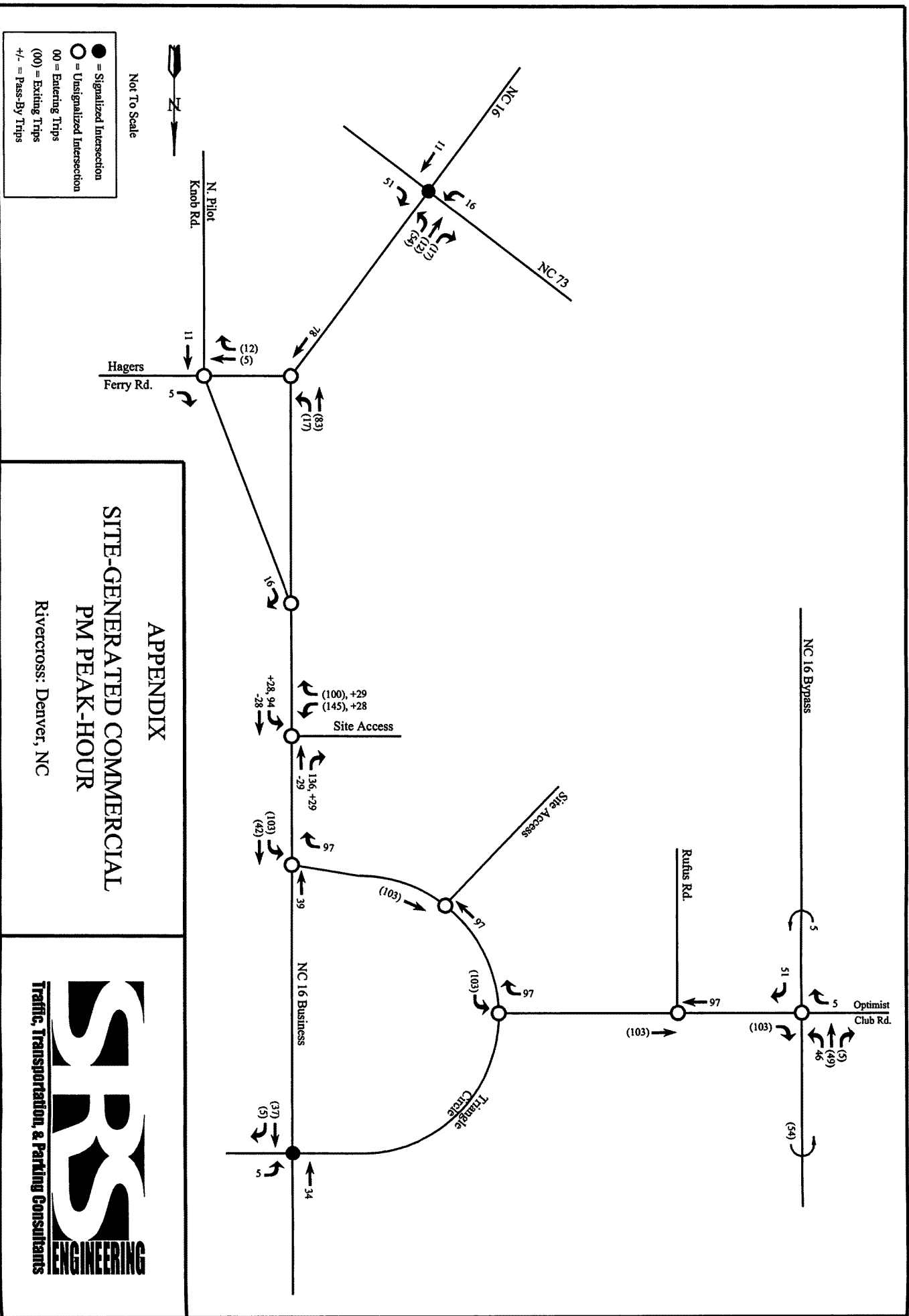
APPENDIX

SITE-GENERATED COMMERCIAL

AM PEAK-HOUR

Rivercross: Denver, NC





APPENDIX SITE-GENERATED COMMERCIAL PM PEAK-HOUR

Rivercross, Denver, NC

MEMORANDUM

To: Michael Poe, PE, NCDOT
Andrew Bryant, AICP, Lincoln County

From: Gavin Teng, PE, PTOE

CC: Sarah Wicklund, PE, Dan Brewer, PE, WSP

Date: December 3, 2014

Project Name: Optimist Club Road/Triangle Circle Intersection Improvement Traffic Analysis

Reference Number: 1420020.000

Re: **Optimist Club Road/Triangle Circle Intersection Improvement Traffic Analysis
Technical Memorandum**

Introduction

Rivercross is a proposed mixed-use development located on the west side of NC 16 Business and south of Triangle Circle in Lincoln County, NC. As identified in the Traffic Impact Analysis completed by SRS Engineering Inc (Appendix A), the Rivercross development, along with other proposed developments in the area (e.g. Airlie Park Phase 1, an industrial development), is expected to cause significant traffic impact at the currently unsignalized intersection of Optimist Club Road and Triangle Circle .

WSP is tasked by Simonini Group to evaluate the intersection improvement options at Optimist Club Road and Triangle Circle intersection. This memo is prepared to document the traffic analysis results and cover the following topics:

- Study Area
- Intersection Improvement Alternative Traffic Analysis
- Conclusions and Recommendations

Study Area

The study area, shown in Figure 1, includes the following two intersections:

Optimist Club Road/Triangle Circle.....*unsignalized three-legged-intersection*

Optimist Club Road/Rufus Road*unsignalized three-legged-intersection*

Optimist Club Road (SR 1380) is an east-west two-lane roadway in the study area connecting Triangle Circle to NC 16. There is no AADT available for this roadway. The speed limit along this road is 45 miles per hour (mph). The Right-of-Way is approximately 50'.

Triangle Circle (SR 1388) is a north-south two-lane roadway that connects to NC 16 Business at both termini. Land uses along this roadway are primarily residential. The 2013 AADT traffic along this roadway was 1,800 vpd south of Optimist Club Road. The posted speed limit along Triangle Circle is 45 mph. The Right-of-Way is approximately 60'.

Rufus Road (SR 1387) is a north-south two-lane roadway, approximately 6,300' in length. Rufus Road intersects with Optimist Club Road less than 100 feet away from the intersection of Optimist Club Road and Triangle Circle, and terminates near NC 16 Bypass in the southern end. Land uses along this roadway are primarily residential. The posted speed limit is 45 mph. The Right-of-Way is approximately 60'.

Intersection Improvement Alternative Traffic Analysis

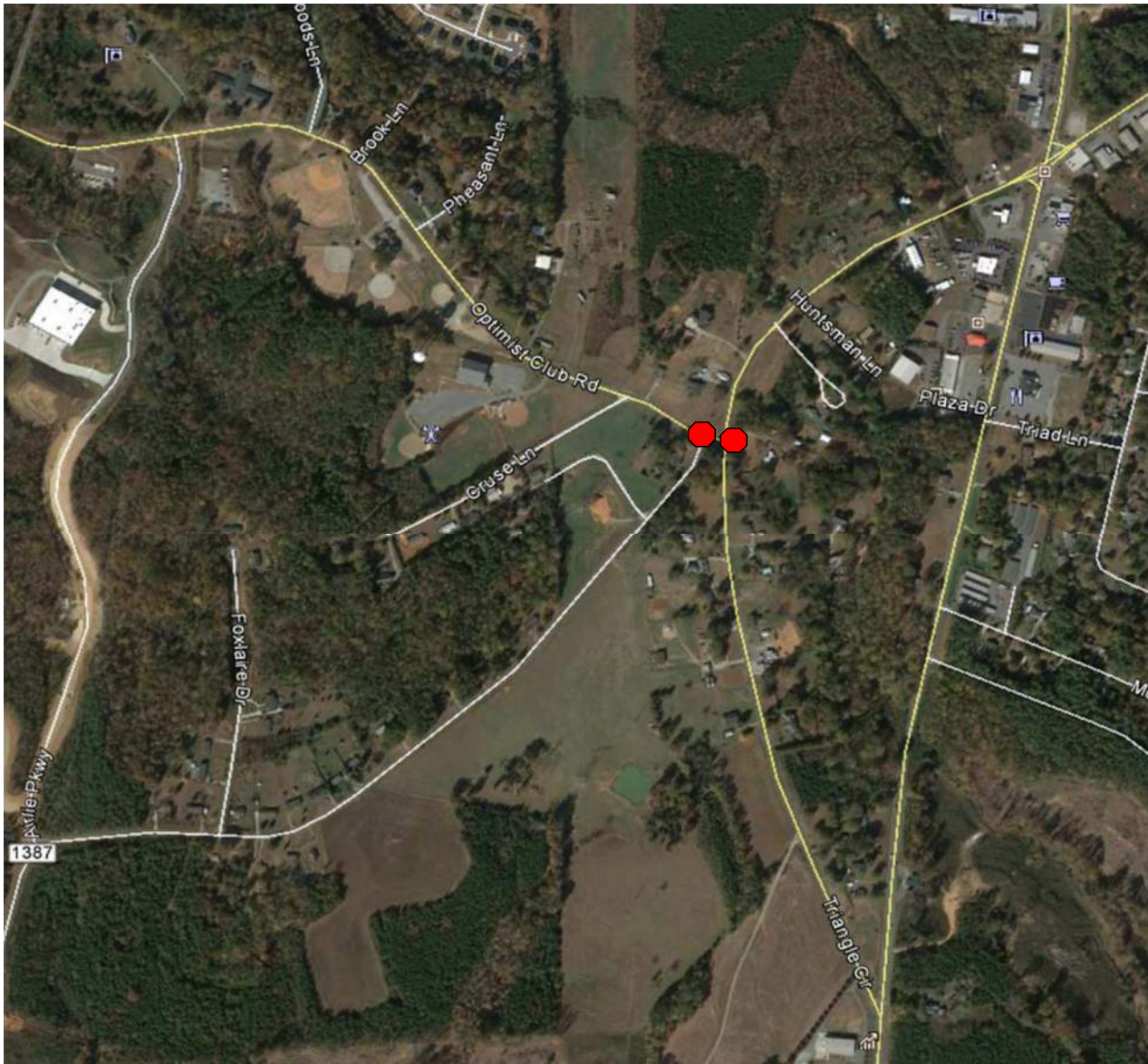
Traffic analysis was performed for the 2020 PM peak hour scenario, as this was identified as the worst condition based on SRS Engineering's previous traffic study. The analysis is based on the projected build traffic volumes documented in the original TIA. The proposed Rivercross development is expected to add 181 eastbound right-turning vehicles on Optimist Club Road and 150 northbound left-turning vehicles on Triangle

Circle in the PM peak hour in 2020 upon build-out. Five intersection improvement alternatives were developed and analyzed below. Figure 2 illustrates the proposed geometry for each alternative.

In accordance with the NCDOT Capacity Analysis Guidelines, no “Right Turn on Red” (RTOR) is allowed in this study. In addition, a Peak Hour Factor (PHF) of 0.90 is used for all analysis scenarios. Synchro 95th percentile queue lengths were documented in the report. To account for the stochastic nature of traffic flows, ten traffic simulation runs were performed for each analysis scenario with the resulting Queuing and Blocking Reports included in Appendix B. The turn lane storage length recommendations take into account both the 95th percentile queue lengths reported in Synchro capacity analyses as well as the max queue length estimated based on traffic simulations.



***Not to Scale



Copyright: 2014 Google Maps

Intersections:

