A G E N D A

CITY OF HENDERSONVILLE CITY COUNCIL – REGULAR MEETING

OCTOBER 4, 2018 – 5:45 P.M.

Council Chambers - City Hall

1. **Call to Order**

2. **Invocation and Pledge of Allegiance**

3. **Public Comment Time:** *Up to 15 minutes is reserved for comments from the public for items not listed on the agenda*

4. **Consideration of Agenda**

5. **Consideration of Consent Agenda:** *These items are considered routine, noncontroversial in nature and are considered and approved by a single motion and vote.*

   A. Consideration of Minutes:

      i. September 6, 2018 Regular Meeting

      ii. September 25, 2018 Special Meeting

   B. Consideration of Budget Amendment

   C. Consideration of Certificate of Sufficiency for the Contiguous Annexation of a Parcel Located at 917 Rutledge Annex

   D. Consideration of the Reclassification of Certain Positions

   E. Consideration of Request to Use Berkeley Mills Park for 2019 Mad Mountain Mud Run

   F. Consideration of Easement Agreement with Education Research Consortium for the placement of a Point of Presence in the Maple Annex Lot

6. **Recognitions/Proclamations:**

   A. Presentation of the 2018 Tree City of the Year Award for North Carolina

   B. Proclamation for American Pharmacists Month

   C. Proclamation for Fire Prevention Week

   D. Introduction of Officers Zeke Johnston and Keenan Nesbitt

7. **Public Hearing – Consideration of an Application from Ebenezer Church to Rezone the Parcel Located at 2557 Chimney Rock Road from HMU Highway Mixed Use District to C-3CZD Highway Business Conditional Zoning District**
Presenter: Planner Daniel Heyman

8. **Presentation by NCDOT of Options for Roundabouts Design Review at White Street from Willow Road to U.S. 176 and NC 225 from S. King Street to U.S. 176**
Presenter: Jonathan Woodard, PE, NCDOT Project Engineer

9. **Consideration of the Rental Assistance Demonstration Program (RAD)**
Presenter: City Manager John Connet and Diana Brow, Executive Director of Hendersonville Housing Authority

10. **Consideration of Construction Manager at Risk for Police Department Headquarters**
Presenter: Assistant City Manager Brian Pahle

11. **Comments from Mayor and City Council Members**

12. **Reports from Staff**

13. **Consideration of Appointments to the Historic Preservation Commission and Board of Adjustment and Report of Board Vacancies**
Presenter: City Clerk Tammie Drake

14. **New Business**

15. **Request for Closed Session**

16. **Adjourn**

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: Brian Pahle

Department: Admin

Date Submitted:

Presenter:

Date of Council Meeting to consider this item:

Nature of Item: Council Action

Summary of Information/Request:

Item # 05b

Budget Amendment(s)
1) LGC Loan | Fund 452 | Decrease $50,630
| Fund 454 | Increase $25,000

Budget Impact: $ Above Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:
I move to approve the budget amendment(s) as presented.

Attachments:
See below...

Agenda

TO MAYOR & COUNCIL - October 4th, 2018 FISCAL YEAR 2018

BUDGET AMENDMENT

FUND: 452 | 454

ACCOUNT NUMBER					
ORG	OBJECT	DESCRIPTION OF ACCOUNT	INCREASE	DECREASE	
4520000	519000	Prof. Services	17,213.00		
4520000	549750	Permits, License, & Fees		330.00	
4520000	559850	Construction Contract		67,513.00	
4520000	499100	Loan Proceeds		50,630.00	
FUND 452		TOTAL REVENUES	-	50,630.00	50,630.00
		TOTAL EXPENDITURES	17,213.00	67,843.00	50,630.00
4540000	519000	Prof. Services	9,200.00		
4540000	557000	Land	7,800.00		
4540000	559850	Construction Contract	35,000.00		
4540000	559100	Contingencies		27,000.00	
4540000	499100	Loan Proceeds	25,000.00		
FUND 454		TOTAL REVENUES	25,000.00	-	25,000.00
		TOTAL EXPENDITURES	52,000.00	27,000.00	25,000.00

Upon approval of a loan for $2,500,000 by the Local Government Commission and a resolution previously approved by City Council at their regular September 2018 meeting, the City's budget for two project ordinances needs to be amended to reflect the total loan and construction amounts. This amendment will adjust the PW-Maintenance Facility project ordinance budget (Fund 452) and the Main St. Public Restrooms project ordinance budget (Fund 454) to reflect the final project amounts.

CITY MANAGER

Date: 9-18-18

APPROVED BY CITY COUNCIL: DATE: 10/4/2018

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: Susan G. Frady

Department: Development Asst Dept

Date Submitted: 9.13.18

Presenter: Susan G. Frady, Development Asst Director

Date of Council Meeting to consider this item: October 4, 2018

Nature of Item: Council Action

Summary of Information/Request: **Item #** 05c

The City of Hendersonville has received a petition from Jennifer Fleming for contiguous annexation of parcel 957709-2306 containing 0.24 acres located at 917 Rutledge Annex. This annexation application is related to a sewer service request. Please refer to the attached maps for additional information.

Attached is the Clerk's Certificate of Sufficiency finding that the petition is valid. The next step in the annexation process is to accept the Clerk's Certificate and set a date for a public hearing on the question of adoption of an ordinance of annexation.

Budget Impact: $ 0 Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

I move Council to accept the City Clerk's Certificate of Sufficiency for the petition from Jennifer Fleming and set November 1, 2018, as the date for the public hearing.

Attachments:

Certificate of Sufficiency
Petition
Survey
Map

CERTIFICATE OF SUFFICENCY

RE: Petition for Contiguous Annexation
Jennifer Fleming
File No. P18-25-ANX

To the Honorable Mayor and members of the City Council of Hendersonville, North Carolina:

I, Tammie K. Drake, City Clerk, begin first duly sworn, hereby certify an investigation has been completed of the above referenced petition for the contiguous annexation of parcel 9577-09-2306 located at 917 