Optimist Club Rd @ Triangle Circle
Optimist Club Rd @ Rufus Rd

Legend



Signalized Intersection



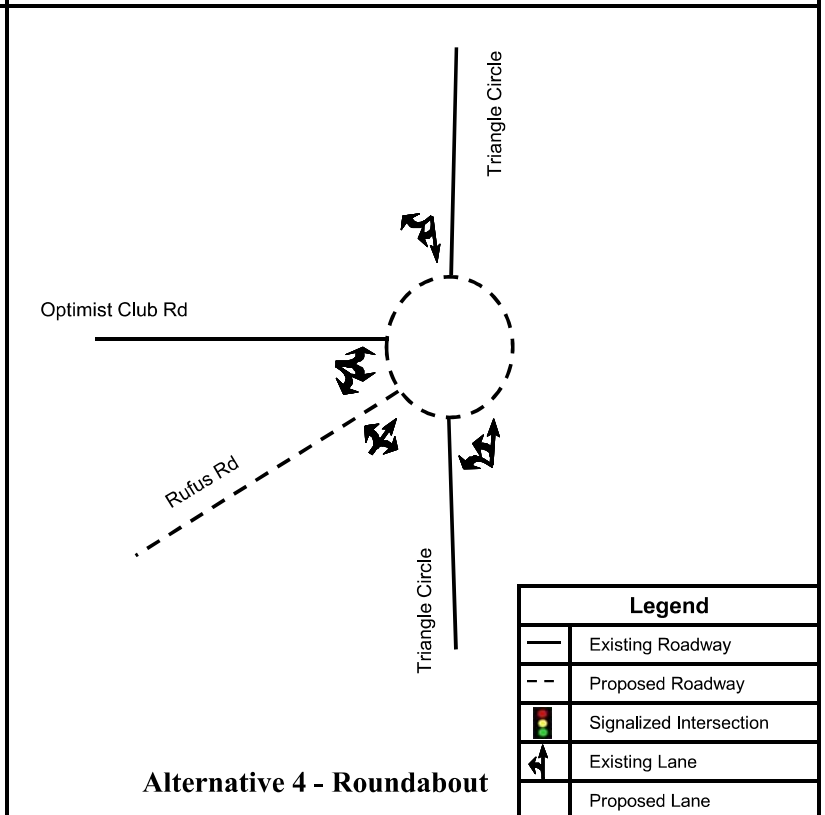
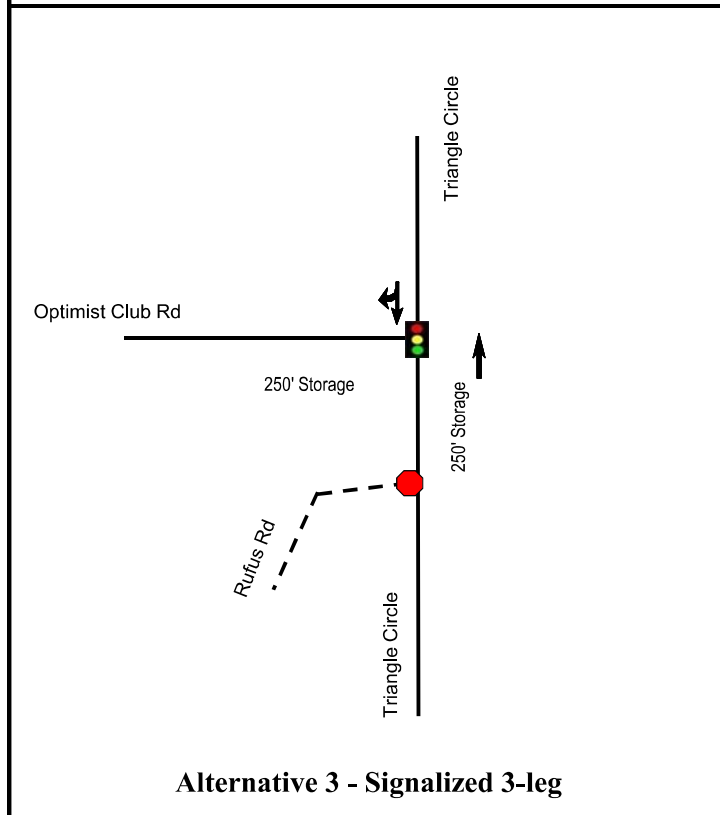
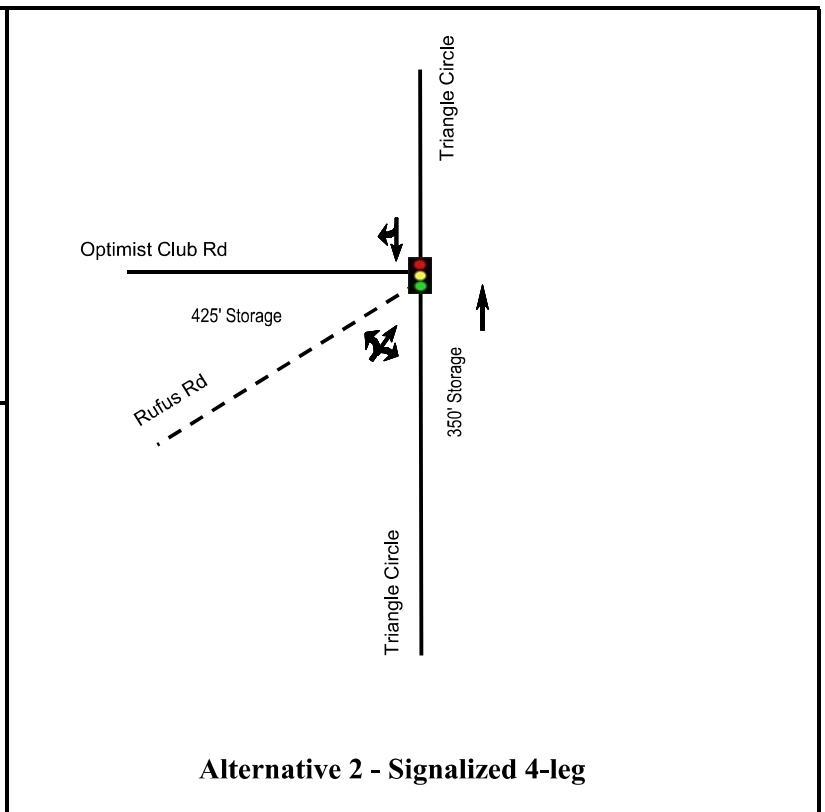
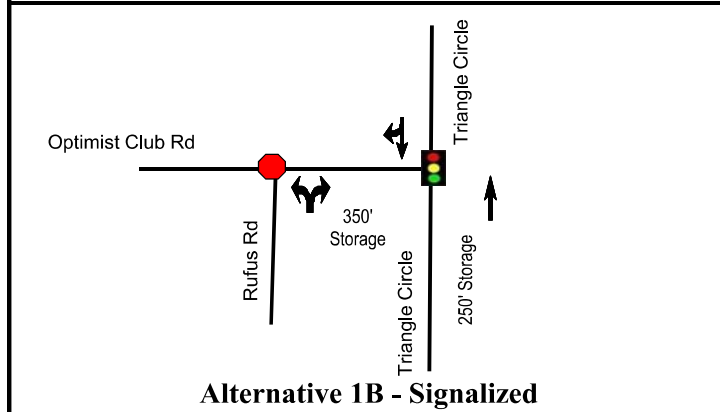
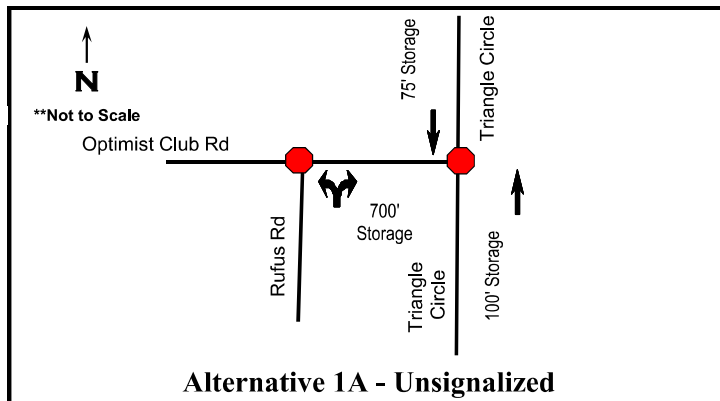
Unsignalized Intersection



128 Talbert Road, Suite A
Mooresville, NC 28117
Tel: (704) 662-0100, Fax: (704) 662-0101
<http://www.wspgroup.com>

**Optimist Club Rd/Triangle Circle
Intersection Improvements
Traffic Analysis**

**Figure 1
Vicinity Map**



| Legend | |
|--------|-------------------------|
| | Existing Roadway |
| | Proposed Roadway |
| | Signalized Intersection |
| | Existing Lane |
| | Proposed Lane |



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 Mooresville, NC 28117
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<http://www.wspgroup.com>

Optimist Club Rd/Triangle Circle Intersection Improvements Traffic Analysis

Figure 2
 2020 Proposed Geometry

Alternative 1

Both Alternative 1A and 1B require no change in the current roadway alignments. Alternative 1A leaves the intersection of Optimist Club Road unsignalized, while Alternative 2A evaluates this intersection with a signalized operation. In both alternatives Rufus Road remains unaltered.

Alternative 1A – Unsignalized

This alternative is based on the improvements discussed in SRS Engineering's update memorandum dated April 30, 2014. Those improvements included adding an exclusive northbound left-turn lane on Triangle Circle and an exclusive right-turn lane on Optimist Club Road. This alternative also includes an exclusive southbound right-turn lane on Triangle Circle, which was not included in SRS Engineering's memo.

Table 1 lists the results of the Alternative 1A analysis. Delay and LOS results are reported for each intersection approach. Intersection average delays (based on a weighted average of the approaches) and LOS are reported for signalized intersections only.

The eastbound stop controlled approach on Optimist Club Road is expected to operate at an LOS F with 177 seconds of delay. While the intersection of Optimist Club Road at Rufus Road is expected to operate at an acceptable LOS, this scenario does not resolve any safety concerns related to the proximity of the intersection of Rufus Road to Triangle Circle.

Table 1: 2020 Build PM Peak Level of Service Analysis – Alternative 1A - Unsignalized

| Intersection | Approach | | Alternative 1A Unsignalized | |
|------------------------------------|--------------|------------------|--------------------------------|-----|
| | | | PM | |
| | | | Delay (sec) | LOS |
| Optimist Club Rd @ Triangle Circle | Unsignalized | | - | - |
| | EB | Optimist Club Rd | 177.1 | F |
| | NB | Triangle Circle | 7.1 | A |
| | SB | Triangle Circle | 0.0 | A |
| Optimist Club Rd @ Rufus Rd | Unsignalized | | - | - |
| | EB | Optimist Club Rd | 0.0 | A |
| | WB | Optimist Club Rd | 0.5 | A |
| | NB | Rufus Rd | 17.5 | C |

unacceptable delay

Based on the 95th percentile queue from Synchro and the maximum queue from SimTraffic, the eastbound right-turn lane on Optimist Club Road is expected to require over a 700 ft. storage bay. This is due to the projected high volume traveling through this intersection. Approximately 64% those vehicles will be entering the intersection from the eastbound approach. The northbound left-turn lane on Triangle Circle is expected to require 100 ft. of storage and the southbound right-turn lane is expected require 75 ft. of storage. The turn lane storage needs also seem to be in line with the estimates derived from the NCDOT's Driveway Manual's turn lane warrant chart.

Table 2: 2020 Build PM Peak Queue Analysis – Alternative 1A - Unsignalized

| Intersection | Approach | | storage length (ft) {Prop} | Alternative 1A Unsignalized | |
|------------------------------------|--------------|-------|----------------------------------|--------------------------------|----------------------|
| | | | | 95th % | Max |
| | | | | queue length (ft) | queue length (ft) |
| Optimist Club Rd @ Triangle Circle | Unsignalized | {EBL} | | 767 | 859 |
| | | {EBR} | {700} | 52 | 826 |
| | | {NBL} | {100} | 21 | 95 |
| | | {SBR} | {75} | 0 | 41 |

queue length exceeds storage length

Alternative 1B – Signalized

This alternative evaluates signalizing the intersection and adding an exclusive eastbound right-turn lane and an exclusive northbound left-turn lane. Table 3 shows the results of the Alternative 1B analysis.

As a signalized intersection, Optimist Club Road at Triangle Circle is expected to operate at an overall LOS B, with all approaches operating at an acceptable LOS. Similar to Alternative 1A, this scenario does not resolve any safety concerns related to the proximity of the intersection of Rufus Road to Triangle Circle.

Table 3: 2020 Build PM Peak Level of Service Analysis – Alternative 1B - Signalized

| Intersection | Approach | | Alternative 1B Signalized | |
|------------------------------------|--------------|----------------------|------------------------------|-----|
| | | | PM | |
| | | | Delay (sec) | LOS |
| Optimist Club Rd @ Triangle Circle | Signalized | Intersection Average | 19.3 | B |
| | EB | Optimist Club Rd | 20.5 | C |
| | NB | Triangle Circle | 13.8 | B |
| | SB | Triangle Circle | 24.2 | C |
| Optimist Club Rd @ Rufus Rd | Unsignalized | | - | - |
| | EB | Optimist Club Rd | 0.0 | A |
| | WB | Optimist Club Rd | 0.5 | A |
| | NB | Rufus Rd | 17.5 | C |
| unacceptable delay | | | | |

Queue analysis, shown in Table 4, indicates the eastbound right-turn lane is expected to require 350 ft. of storage and the northbound left-turn lane is expected to require 250 ft. of storage. Based on the queuing and blocking report, there is little to no queuing penalty for the eastbound right-turn, even though the max queue is shown to extend past the storage length by 10'.

Table 4: 2020 Build PM Peak Queue Analysis – Alternative 1B - Signalized

| Intersection | Approach | storage length (ft) {Prop} | Alternative 1B Signalized | |
|------------------------------------|------------|-------------------------------|------------------------------|-------------------|
| | | | 95th % | Max |
| | | | queue length (ft) | queue length (ft) |
| Optimist Club Rd @ Triangle Circle | Signalized | {EBL} | #310 | 560 |
| | | {EBR} | 133 | 360 |
| | | {NBL} | 119 | 248 |

queue length exceeds storage length

m: queue is metered by upstream signal

#: volume exceeds capacity, queue may be longer

Alternative 2 – Signalized 4-leg

This alternative evaluates signalizing the intersection of Optimist Club Road and Triangle Circle and realigning Rufus Road to become a fourth leg at the intersection. Optimist Club Road and Rufus Road would operate with split phasing. Based on the projected traffic volumes, the intersection would meet the Peak Hour signal warrant in the PM peak hour. Alternative 2 also includes adding an exclusive eastbound right-turn lane on Optimist Club Road and an exclusive northbound left-turn lane on Triangle Circle. Compared to Alternative 1A or 1B, this alternative would require the acquisition of additional right-of-right in order to realign Rufus Road.

Table 5 lists the results of the Alternative 2 analysis. In this scenario, the intersection is expected operate at an acceptable LOS (D or better) on all approaches, except Rufus Road where it will operate at LOS E with 56.2 seconds of delays.

Table 5: 2020 Build PM Peak Level of Service Analysis – Alternative 2 – Signalized 4-leg

| Intersection | Approach | | Alternative 2 Signalized 4-leg | |
|------------------------------------|------------|----------------------|-----------------------------------|-----|
| | | | PM | |
| | | | Delay (sec) | LOS |
| Optimist Club Rd @ Triangle Circle | Signalized | Intersection Average | 41.4 | D |
| | EB | Optimist Club Rd | 43.6 | D |
| | NB | Triangle Circle | 28.6 | C |
| | SB | Triangle Circle | 52.3 | D |
| | NEB | Rufus Rd | 56.2 | E |
| unacceptable delay | | | | |

The queue analysis, shown in Table 6, indicates that the eastbound right-turn lane on Optimist Club Road is expected to require 425 ft. of storage; the northbound left-turn lane on Triangle Circle is expected to require 350 ft. of storage. Based on the queuing and blocking report, there is little to no queuing penalty for the eastbound right-turn and northbound left-turn, even though the max queue is shown to slightly extend past the storage length.

Table 6: 2020 Build PM Peak Queue Analysis – Alternative 2 – Signalized 4-leg

| Intersection | Approach | | storage length (ft) {Prop} | Alternative 2 Signalized 4-leg | |
|---------------------------------------|------------|-------|----------------------------------|-----------------------------------|----------------------|
| | | | | 95th % | Max |
| | | | | queue length (ft) | queue length (ft) |
| Optimist Club Rd @ Triangle Circle | Signalized | {EBL} | | 474 | 479 |
| | | {EBR} | {425} | 418 | 435 |
| | | {NBL} | {350} | 257 | 342 |
| queue length exceeds storage length | | | | | |

Alternative 3 – Signalized 3-leg

This alternative evaluates signalizing the intersection of Optimist Club Road and Triangle Circle and realigning Rufus Road to intersect with Triangle Circle as a stop controlled right-in, right-out (RIRO) intersection. Changing Rufus Road to a RIRO intersection would require a detour using NC 16 Business and Triangle Circle for the few vehicles that currently turn left from Rufus Road to go west on Optimist Club Road. Alternative 3 also includes adding an exclusive eastbound right-turn lane on Optimist Club Road and an exclusive left-turn lane on Triangle Circle. This alternative would also require the acquisition of additional right-of-right in order to realign Rufus Road.

Table 7 lists the results of the Alternative 3 analysis. In this scenario, the intersection of Optimist Club Road and Triangle Circle is expected to operate at LOS C or better on all approaches. The proposed intersection of Rufus Road and Triangle Circle is expected to operate at an acceptable LOS as well.

Table 7: 2020 Build PM Peak Level of Service Analysis – Alternative 3 – Signalized 3-leg

| Intersection | Approach | | Alternative 3 Signalized 3-leg | |
|------------------------------------|--------------|----------------------|-----------------------------------|-----|
| | | | PM | |
| | | | Delay (sec) | LOS |
| Optimist Club Rd @ Triangle Circle | Signalized | Intersection Average | 21.3 | C |
| | EB | Optimist Club Rd | 20.9 | C |
| | NB | Triangle Circle | 15.6 | B |
| | SB | Triangle Circle | 34.0 | C |
| Triangle Circle @ Rufus Rd | Unsignalized | | - | - |
| | EB | NC Hwy 150 | 12.1 | B |
| | NB | Triangle Circle | 0.0 | A |
| | SB | Triangle Circle | 0.0 | A |

unacceptable delay

The queue analysis, shown in Table 8, indicates that the eastbound right-turn lane on Optimist Club Road is expected to require 250 ft. of storage. The northbound left-turn lane on Triangle Circle is expected to need 250 ft. of storage. While the max queue

exceeds the recommended storage length, the queuing and blocking report shows there is a minimal to no queuing penalty with only a few vehicles being blocked on the eastbound approach.

Table 8: 2020 Build PM Peak Queue Analysis – Alternative 3 – Signalized 3-leg

| Intersection | Approach | | storage length (ft) {Prop} | Alternative 3 Signalized 3-leg | |
|---------------------------------------|------------|-------|----------------------------------|-----------------------------------|----------------------|
| | | | | 95th % | Max |
| | | | | queue length (ft) | queue length (ft) |
| Optimist Club Rd @ Triangle Circle | Signalized | {EBL} | | 357 | 434 |
| | | {EBR} | {250} | 164 | 285 |
| | | {NBL} | {250} | 168 | 227 |
| queue length exceeds storage length | | | | | |

Alternative 4 – Roundabout

This alternative evaluates constructing a roundabout that includes Triangle Circle, Optimist Club Road and the realigned Rufus Road. No additional turn lanes would be required; however, additional right-of-way would be required for the roundabout and the realignment of Rufus Road.

Analysis for the roundabout was performed using Sidra 6.0. Table 9 lists the results below. The roundabout is expected to operate at LOS A with minimal delays.

Table 9: 2020 Build PM Peak Level of Service Analysis – Alternative 4 – Roundabout

| Intersection | Approach | | Alternative 4 Roundabout | |
|------------------------------------|--------------|----------------------|-----------------------------|-----|
| | | | PM | |
| | | | Delay (sec) | LOS |
| Optimist Club Rd @ Triangle Circle | Unsignalized | Intersection Average | 7.0 | A |
| | EB | Optimist Club Rd | 6.3 | A |
| | NB | Triangle Circle | 9.3 | A |
| | SB | Triangle Circle | 3.4 | A |
| | NEB | Rufus Rd | 9.7 | A |
| unacceptable delay | | | | |

The queue analysis, listed below in Table 10, indicates there will be low to moderate queuing on each of the approaches. Sidra reports the queue length in both feet and number of vehicles.

Table 10: 2020 Build PM Peak Queue Analysis – Alternative 4 – Roundabout

| Intersection | Approach | | Roundabout | |
|-------------------------------------|--------------|-----|-------------------|--------------------|
| | | | 95th % | |
| | | | queue length (ft) | queue length (veh) |
| Optimist Club Rd @ Triangle Circle | Unsignalized | EB | 131 | 5 |
| | | NB | 101 | 4 |
| | | SB | 39 | 2 |
| | | NEB | 12 | 1 |
| queue length exceeds storage length | | | | |

Conclusions and Recommendations

Traffic analyses were conducted to assess possible improvements at the intersection of Optimist Club Road and Triangle Circle. The results show that leaving the intersection unsignalized could potentially cause long queues on the eastbound Optimist Club Road approach. Signalizing the intersection greatly reduces the delays and queues without requiring the major geometric changes involved with constructing a roundabout. The three signalized alternatives all operate at an acceptable LOS; however, both Alternative 2 and Alternative 3 would require the acquisition of additional right of way in order to realign Rufus Road. Realigning Rufus Road would address the safety concerns about the close proximity to Triangle Circle; however, this is an existing condition that is not caused by the proposed Rivercross development. It is therefore our opinion that realigning Rufus Road should not be the developer's responsibility.

Due to the limited existing Right-of-Way on Optimist Club Road (50') and Triangle Circle (60'), all the proposed improvement alternatives likely will require Right-of-Way and/or easement acquisitions, along with utility relocations.

Alternative 1B as summarize below and illustrate in Figure 3, in our opinion, could provide meaning improvements and warrant further consideration.

Alternative 1B:

- *Eastbound Optimist Club Road:* Construct an exclusive right-turn lane with 350 feet of storage and appropriate taper.
- *Northbound Triangle Circle:* Construct an exclusive left-turn lane with 250 feet of storage and appropriate taper.
- Install a traffic signal at this intersection with appropriate signal heads, controller and cabinet, poles, loop detectors, junction boxes, etc. Signal warrant analysis should be performed before signal installation.

With the implementation of the proposed improvements, the analysis shows the subject intersection could operate at LOS B during the PM peak hour, the worst peak period during the day. While Alternative 1B does not directly address the safety concerns associated with the Rufus Road traffic, this will set the stage for future Rufus Road realignment when funding becomes available.

It is noted that Alternative 3 (roundabout) could provide the optimum traffic operational performance. Due to the Right-of-Way required, however, it likely also has the most impact on adjacent properties which limits its feasibility as a developer-funded improvement. Table 11 on the following page summarizes the analysis results.

We would like to suggest NCDOT working with the developer and other stakeholders to identify feasible and reasonable improvements for the subject intersection, based on the intersection analysis results discussed above. Considering the existing conditions, likely impacts caused by the adjacent Airlie Park development, and the Right-of-Way acquisition needs, elements of the intersection improvements may be beyond the proposed development's obligations and implementation capacity.

Please feel free to let us know if you have any questions or comments.



CONCEPT PLAN - ALTERNATIVE 1B SIGNALIZED

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FIGURE 3

OPTIMIST CLUB / TRIANGLE CIRCLE INTERSECTION IMPROVEMENTS

LINCOLN COUNTY, NC

NC License # F-0891

HYDRAULICS ENGINEER

NC License # F-0891

ROADWAY ENGINEER



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Mooresville, NC 28117
(704) 662-0100
www.wspgroup.com/us

Table 11: 2020 Build PM Peak Traffic Analysis Result Summary

| Intersection | Approach | No Build | | | Alternative 1A Unsignalized | | | Alternative 1B Signalized | | | Alternative 2 Signalized 4-leg | | | Alternative 3 Signalized 3-leg | | | Alternative 4 Roundabout | | |
|------------------------------------|--------------|----------------|-----|----|--------------------------------|-----|----|------------------------------|-----|----|-----------------------------------|-----|----|-----------------------------------|-----|----|-----------------------------|-----|----|
| | | Delay (sec) | LOS | PM | Delay (sec) | LOS | PM | Delay (sec) | LOS | PM | Delay (sec) | LOS | PM | Delay (sec) | LOS | PM | Delay (sec) | LOS | PM |
| Optimist Club Rd @ Triangle Circle | Signalized | | | | | | | | | | | | | | | | | | |
| | EB | - | - | - | - | - | - | 19.3 | B | - | 41.4 | D | - | 21.3 | C | - | 7.0 | A | - |
| | NB | 135.3 | F | - | 177.1 | F | - | 20.5 | C | - | 43.6 | D | - | 20.9 | C | - | 6.3 | A | - |
| | SB | 6.0 | A | - | 7.1 | A | - | 13.8 | B | - | 28.6 | C | - | 15.6 | B | - | 9.3 | A | - |
| | NEB | 0.0 | A | - | 0.0 | A | - | 24.2 | C | - | 52.3 | D | - | 34.0 | C | - | 3.4 | A | - |
| Optimist Club Rd @ Rufus Rd | Signalized | | | | | | | | | | | | | | | | | | |
| | EB | - | - | - | - | - | - | - | - | - | 56.2 | E | - | - | - | - | 9.7 | A | - |
| | WB | 0.0 | A | - | 0.0 | A | - | 0.0 | A | - | - | - | - | - | - | - | - | - | - |
| | NB | 0.6 | A | - | 0.5 | A | - | 0.5 | A | - | - | - | - | - | - | - | - | - | - |
| | Unsignalized | 15.9 | C | - | 17.5 | C | - | 17.5 | C | - | - | - | - | - | - | - | - | - | - |
| Triangle Circle @ Rufus Rd | EB | | | | | | | | | | | | | 12.1 | B | | | | |
| | NB | | | | | | | | | | | | | 0.0 | A | | | | |
| | SB | | | | | | | | | | | | | 0.0 | A | | | | |
| unacceptable delay | | | | | | | | | | | | | | | | | | | |

Professional Property Services (Right-of-Way Agent)

Email dated June 2, 2025 from Chris Davis
and
Field Notes for Adjacent Owners

Subject: RE: Triangle Circle roadway improvements
Date: Monday, June 2, 2025 at 4:37:33 PM Eastern Daylight Time
From: cdavis@ppsnc.com <cdavis@ppsnc.com>
To: 'Brad Bowman CCIM' <brad@firstfederalproperties.com>
CC: 'Gary Kriss' <gkriss@yahoo.com>, 'Craig Long' <clong@ppsnc.com>
Attachments: image001.jpg, Field Diary Alley Parcel 001.pdf, Field Diary Payne Parcel 002.pdf, Field Diary Cannon Parcel 005.pdf, Field Diary Lawing.pdf, Field Diary Nixon Parcel 009.pdf, Field Diary Nixon Parcel 010.pdf, Field Diary Nixon Parcel 11.pdf

Brad,

I have attached the field diaries for Alley/Cannon/Payne, Lawing, and Nixon. Not sure if you needed Nixon but I added them. They document Gary's efforts to settle the claims. Also see a quick summary below.

Alley/Cannon/Payne – Gary spoke with Ms. Alley who gave us a hard no from the start. He shared the project information with her and she again replied with a hard no. Gary followed up multiple time after their first conversation without a response.

Lawing – Gary met in person with Mr. Lawing and his son to explain the project. He later shared the offer in person with Mr. Lawing. Mr. Lawing said he wasn't interested in the project and had issues with our proposed acquisition impacting his garden. Gary followed up multiple times in person with Mr. Lawing and we even upped our offer amount to attempt to move the needle. We also looked into moving the power pole in the area of his garden to another location to lessen the impact. Gary asked Mr. Lawing if there is anything else we could do to come to an agreement. During Gary's last visit to the property, Mr. Lawing said he would not grant us the Right of Way and Temporary Construction Easement.

Nixon – Gary met with the Nixon's in person to share the project information and make the offers on their 3 Parcels. Mr. Nixon countered our offers on the three parcels asking for \$50,000 total. He called Gary back shortly after making his counter offer to up his asking price to \$75,000. Gary came back to Mr. Nixon and let him know we would provide a response to his counter offer. Gary and Brad met with Mr. Nixon in person and the group came to an agreement that we would settle the claims for \$60,000, which would also include the purchase of Project Parcel 011 (Pin # 4603-53-3514) in its entirety. Gary later met with the Nixon's and they signed the agreements. A day later, Mrs. Nixon called Gary and said she did not want to move forward and that she didn't realize that we were acquiring right of way and easements from all three parcels. Gary went back to meet with Mrs. Nixon to review the signed documents. The Nixon's said they would not move forward without getting an additional \$10,000. At this time, we are on hold.

Please let us know if you need any additional information.

Thanks,

Chris Davis

Consultant Project Manager
Real Estate Acquisition Agent
NC Real Estate Broker



 SERVICES, INC.

18335 Old Statesville Road, Unit A
Cornelius, NC 28031

website: www.ppsnc.com

email - cdavis@ppsnc.com

(980) 721-6516 <Cell>

(704) 765-5134 <Office>

From: Brad Bowman CCIM <brad@firstfederalproperties.com>

Sent: Thursday, May 29, 2025 4:03 PM

To: cdavis@ppsnc.com

Cc: Gary Kriss <gjkriss@yahoo.com>; Craig Long <clong@ppsnc.com>

Subject: Re: Triangle Circle roadway improvements

Thank you

Brad Bowman, CCIM

First Federal Properties, Inc.

Brad@FirstFederalProperties.com

704-634-1853

Sent from my mobile device. Please excuse misspelling and grammar mistakes.

On May 29, 2025, at 4:01 PM, cdavis@ppsnc.com wrote:

Hey Brad,

Gary and I will get together and get this to you tomorrow or early next week.

Thanks,

Chris Davis

Consultant Project Manager

Real Estate Acquisition Agent

NC Real Estate Broker

<001.jpg>

18335 Old Statesville Road, Unit A

Cornelius, NC 28031

website: www.ppsnc.com

email - cdavis@ppsnc.com

(980) 721-6516 <Cell>

(704) 765-5134 <Office>

<002.png>

Owner Name: Lawing

Phone: 704-483-5753

Parcel #: 007

Email:

Pin #: 4603-53-2295

Date of I/C: 11/11/24

Date of Inspection:

Improvements in Easements:

Date of Offer: 12/22/24

Amount of Offer: \$8,450.00

Agent Name: Gary Kriss

| | |
|-------------------|--|
| 11-6-2024 | Made contact with Mr. Lawing. He said he would meet me with his son on the property |
| 11-11-2024 | Met with Mr. Lawing and his son. They were concerned about the garden and how much was going to be taken. He asked to have it staked |
| 12-22-2024 | Stopped over to see if Mr. Lawing was home and the stakes were removed. I did catch him chopping wood and we walked up and I showed him where the edge of roadway would be. At this time I gave him the compensation offer of \$8,450. He never looked at it with me and again, he said his son would call me to go over it. |
| 12-30-2024 | Called and his mailbox was full |
| 1-6-2025 | Called and his mailbox was full |
| 1-21-2025 | Stopped out the residence in the morning. He was unavailable |
| 1-22-2025 | Stopped out at the residence in the afternoon hoping to catch Mr. Lawing. I had to leave a card and a written message on the card to call asap |
| 2-6-2025 | Site visit. Left card |
| 2-7-2025 | Met and spoke with Mr. Lawing. He did not give an answer as to if he was going to sign. He said see what you can do and I'll meet with you at another time. |
| 2-19-2025 | Met with Mr. Lawing. He stated that he just wasn't interested. He did not want to lose any of his garden. The power pole was also an issue. I asked him if I could the pole if that would make a difference. He said possibly. |
| 2-25-2025 | Met with Mr. Lawing. Still no decision at this point. He just does not want the project to happen. He stated that it will not help the intersection issues. I told him that we could the pole moved and that should solve that issue. He did not have anything to say about it. He was pretty set on just leaving as is and not moving forward. |
| 3-3-2025 | Left a card |
| 3-7-2025 | Site visit. No one home |
| 3-26-2025 | I met with Mr. Lawing and his daughter Kathleen. They were not interested in the project or negotiating any further. I did give him the chance to see what it would take, and he did not have anything he wanted to move forward. He told me once again to see what other options there are for him. At this time, I also presented them with an updated offer |

[illegible]

Owner Name: Alley/Cannon/Payne

Phone: 704-506-3729

Parcel #:001

Email: alleycp@hotmail.com

Pin #: 4603-52-2978

Date of I/C: 12/5/24

Date of Inspection:

Improvements in Easements:

Date of Offer:

Amount of Offer: \$3,150.00

Agent Name: Gary Kriss

[illegible]

June 23, 2025 Community
Involvement Meeting Report

Community Involvement Meeting Report

PD #2014-2-A7

Fund 28-Denver, LLC, applicant

A community involvement meeting on this rezoning request by Fund 28-Denver, LLC (the "Applicant") was held virtually via Microsoft Teams on June 23, 2025. Approximately 13 individuals attended the meeting that lasted roughly one hour. Additionally, Joshua Grant and Jeremiah Combs from the Lincoln County Planning and Inspections Department attended, and Brad Bowman, Manager for Fund 28-Denver, LLC, spoke on behalf of the Applicant.

Combs began the meeting and provided an initial overview of some of the history related to the Rivercross planned development, noting it was originally approved in 2015 and has had other amendments approved. He noted the applicant owned the remaining portion of the planned development that has not yet been completed, which included the previously approved 40 townhomes and up to 100,000 sf. of commercial space (the "Commercial" phase). Combs noted that the current request focused on an off-site roadway improvement.

Bowman explained that the Applicant was not the original developer who obtained the original approval or amendments to the overall development; rather, the Applicant acquired the Commercial phase in more recent years. He explained Applicant worked extensively with a civil engineer and developed designs of the off-site roadway improvements that had been previously assigned to the Commercial phase, which were at the intersection of Optimist Club Road and Triangle Circle: (1) construct 125 feet of additional storage to the eastbound right-turn lane of Optimist Club Road; (2) construct a left-turn lane on northbound Triangle Circle with 250 feet of storage; and (3) pay the remaining cost of installing a signal at the intersection.

Bowman confirmed that Applicant successfully completed designs and had approvals to be able to do the extended storage on Optimist Club Road. He noted Applicant also completed the necessary designs pursuant to NCDOT standards for the Triangle Circle northbound left-turn lane and had incurred over \$100,000 in costs and spent over nine months working on it; however, he explained Applicant has not been able to secure the required right-of-way agreements from two landowners on Triangle Circle to allow Applicant to construct it. Bowman explained that Applicant worked with NCDOT and the County to try to come up with alternative designs or some other option. Despite the minimal width needed for the right-of-way, Bowman noted two landowners had refused to consider any offer whatsoever. He noted he had asked NCDOT and the County if they could exercise their power of eminent domain to be able to get the needed right-of-way for the Triangle Circle turn lane, but was told it was not possible here. Bowman explained that, as a result, Applicant was asking the Commissioners to review the matter under the County's UDO provision that specifically covers this situation: where an applicant cannot acquire right-of-way needed to complete an improvement, the rezoning can go back to the Commissioners to consider it without that specific roadway improvement.

Citizens asked various questions and provided feedback. One citizen said the intersection needs some type of improvement and expressed disappointment that the two landowners

would not consider any deal for the right-of-way. Another individual asked why the County and original developer made the agreement to put in off-site improvements if NCDOT did not own the roadway, expressing frustration with the process of prior approvals without improvements before houses were built. Bowman and Combs acknowledged her frustration and clarified that significant roadway improvements and new connectivity had already been completed with other phases—providing both internal and off-site improvements. Bowman also shared that he was not certain about the agreement previously reached, as Applicant was not involved in the original approval process and did not believe the current staff and board were involved. Bowman reiterated that the Applicant is able and plans to complete all outstanding items that Applicant is capable of doing, with the only exception being the left-turn lane on northbound Triangle Circle that cannot be constructed without right-of-way. Bowman explained that the Applicant is literally trying to do all that it actually can do—which would be all any private developer could do—and which can only be done with approval of this application.

Bowman highlighted that the traffic engineer provided a technical memorandum indicating that with just a signal at the intersection (without the left-turn lane on northbound Triangle Circle), the flow of traffic will be notably improved. In fact, it was noted that a signal may get more support where there is no left-turn lane based on NCDOT's analysis.

One citizen questioned if alternative routes or improvements had been studied. Bowman confirmed those discussions were had and efforts had been attempted over the last 9+ months, and no possible alternative had emerged. The citizen then asked Combs if the County would condemn the necessary right-of-way—which question of condemnation Combs deferred as a decision for the governing body for the County, not a staff level decision. Bowman noted it was his understanding that neither the County nor NCDOT could condemn it as part of a private project, that such would have to be handled independent of this project.

Another resident asked if the County or NCDOT could create the left-turn lane at the intersection. Bowman replied that while maybe possible, it was his understanding that neither the County nor NCDOT have funds allocated for any improvement to the intersection. A resident asked if Applicant can simply give funds to the County or NCDOT and let them do the work—Bowman replied it was his understanding this cannot occur due to policy and legal issues.

Combs concluded the meeting by sharing that a public hearing on Applicant's request would occur at 6:30 p.m. on August 4, 2025.

Excerpts from
NC 16 Corridor Vision Plan
from December 2009

standards requiring screening of equipment and/or outdoor storage areas and landscaping to soften the asphalt or gravel parking areas. In concert with that are setbacks which allowed the placement of sidewalks and street trees along the NC16 corridor. Moreover was the request that sign limitations be put into place to reduce the amount and size of signs presently found, including temporary and permanent signs.

The remaining two principles had to do with less site specific items which included the desire for a mixture of uses along the NC16 corridor and the need to identify community centers and/or where a “downtown” might be that becomes the area’s identity or landmark. During the discussion there was a consensus that of the idea of commercial uses along the entire 12.6 mile corridor was not desirable. There needed to be nodes of this activity at main intersections and a mixture of uses in between and certainly one or more of these nodes should become the corridor focal point, creating an identifiable core.

Goals, Objectives and Recommendations

Below are the Goals, Objectives and initial Recommendations that were developed by the Steering Committee at the beginning of the visioning project. These were refined and details were added throughout the planning process.

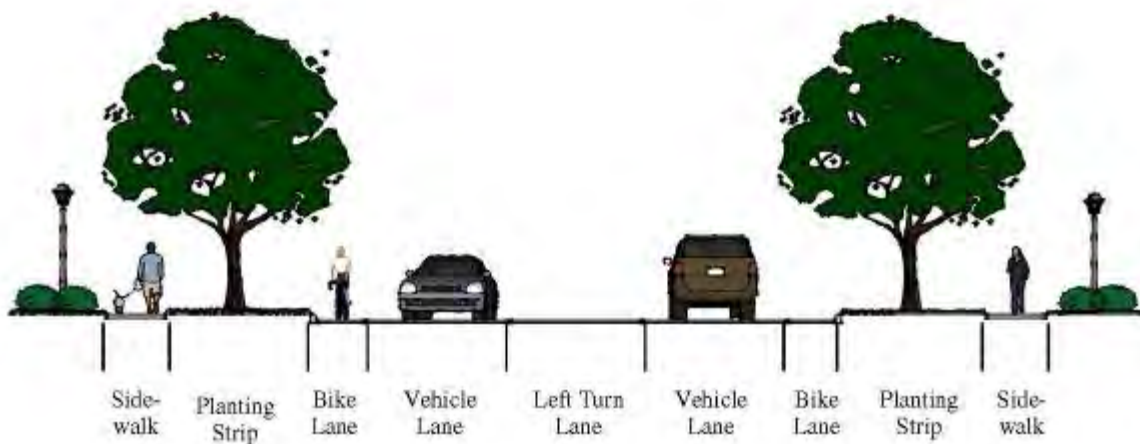
| Goals | Objectives |
|---|---|
| GENERAL: | |
| To produce a viable NC Corridor Vision Plan which improves the look and feel of the corridor, manages future development, includes citizen input, and is based on land use plans. | To develop a realistic implementation plan |
| | Involve the community in the decision making process. Public forums Through the use of the schools- “Design your Town” contest |
| TRAFFIC & TRANSPORTATION: | |
| <u>Collector Roads:</u> Connectors need to be wide enough to handle the traffic and maintain safe neighborhoods. | No through truck traffic on neighborhood connectors. |
| | Request NCDOT to improve connectors at Triangle Circle/Optimist Club Road and at St James Church Road. |
| | Ensure multiple and connected access to Hwy. 73 other than business Hwy. 16 |
| <u>Driveways & Access Management:</u> Driveway entrances should be consolidated along with other Access Managements | Turn Lane Improvement – State cooperation with Lincoln County to adopt uniform policy |

Analysis and Recommendations

Through a combination of the ideas brought forth at the Public Forums and through many meetings held by the steering committee, the list of draft recommendations for the NC 16 Corridor Vision Plan was formulated. The draft recommendations are as follows:

Transportation

- Three lane street cross-section which includes curb and gutter designs around the identified community centers and also where economically viable.* The recommended cross section is to also include bicycle lanes and sidewalks to promote the use of non-motorized means of transport. Street trees are also a part of the recommended cross-section. Street trees provide aesthetic appeal as well as a buffer for pedestrians from the adjacent roadway. Lighting along the corridor is another recommendation that has aesthetic value but also creates a safer environment for the motorist and the citizenry. Round-a-bouts should also be considered as alternative treatments for intersection designs where appropriate.



- Connectivity for vehicles and pedestrians should exist between parking lots and secondary roads contained within subdivisions.* A connected network of streets and parking lots has the ability to reduce the dependence of the motorist on the main route, NC 16, and in turn can reduce the congestion along the road by giving the public numerous options to travel to and from their destination.
- Intersection improvements are needed at targeted locations including the intersection of NC 16 with Hagers Ferry Road, Campground Road, St. James Church Road and Unity Church Road.* These four intersections contribute to a majority of the back ups that occur along NC 16 during the peak hours. A combination of geometric, signalization and safety improvement are needed at each of these intersections. NC 16's intersection with Hagers Ferry Road would

benefit most from a geometric change to the design as the problem exists due to the angle the three roads intersect. The other intersection improvement that are needed now will only become more a focus once the NC 16 bypass opens and people start to utilize these intersections as a means by which to return to Old 16 from the bypass. Signal timing will only become more crucial at these intersections as traffic volumes on both alignments continue to increase.

- A typical **ROUND-A-BOUT** diagram showing the free flow of traffic around an intersection of two streets. These intersection designs have been used successfully on streets with different volumes of traffic, but must be installed in appropriate locations.



- *Consistent Speed limits are need along NC16.* There are currently 6 changes in speed limits varying from 35 mph to 55 mph. These varying limits make it difficult for drivers to know what the speed limit at any given time. Consistent speeds allow for traffic to flow more consistently as changes in speed do not confuse the traveling public. This comment does not apply to speed limits in school zones and during school hours.
- *Access management strategies should be stricter than current standards.* These strategies should include requirements for shared driveways, side street access and the addition of turning lanes. Stricter access management standards help to reduce the number of conflict points and aid in the reduction of stop and go traffic as the queue of traffic brakes as motorist enter and exit the highway facility. By limiting the number of driveways which access NC 16 and requiring developments to install turning and deceleration lanes allows traffic to move more freely up and down the facility.

Open Space

- *Development of a County park on County owned land next to the Charter School on Galway Lane.* A portion of property that was obtained on Galway Lane for a

potential school location was not feasible for school development due to topography issues. Thus the Charter School was located and built on a neighboring site. The original property currently under County ownership is suitable as a park site, which would provide additional open space to the corridor.



- Develop an urban green/play space within the South Triangle Community Center with trails connecting East Lincoln Community (Recreation) Center, Optimist Club fields and Sally's YMCA.* The parallel planning effort of the County Greenways Trail Master Plan has also identified this area as a potential primary destination. Linking the recreation amenities of this area with trails would provide greater community access, and open space.
- An amphitheatre/outdoor stage in the South Triangle Community Center.* Expressed in both public forums and within the committee the idea of creation of an outdoor amphitheatre is warranted. This amphitheatre would provide an area for bands and/or playwrights to showcase local talent, and provide the residents of the corridor with a stage on which various activities could take place.
- Integrate small parks in development.* With an abundance of residential and commercial development occurring along the corridor, a push for development driven local small parks is recommended. These small parks would serve the local neighborhoods within which they would occur.
- Incorporate the Carolina Thread Trail project.* Working with the regional trail planning efforts has produced the idea of connecting the amenities of Sally's YMCA, the East Lincoln Recreation Center, the Optimist ball fields and the South Triangle Community Center. A main focus for trail linkages in the South Triangle Community Center has been identified, although it is also important to view the entire corridor and the potential for trail linkages throughout. This would include the area known as "historic Denver" and the newly proposed Rock Springs Park to the North, the development along business Hwy 16 and Hwy 73, as well as the Mountain Island Educational State Forest to the South and the various commercial nodes and residential neighborhoods throughout the corridor.
- Follow recommendations in the Comprehensive Recreation Master Plan.* Outlined within the 2006 Lincoln-Lincoln County Comprehensive Recreation Master Plan are a set of recommendations that were derived from National and



proposed. This type of overlay was meant to address the issues and concerns, several of which are mentioned in these recommendations, along the corridor. There was support for these overlay standards in certain areas, but not for all roads county-wide. Several of these proposed standards should be revisited and their merits discussed during the creation of development standards only being applied to rapidly growing areas, such as the NC16 Corridor.

- *“South Triangle” along with “Downtown Denver” & “Lowesville” should be community centers along corridor.* It is the recommendation of this plan to encourage development of three community centers as a concentration of activity for the eastern Lincoln County area. These centers will serve as meeting / gathering places and should be developed in an urban or traditional downtown form to reduce the need to drive, bring economically viable and sustainable places, support the community character and quality of life, and to identify / become a landmark for the eastern Lincoln County areas.

The following graphic depicts potential development along the corridor if the recommendations are followed. This will require major redevelopment of existing structures and new developments on vacant properties and will take many years to realize. Such major shifts in a development pattern do not occur in short periods of time.



Intersection Analysis and Future Development Potential

One of the goals of the NC16 Corridor Vision Plan Steering Committee is to determine the potential site(s) for the development of a community center(s) for the eastern Lincoln County area. A community center will serve as a landmark or identification of the area; it helps to determine the character of not only the immediate area, but also the general surrounding environment; it can serve in the sense as a traditional downtown of a city.

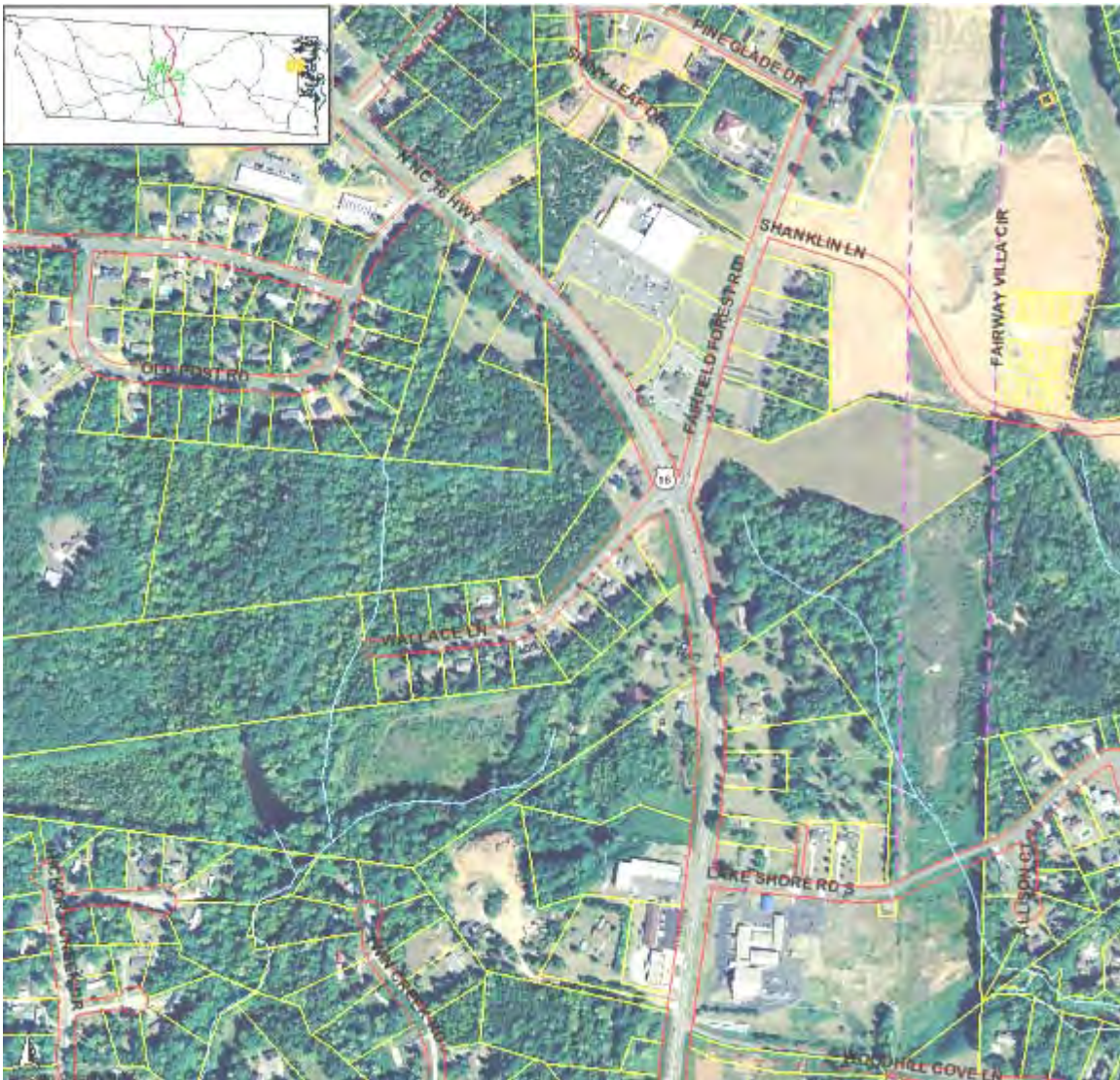
Old NC16 is a twelve mile long corridor and to think that a single community center will be the only focus is not valid. The Steering Committee and Planning Staff have determined that a preferred approach is to identify multiple centers that will better serve the overall corridor. However the intensity or size of the centers will be different based on the location and area to be served. As an example, commercial development is regularly classified as neighborhood, community and regional shopping centers. Similarly classic downtowns range in size from a few blocks to many several blocks depending on the size of the town or city it serves. Therefore in this case, the Steering Committee has determined that there should be a larger community center to serve as the central landmark and destination for the residents of corridor, with two smaller centers to serve the northern and southern corridor residents with essential daily services.

This is not to say however that commercial development will not be permitted at any other location on the corridor, which is hardly the case particularly based on existing development pattern. It is though a recommendation of the Steering Committee that certain attention and development be focused at these locations. These areas will be targeted to be comprehensively planned with detailed small area plans programmed as future studies.

There are nine critical intersections reviewed as potential community centers along the corridor. Determining factors to consider these as critical intersection primarily include traffic counts and the area/residents served to access to NC16. These intersections and accompanying analysis are as follows:

“Downtown” Denver

This intersection actually includes both the St. James / Will Proctor and Forney Hill / Campground roads as they cross Old NC16 and is the traditional downtown area of the Denver community. It is located in the northern area of the corridor, however does serve as one of the three direct access points to the new NC16 (under construction) bringing many people through with semi-local trips – to and from their house to new NC 16 . It serves many developing areas with Forney and St. James roads running to the west and Campground Road running to the east and into Terrell / Sherrills Ford areas of Catawba County. The Land Use Plan designates this area as “Mixed Residential / Commercial which encompasses the Denver area core. The area is basically built out and divided into smaller lots with the majority of the structures being in stable condition. Parcel consolidation will be very difficult in trying to engage multiple property owners and the rehabilitation of existing buildings or removal for new construction and will be costly. Larger tract to the southeast of the main intersection could become a new center.

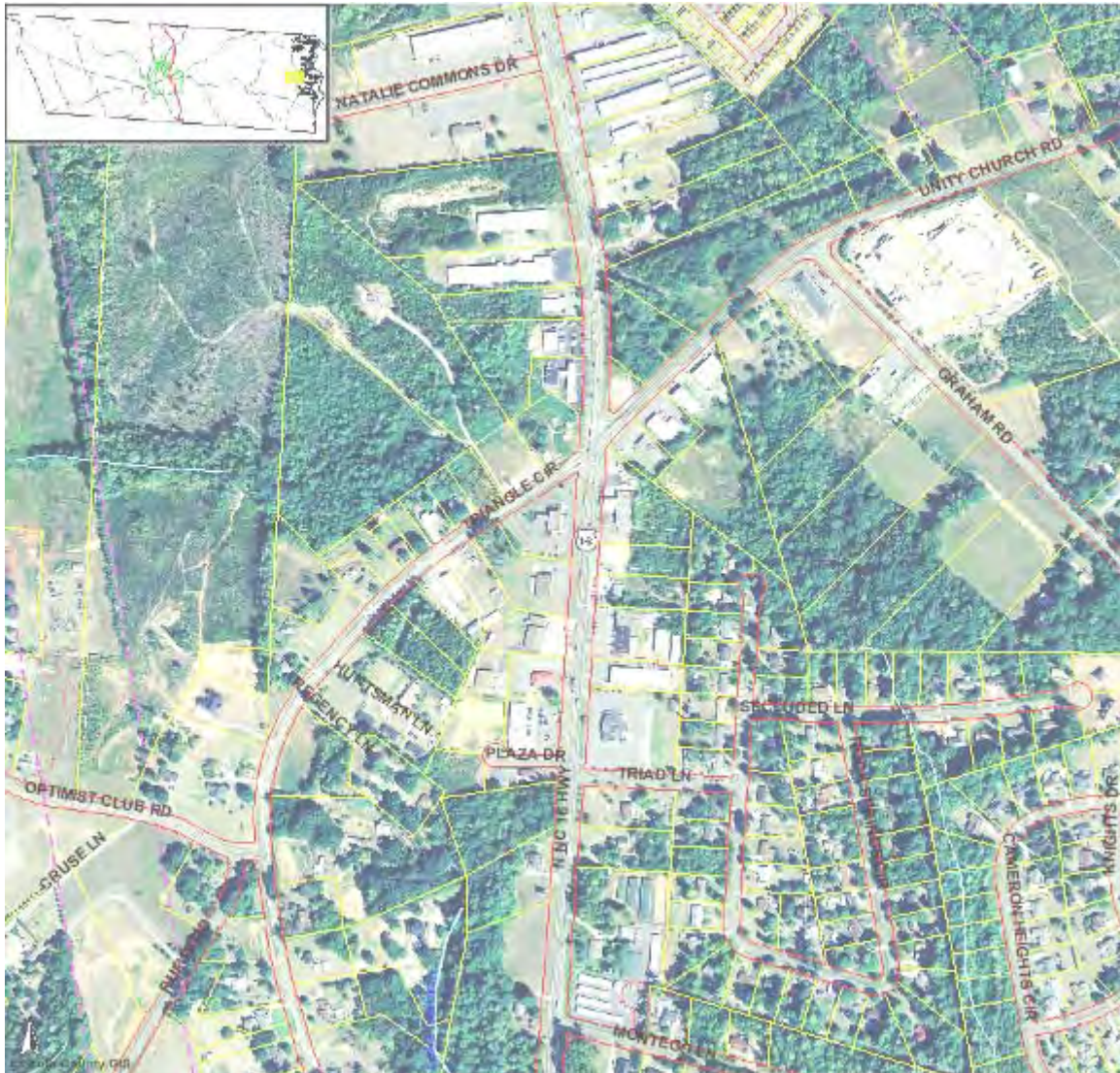


North Triangle / Unity Church

This intersection is one of the busiest along the old NC16 Corridor. Unity Church Road, combined with Graham, runs to the east and provides access to a large area of development and a public boat access to Lake Norman. North Triangle Circle connects to Optimist Club Road which is another one of the three direct access points to the new NC16. Optimist Club Road continues west and intersects with Little Egypt Road which is another important north/south corridor (and runs parallel to NC16). Many people use Little Egypt Road to bypass old NC16, then use Optimist Club Road and North Triangle Circle to get back to old NC16, then proceed across to Unity Church Road or north on old NC16. The Future Land Use Plan identifies the area outside of the corridor as residential.

This area is also considered the historic center of the Triangle community and has been heavily developed over the years. Presently at the intersection of old NC16 and North

Triangle/Unity Church Road the parcels are small, individually owned and subsequently developed. This built out configuration would make it difficult to assemble adequately sized parcels and expensive to acquire and raze existing structures for a well-planned development. This is the similar issue with the Downtown Denver area; although the location makes good sense to establish a community center, existing conditions does not make it feasible in the short term.

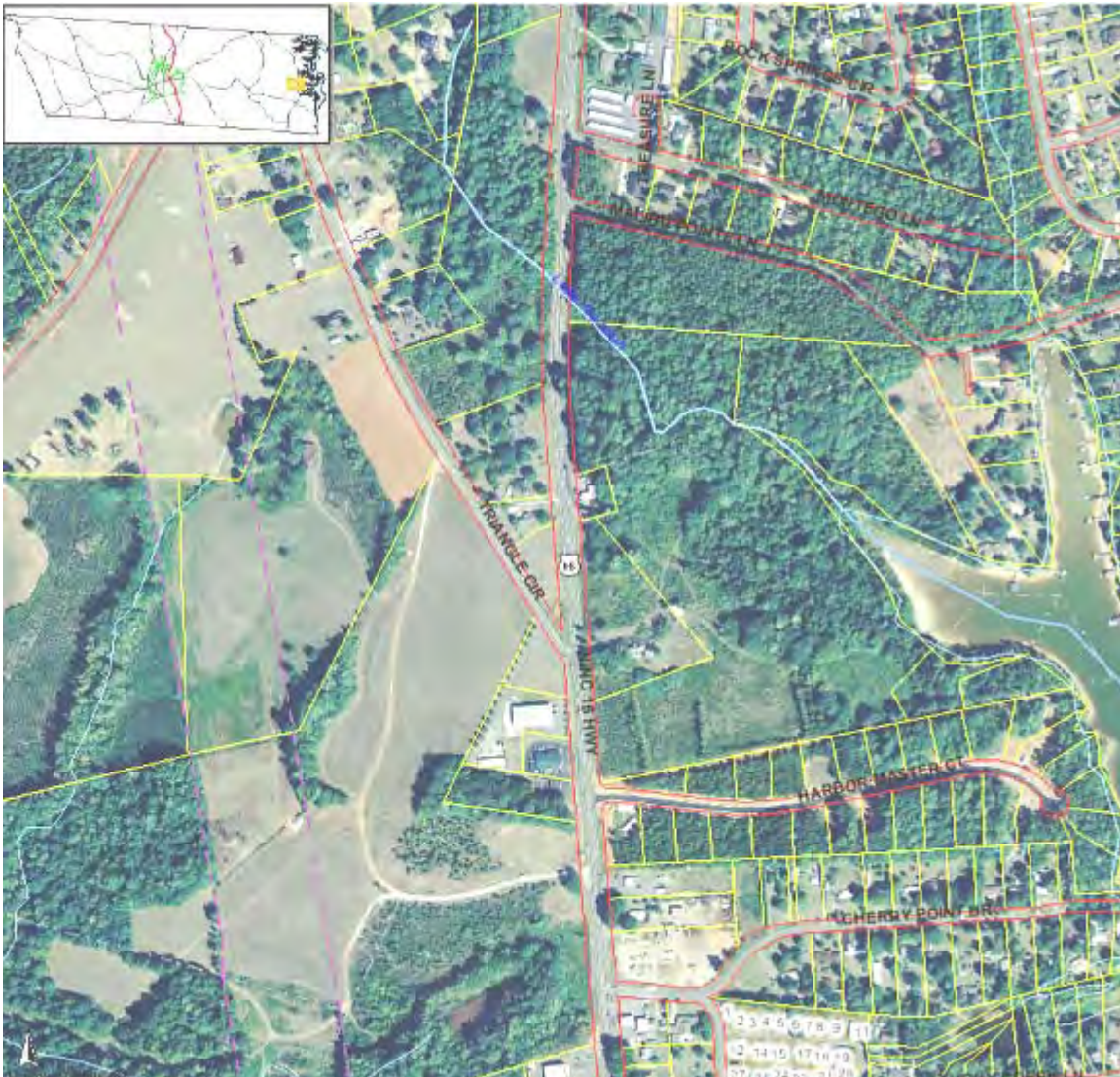


South Triangle

The characteristics of access to the west of old NC16 for this intersection is the same as North Triangle Circle in that this connects to Optimist Club Road as well. However a road at this intersection does not continue to the east of old NC16 at this time. South Triangle Circle connects with old NC16 at a sharp angle, which can inhibit the intersection from functioning at optimal efficiency. The adopted Future Land Use Plan identifies the area between old and new NC16 past the corridor limits as “employment

center” which offers development with a broad range of opportunities past single family resident development. This area has also been the site for the popular Denver Days festival held in the late summer/early fall of the year.

The majority of the land surrounding the intersection is vacant and held in large tracts on both sides of old NC16. There are a few smaller tracts with both residential and commercial uses. This arrangement can lead to easier development of the properties for a main community center without the need for multiple parcel consolidation or removal of existing uses. This location is also approximately midpoint along the 12 mile corridor. An additional benefit to this location is the fact that Lake Norman’s proximity. This is the closest point that old NC16 comes to the lake and there is ample vacant land to make a connection with potential incorporation of added public access into a planned mixed-use development. These factors make it the recommended community center for the corridor featuring many components found in a “downtown” area.



In the analysis of the existing conditions and the realistic opportunities to create an attraction as a central community center for eastern Lincoln County that the **South Triangle Circle** intersection offers the greatest potential due to the availability of land and its connection to the new NC16 bypass. Secondly, *Downtown Denver and Lowesville* offers the greatest potential to serve as community centers for the north and south areas of the corridor, but with a different appeal. This is not to say that the other intersections identified in this analysis along the twelve-mile corridor do not have merit or would not serve the residents of the area. Each intersection, to some degree, has development and redevelopment potential, but those development plans should be more focused on a localized service area, or neighborhood centers.

Development Centers

Development in a “node” form concentrates or clusters retail, office and other commercial development at a certain point, often at intersections for better access. However it is important to understand that these intersections should not all develop in the same manner. Demographics in the area can not support the amount of retail uses that could be built if each of the main intersections were built as community centers.

There are three primary types of centers to support various levels of daily service needs of the citizens. They are as follows:

- Neighborhood Center - Smaller service area, providing services for those living fairly close by.
- Community Center - A service area for a larger trade area having goods for several neighborhoods and developments.
- Regional Center - A larger service area attracting people from a widespread area.

Typical land uses in these centers are connected in a fashion where each are easily accessible by foot. The main difference between the Neighborhood and Community Centers are the intensity or amount of the uses. Smaller stores with easy access and a variety of daily use goods are the staple for the Neighborhood Centers. In contrast, Community Centers serve a large area and are geared more to providing goods and services needed on a weekly basis. Neighborhood & Community Center Areas – commercial/retail, professional offices, churches, civic, limited upper floor residential.

The largest center along this corridor serves residents living in a larger area supporting their weekly and specialty needs. This type of center is a typical setting for land uses which are primarily non-residential which incorporates large areas of retail, such as a regional mall or “big-box” centers, and large office buildings. The Regional Center along NC16 is the NC16 & NC73 intersection.

Between these cores are transition areas which accommodate development of high & medium density residential, professional office, civic, schools, and churches. By having these areas of lower commercial intensity, they become the break in sprawl development

and offer areas for apartments and other types of affordable housing options for residents who work in the establishments along the corridor.

Focusing In on the Community Centers

The three proposed community center areas are discussed in more detail. The following recommendations only serve to reflect certain principles and characteristics for the development and redevelopment of these areas as centers and landmarks for the communities. It is a recommendation of this plan that Detailed Small Area Plans be created for each center with extensive input from the property owners so that the potential for the site can be realized for both the owners and the community.

This Legend is to be used with the three community center maps in this section. These maps show general areas, walking distances and potential connections for roads.

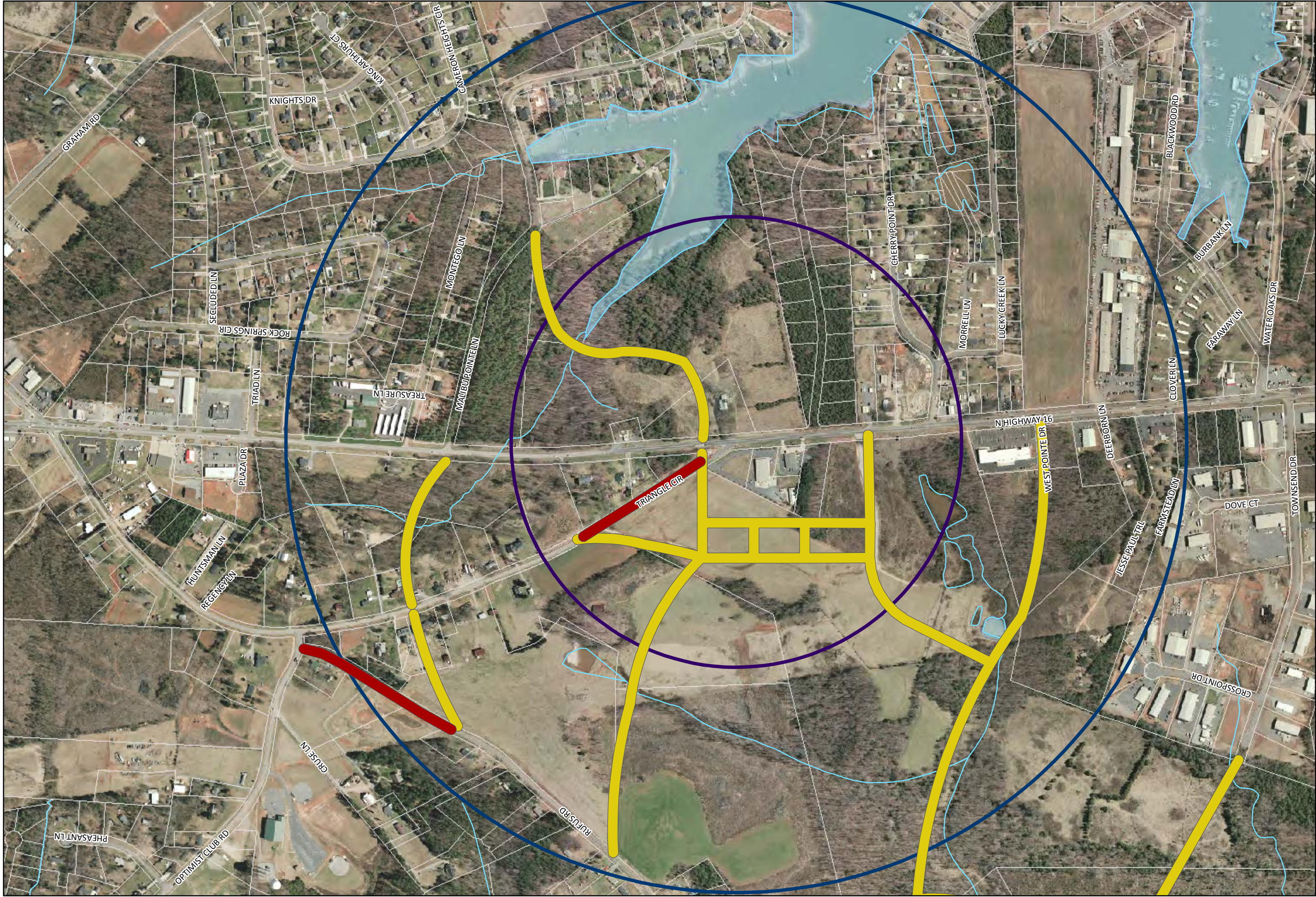


South Triangle

As mentioned in the Intersection Analysis portion of this document, this area provides for the best short term development of a community center along the NC16 Corridor. It is located in the middle of the corridor, has large amounts of vacant land with direct access to the new NC16 Bypass.

Several concepts were discussed in the potential development of this center. The area should include an urban green or open space as well as a natural area with a small amphitheatre near the creek and pond at the southern edge of the vacant property fronting NC16. The center should also be built in an urban or downtown type setting with on-street parking. There should be a mix of commercial and office uses with upper story residential units. The Duke Energy transmission easement will offer areas for additional parking and a section of the Carolina Thread Trail. This easement will also serve as a transition between the commercial activity near NC16 and the future business park for employment / industrial activity with frontage on the new NC16 Bypass.

Triangle Circle Road and Rufus Road intersections on Optimist Club Road are less than fifty (50) feet apart. To alleviate congestion on the Triangle Circle and Rufus Road intersections on Optimist Club Road, a new road is planned to run south from Optimist Club Road and connect to Rufus Road, then from Rufus Road to NC16 linking the development areas. This will provide an alternate route for the residents to access NC16, the business park area and the community center. Ultimately, South Triangle Circle could be realigned to create a better intersection with NC16, however this would slated as a long-term goal.



South Triangle

NC 16 Corridor Vision Plan

2,000 Feet

1,500

1,000

500

250

0

1 inch = 500 feet

retrofitting of existing buildings or otherwise developed sites should be a major consideration for development along the corridor.

The issue at hand in this task is to find a balance between rebuilding the obsolete buildings and building on vacant tracts. Abandoned or underutilized properties can also diminish the value of surrounding property, which directly reduces property tax revenue. These empty or deteriorating stores can create blight and potentially erode local property values, of which these effects on the county are increased by the resulting loss of tax base. By private reinvestment in underperforming or obsolete buildings and sites, this trend can be reversed and property values rise exponentially.

Along the corridor there are several underperforming properties, such as single family homes, older industrial and commercial buildings are a prime opportunity for reuse. These sites offer a particular opportunity with a large, flat, well-drained, developable space linked to existing infrastructure, NC16 allows direct access all of which results in reduced development costs by not having to grade the site, construct new roads or service line extensions. They are perfect for much denser, mixed-use developments in which people can live, work, shop and eat. These sites become opportunities for reinventing the corridor, rather than continuing to build single entity, undistinguishing areas of sprawl without a sense of place whatsoever.

A number of opportunities are available and can be as simple as a building façade replacement, adding landscaping and creating an adaptive reuse of an existing structure. Other sites will require razing an obsolete building and full site redevelopment. Potentially the county could examine giving clear policy signals to developers promoting redevelopment and easing the way for these properties. One example could be certain incentives for permitting this type of activity, such as density bonuses for infill / redevelopment sites, thus fostering land redevelopment.

Implementation Plan Matrix

The following Implementation Plan Matrix consists four sections. It outlines the Recommendation (strategies), Responsibilities, How to Accomplish (action), and Timeframe needed to fulfill the goals of the vision. Included are policy recommendations regarding land development, ordinance amendments, studies which analyze the opportunities and needs of the community, along with partnerships and actions to put the plan in action.

It is recommended that these Implementation Strategies be further prioritized and a review scheme for an annual audit or report card be developed for easy understanding of what has been completed, what is being worked on and what is left to do.

Recommendation:

This states the recommendation or project for implementation from the NC16 Corridor Vision Plan.

Responsibility:

This states the department or group responsible or in charge of moving forward with the stated recommendation.

How To Accomplish:

This states certain steps or actions needed to implement the recommendation.

Timeframe:

This states the priority or when the recommendation or project action should begin. There are four (4) timeframes;

- Ongoing (continuous daily/monthly),
- Immediate (1 – 2 years),
- Short-term (3-7 years), and
- Long-term (8+ years).

Funding:

Funding amount and source for the projects recommend will be determined as the work plan is developed. Several projects will be accomplished by the Planning Staff; however there may be a need to hire outside consultants or other assistance once the scope of work is written.

| Recommendation | Responsibility | How To Accomplish | Timeframe |
|---|---|--|-----------|
| Adopt a new recommended street cross-section for old NC16 | Planning & Inspections Dept., LNRPO and NCDOT | Work with NCDOT and the RPO to adopt a street cross-section (which includes the elements listed in the Plan) in the Comprehensive Transportation Plan -and- Work with developers to construct recommended elements as development occurs | immediate |
| Work with NCDOT to determine actual right-of-way | Planning & Inspections and NCDOT | Continue working relationship with NCDOT; when development plans are approved, right-of-ways are shown on plans/plats; these need to be confirmed by deed reference as part of the plan review process; this will be an ongoing process; if a comprehensive program is desired, significant funding and personnel resources need to be committed in the future | immediate |

| | | | |
|---|---|--|------------------------------------|
| Connectivity between parking lots and develop a network of connected streets to all area properties | Planning & Inspections | Requirements are in place in the new UDO; continued work with the development community explaining need and safety | immediate |
| NC16 intersections need immediate improvements: Hagers Ferry; Campground / St. James; Unity Church / Triangle | Planning & Inspections | Detailed Small Area Plans developed for intersections/areas; Staff will perform work as part of duties, but minimal funds will have to be in place for plan graphics; each plan will take approximately six to nine months to complete | Hagers Ferry - long term |
| | | | Campground & St. James - immediate |
| | | | Triangle Area – short term |
| Speed Limit be consistent and appropriate | County Manager, Planning & Inspections, and NCDOT | Work with NCDOT to review and establish a comprehensive review of speed limits along the corridor | long term |
| Access management required including shared driveways, side street access and turn lanes | Planning Staff | Requirements are in place in the new UDO; continued work with the development community explaining need and safety | immediate |

| | | | |
|---|---|--|-----------|
| Sewer availability to the “inner-core” of the Corridor to facilitate higher intensity growth such as multi-family and commercial projects “Inner Core” is the areas between Lake Norman and Little Egypt Road along the Forney Creek basin Utilities should be underground for new and redeveloped properties | Planning & Inspections and Public Works | Continually work with Public Works to update and plan for expansion in the identified development area. This will include meetings to review sewer extension plans, developer plans and construction standards | long term |
| Commercial and industrial service is necessary to support citizens | Planning & Inspections and LEDA | Continually work with LEDA to refine standards, plans and identify needs for the corridor | on-going |
| Concentrate on sewer needs at this time since water service is in place. | Public Works | Keep track and schedule on completion of the new Forney Creek Treatment Facility opening capacity; keep track of sewer capital plan for extensions to higher density areas needing sanitary sewer service | on-going |

| | | | |
|---|--|---|------------|
| Require utility connections to properties when: At time of new construction Change in use (example: office to commercial use) Major expansion of building or site development (more than 25% of value and / or square footage) | Planning & Inspections, Public Works, Planning Board, and Board of Commissioners | Develop standards in the proposed “Development District” of the new UDO | immediate |
| County owned land next to Charter School should be developed as a park | Planning & Inspections, Parks and Recreation, Board of Commissioners | Design potential park design and work with community to plan and develop a public park; review adjacent lands to increase the size of land and park facilities; - and - Engineered plans and construction for new public park | short term |
| | | | long term |
| Urban playspace in the Community Centers with trails that connect throughout the corridor | Planning & Inspections | Design community centers to include urban parks / green spaces; work with the Greenways & Trails Plan effort and the Carolina Thread Trail to have trails through or near proposed community centers; construction will occur as part of private development of area(s) | short term |
| Amphitheatre / Outdoor Stage be a part of the South Triangle Community Center | Planning & Inspections | Part of the design phase in the Small Area Detail Plan programmed for the area. An option could be to include an amphitheatre in the proposed park on Galway (next to Charter School); construction will occur as part of private development | immediate |
| Integrate small parks in developments | Planning & Inspections | Continue to work with developers as plans are submitted for review. Open space is required for any development of 50 lots and should be developed or reserved as useable space | on-going |

Appendices

Appendix A: Previous Planning Efforts Summary

DH (Designated Highway) Corridor Highway Overlay District

In 1992, the first countywide zoning ordinance was adopted and included a section entitled DH Corridor Highway Overlay District. The purpose of the district was to "...preserve and enhance the streetscape along designated special highways and designated corridor roads in Lincoln County." The intent was to address the "preservation of aesthetics and enhancement of development potential or properties near and abutting said highway...through the use of sound land use regulations."

Several corridors (and portions) were designated as such and the district contained language which regulated permitted and conditional uses, minimum lot size, yard requirements (setbacks), minimum lot width, maximum floor area ratio, ingress and egress points (access), landscaping, uses allowed in setback areas, and signs. Many of these regulations attempted to address the issues which were becoming apparent at the time as an increase in development pressure began to occur along NC16. Subsequently however, over the years many of the requirements listed in the DH District were substantially revised and amended.

2001 Hwy 16 Committee Report Summary

The 2001 Hwy 16 Committee's purpose was to study and make recommendations on the future use and appearance of Hwy 16. The vision that the committee was reaching for was set to be 10 – 20 years in the future. The main topics discussed were traffic, safety, sign ordinance, landscaping and facades. The committee was upfront in acknowledging that Highway 16 had lost its residential character and that commercial development would become the primary use of the corridor. In turn many of the suggestions of the committee focused on the future development of this now commercial corridor.

The recommendations regarding traffic were on the surface good recommendations but had few means by which to accomplish their goals. The committee saw Hwy 16 as a "Main Street" for eastern Lincoln County. As much as eastern Lincoln County longs for its own identity Hwy 16 as their "Main Street" is not feasible. The speeds, design, lack of right-of-way and past development do not lend themselves to a main street transition for the highway. Adding a turn lane to the center of the highway throughout its Lincoln County route and eventually turning Hwy 16 into a 5 lane facility was focused on. In reality the feasibility of either of these options for the entire corridor is non-existent. The hope now would be that through trips will be rerouted onto the bypass once it opens. The rerouting of traffic introduces another problem. Two of the facilities that will connect NC 16 with the NC 16 bypass, Optimist Club Road & St. James Church Road, are undersized and not designed properly to handle the traffic they will begin to experience once the bypass opens. As mentioned in the report the county should lobby for the upgrade of

these two roads. Speed limits were also a topic of discussion and from the minutes it can be derived that the committee thought that the speed limits along the corridor were too high. The design of the road and its function of an arterial confirm that the posted speed limits are sufficient and any reductions in speeds outside of school zones would further decrease mobility.

The committee also gave recommendations relating to zoning, an aspect of the corridor that the county has much more control over. Support for the current setbacks and requirements for larger developments to install turn lanes and deceleration lanes are two items that continue to function well within the current ordinance and through Traffic Impact Analysis warrants. Development of a “Landscape Plan” was recommended and it was also advised that this plan should place safety first and should remain simple to avoid unreasonable cost to the landowner. Another recommendation of the committee relating to landscaping was that quality fences should be used and chain link fences should no longer be allowed. The committee also agreed that gravel driveway and parking lots should no longer be allowed along Hwy 16. One item that the committee recommended that the Zoning Ordinance did not have the ability to speak to but can be accomplished through the UDO is that metal buildings front façade should consist of a material other than metal. Commercial design criteria can become a part of the UDO and speak to this issue along the corridor and along others throughout the county. The final recommendation of the committee was to establish a “Minimum Building Maintenance Standard” along Hwy 16. The recommendation should be expanded throughout the county and could possibly incorporate minimum housing standards

The recommendations of the committee are all still relevant today but the dynamics of the corridor continue to change. As this renewed Hwy 16 Corridor Plan commences, the same issues experienced in 2001 will still exist and more issues will surely rise to the surface.

2007 Land Use Plan & NC 16

Much of the existing NC 16 12-mile Corridor between NC 73 and Denver has been zoned for nonresidential purposes. Over the years a significant amount of strip commercial development has occurred along the Corridor. While some well-planned individual and group developments are found, much of the development consists of conversions of residential dwellings into commercial retail and service establishments, and newer single-entity developments, each with one or more of its own curb cuts. Access management standards along NC 16 have historically been weak. Thus, traffic congestion and commercial sprawl are present. A redevelopment of the corridor, especially in light of the pending opening of new NC 16 is in order to limit disinvestment and to improve mobility along the Corridor.

Mixed-use, per se, along NC 16 is very evident with industrial, commercial and residential uses all in close proximity to each other throughout the area, but as uses were developed and planned individually, there are virtually no linkages (either for the pedestrian or motorist) between developments. Thus, virtually all traffic that accesses

- a. The screening shall consist of natural plantings only; and
- b. The screening shall effectively screen said outdoor storage within three (3) years after the certificate of occupancy has been issued.

The Zoning Administrator may waive the requirements for such screening in cases where he determines that due to topography such screening would be impossible to install, would be unusually and unreasonably burdensome upon the developer, or would serve no screening or buffering purpose; provided however, that in making such waiver the spirit and intent of this section are met.

12.1.10 Signs

A. Off-premise advertising signs shall be prohibited in any DH District.

B. Signs for all residential uses shall be as provided in Chapter 12 of this Ordinance. On-premise signs for nonresidential uses shall be allowed as follows:

1. For any lot which contains one principal nonresidential use, the following sign regulations shall apply:

a. Each use shall be allowed one free-standing pole sign. The maximum height of said pole sign shall be twenty-five (25) feet; the maximum area of said sign shall be sixty-four (64) square feet. Ground signs shall also be allowed. The maximum area of any ground sign shall be thirty-six (36) square feet. The aggregate area of all ground and pole signs for any such use shall be one-hundred (100) square feet exclusive of ground signs used solely for the direction of traffic.

b. Wall signs shall be allowed as provided in Chapter 12 at this Ordinance.

2. For any multi-tenant development (i.e., shopping center) where more than one principal use is located on a lot, the following sign regulations shall apply.

a. The aggregate area of all free-standing pole and ground signs shall not exceed one-hundred twenty eight (128) square feet. A maximum of two pole signs shall be allowed. Any pole sign shall have a maximum height of twenty-five (25) feet and a maximum area of sixty-four (64) square feet. Ground signs shall be allowed, provided that no ground sign may have an area exceeding forty (40) square feet. Excluded are ground signs used solely for direction of traffic.

b. Walls signs for any principal use within the multi-tenant development shall be as provided in Chapter 12 of this Ordinance.

Appendix C: **2001 NC16 Plan Report**

Committee Report Of Existing Highway 16 To Lincoln County Commissioners

The purpose of this committee is to study and make recommendations to the county commissioners on the future use and appearance of existing Highway 16. Specifically we will visualize ten to twenty years from now. The committee has met since April 24, 2001. Meetings were held approximately every three weeks. Each meeting had specific topics such as traffic and safety, sign ordinance; landscaping and facades on buildings and minutes were kept at each meeting. Included with this report

will be a list of members appointed by the commissioners, guest and staff along with an attendance record. The following are the findings of the Highway 16 Committee.

Early in the process it was agreed that Highway 16 was no longer a residential street. The reasons are as follows:

- High traffic count
- Lack of new housing construction
- Low resale of existing housing used as residences
- Houses are converted into business, removed from lot or rented.

The best comparison may be the Highway 150/27 at Boger City. The committee expects the same kind of development to occur on Highway 16. The committee also began to refer to 16 as Main Street for all the communities in East Lincoln. They further believe that rezoning requests from residential to commercial should be honored.

The committee next reviewed the Land Use Plan to be adopted by the commissioners. The purpose was to make each member of the Highway 16 committee aware of the plan. Several members of the planning board were also in attendance of this meeting. There was a general agreement with the plan. One issue, as stated above, was that single family residential should be rezoned to a commercial zoning, upon the request of the property owner. In response to a question from the Planning Board concerning overall plan another issue that came up that is not directly related to Highway 16 was the green circles that designated future park sites. The general feeling was that landowners within these circles could be put at a disadvantage when a change in land use by the landowner was requested. Unless the county plans to purchase these tracts, the designation should be removed. This has already been discussed with the Planning Board and will be revisited in the future.

Other topics covered by the Lincoln County Staff included the land use plan, zoning, water and sewer, sign ordinance and the thoroughfare plan. Discussion of each of these topics centered on how they would affect the development of Hwy 16. A representative of NCDOT, Mike Holder, was also invited to the November 13th meeting. He was asked to comment on several current problems and make recommendations on how to improve safety and traffic flow. He was provided a letter with a list of concerns. He has agreed to review the list with his department and make any adjustments that are warranted. A copy of that letter is attached to this report. His recommendations will be included in the Highway 16 committee's recommendations.

The following are comments and recommendations of the Highway 16 Committee.

TRAFFIC:

1. Highway 16 be planned as a main street for East Lincoln from Gaston County line to Catawba County line.
2. Minimum of three (3) lanes on Hwy 16, eventually five (5) lanes on certain sections, as development occurs

3. Speed limit of Hwy 16 should be reviewed by NCDOT.
4. There was much discussion concerning the connectors between Highway 16 and New Highway 16. It is recognized that these roads are not sufficient to handle the traffic that will come. Mike Holder made it clear that these roads cannot be included in the New Highway 16 improvements without putting the project on hold and the possible withdrawal of funds. His suggestion is to begin to lobby and apply as much pressure as possible on DOT for improvements.
5. See attached addendum – letter from NCDOT’s Mike Holder

ZONING:

1. The existing highway overlay including the following:
 - Continue current setbacks for all new construction to allow for up to five lanes. Look at all setbacks and allow for maximum use of property.
 - Continue the current practice of requiring turn lanes for larger tracts being developed (planned developments)
 - Request that the County adopt a landscape plan for new construction that would help create a main street theme. Any landscape plan should consider safety first. The landscape plan should be kept simple to avoid unreasonable cost to landowner. Also consider an incentive program to existing business to adopt a future landscape plan. (tax incentives would require special legislation)
 - Some requirements as to the quality of fences used on street side of buildings, between building and road. Chain link fences not to be allowed.
 - Gravel driveways on future construction not be allowed. Currently only the first 15 feet of turnouts must be paved.
 - Metal buildings to have front façade of material other than metal with the exception of the trim.
 - Sign ordinance be more closely monitored and enforced. After reviewing the sign ordinance the committee felt that many of the signs on the highway are in violation of the current ordinance. Safety needs to be considered.
 - Update thoroughfare plan through NCDOT

BUILDING:

1. County to consider establishing a Minimum Building Maintenance Standard for structures that are visible from Hwy 16.

In conclusion there was a general feeling that economics will do much to improve the appearance of existing Hwy 16. The cost of land will generally require the removal of obsolete buildings with the new construction being of a high quality. The county should concentrate on safety, planning for the future water and sewer lines within the right-of-way and creating incentives for a consistent main street theme.

The above was voted on and approved by the Highway 16 Committee on December 11, 2001.

Doug Core
Highway 16 Chairman

Appendix D: Public Forums 1 and 2 Notes

Public Forum Comments July 17, 2008

What You Don't Like – NC 16

Group 1

- Signs (too many)
- Race shops
- No landscaping
- Mini- storage
- Inconsistent cross-sections
- Above ground utilities
- Lack on industry
- No uniformity in building in style
- Lack of zoning control
- No sidewalks
- Traffic – peak hours
- Lack of town center
- Sediment run-off
- Lack of trees
- No street signs (we need attractive “readable”)
- No lodging
- No funeral home
- No bicycle lanes
- Too much hwy drainage
- Need signal coordination
- No screening for heave uses
- Schools aren't ped. friendly
- Lack of comm.. needs/uses
- Lack of public transportation (no schedule posted)
- Business connections
- No Taxi service

Excerpt from
Eastern Lincoln Mobility
Study from July 2020



OPTIMIST CLUB ROAD AT TRIANGLE CIRCLE (ALTERNATIVE ONE)

Optimist Club Road is an important east-west route in eastern Lincoln County and provides the most direct connection to the NC 16 Bypass. Both interim (traffic signals) and long-term (interchange) improvements at NC 16 will likely increase traffic on the corridor. In addition to serving trips destined for the NC 16 Bypass, the corridor provides access to Atrium Health, Sally's YMCA, Airlie Business Park, East Lincoln Community Center, East Lincoln Optimist Club, and one convenience site for trash and recycling.

Currently, eastbound motorists come to a stop-controlled intersection at Triangle Circle and must turn left or right to access NC 16 Business. The concept shown developed as part of the Eastern Lincoln Mobility Study would extend Optimist Club Road directly to NC 16 Business. A potential interim step would change the current intersection of Optimist Club Road and Triangle Circle into a three-way stop controlled intersection. The Eastern Lincoln Mobility Study also evaluated a two-phased approach by which a roundabout would be constructed at the Optimist Club Road/Triangle Circle intersection as a first step toward the eventual extension of Optimist Club Road to NC 16 Business.

AT A GLANCE

Intent

- Enhance east-west connectivity between the NC 16 Bypass and NC 16 Business
- Improve safety at Optimist Club Road and Triangle Circle
- Reduce traffic at the NC 16 Business/Unity Church Road intersection

Issues and Considerations

- Potential changes to traffic flow patterns following the completion of intersection improvements at NC 16 Business and Unity Church Road (R-5712)
- Utilities in the northwest quadrant of the Optimist Club Road/Triangle Circle intersection
- Reducing the posted speed limit on Optimist Club Road

Cost

- \$2+ million

Next Steps

- Proceed with entering the Optimist Club Road Extension for scoring in the NCDOT prioritization process
- Consider options for leveraging local funds to expedite construction
- NOTE: As an interim step, stop signs could be added to Triangle Circle at its intersection with Optimist Club Road. A fully stop controlled three-leg intersection could reduce queuing and travel times for eastbound traffic.

PROPOSED CONCEPT



OPTIMIST CLUB AT TRIANGLE CIRCLE (ALTERNATIVE TWO)

This two-phased alternative concept features a roundabout at Optimist Club Road and Triangle Circle. While this alternative was considered, its cost of approximately \$8 million prompted the project team to develop the preferred alternative.

Phase 1

The initial phase would be the construction of a roundabout at Optimist Club Road and Triangle Circle to reduce typical queuing during peak hours and improve safety by reducing conflict points. (During construction, Rufus Road would be redirected to connect directly with Triangle Circle. This connection would minimize safety issues associated with the current intersection configuration while also simplifying the roundabout.)

Phase 2

The second phase would construct a new road between the new roundabout at Triangle Circle to NC 16 Business. A signalized intersection on NC 16 Business at the Optimist Club Road Extension would relieve pressure at the existing intersection of NC 16 Business and Unity Church Road.



PHASE ONE



PHASE TWO



Community Involvement Meeting Report

PD #2014-2-A7

Fund 28-Denver, LLC, applicant

A community involvement meeting on this rezoning request by Fund 28-Denver, LLC (the "Applicant") was held virtually via Microsoft Teams on June 23, 2025. Approximately 13 individuals attended the meeting that lasted roughly one hour. Additionally, Joshua Grant and Jeremiah Combs from the Lincoln County Planning and Inspections Department attended, and Brad Bowman, Manager for Fund 28-Denver, LLC, spoke on behalf of the Applicant.

Combs began the meeting and provided an initial overview of some of the history related to the Rivercross planned development, noting it was originally approved in 2015 and has had other amendments approved. He noted the applicant owned the remaining portion of the planned development that has not yet been completed, which included the previously approved 40 townhomes and up to 100,000 sf. of commercial space (the "Commercial" phase). Combs noted that the current request focused on an off-site roadway improvement.

Bowman explained that the Applicant was not the original developer who obtained the original approval or amendments to the overall development; rather, the Applicant acquired the Commercial phase in more recent years. He explained Applicant worked extensively with a civil engineer and developed designs of the off-site roadway improvements that had been previously assigned to the Commercial phase, which were at the intersection of Optimist Club Road and Triangle Circle: (1) construct 125 feet of additional storage to the eastbound right-turn lane of Optimist Club Road; (2) construct a left-turn lane on northbound Triangle Circle with 250 feet of storage; and (3) pay the remaining cost of installing a signal at the intersection.

Bowman confirmed that Applicant successfully completed designs and had approvals to be able to do the extended storage on Optimist Club Road. He noted Applicant also completed the necessary designs pursuant to NCDOT standards for the Triangle Circle northbound left-turn lane and had incurred over \$100,000 in costs and spent over nine months working on it; however, he explained Applicant has not been able to secure the required right-of-way agreements from two landowners on Triangle Circle to allow Applicant to construct it. Bowman explained that Applicant worked with NCDOT and the County to try to come up with alternative designs or some other option. Despite the minimal width needed for the right-of-way, Bowman noted two landowners had refused to consider any offer whatsoever. He noted he had asked NCDOT and the County if they could exercise their power of eminent domain to be able to get the needed right-of-way for the Triangle Circle turn lane, but was told it was not possible here. Bowman explained that, as a result, Applicant was asking the Commissioners to review the matter under the County's UDO provision that specifically covers this situation: where an applicant cannot acquire right-of-way needed to complete an improvement, the rezoning can go back to the Commissioners to consider it without that specific roadway improvement.

Citizens asked various questions and provided feedback. One citizen said the intersection needs some type of improvement and expressed disappointment that the two landowners

would not consider any deal for the right-of-way. Another individual asked why the County and original developer made the agreement to put in off-site improvements if NCDOT did not own the roadway, expressing frustration with the process of prior approvals without improvements before houses were built. Bowman and Combs acknowledged her frustration and clarified that significant roadway improvements and new connectivity had already been completed with other phases—providing both internal and off-site improvements. Bowman also shared that he was not certain about the agreement previously reached, as Applicant was not involved in the original approval process and did not believe the current staff and board were involved. Bowman reiterated that the Applicant is able and plans to complete all outstanding items that Applicant is capable of doing, with the only exception being the left-turn lane on northbound Triangle Circle that cannot be constructed without right-of-way. Bowman explained that the Applicant is literally trying to do all that it actually can do—which would be all any private developer could do—and which can only be done with approval of this application.

Bowman highlighted that the traffic engineer provided a technical memorandum indicating that with just a signal at the intersection (without the left-turn lane on northbound Triangle Circle), the flow of traffic will be notably improved. In fact, it was noted that a signal may get more support where there is no left-turn lane based on NCDOT's analysis.

One citizen questioned if alternative routes or improvements had been studied. Bowman confirmed those discussions were had and efforts had been attempted over the last 9+ months, and no possible alternative had emerged. The citizen then asked Combs if the County would condemn the necessary right-of-way—which question of condemnation Combs deferred as a decision for the governing body for the County, not a staff level decision. Bowman noted it was his understanding that neither the County nor NCDOT could condemn it as part of a private project, that such would have to be handled independent of this project.

Another resident asked if the County or NCDOT could create the left-turn lane at the intersection. Bowman replied that while maybe possible, it was his understanding that neither the County nor NCDOT have funds allocated for any improvement to the intersection. A resident asked if Applicant can simply give funds to the County or NCDOT and let them do the work—Bowman replied it was his understanding this cannot occur due to policy and legal issues.

Combs concluded the meeting by sharing that a public hearing on Applicant's request would occur at 6:30 p.m. on August 4, 2025.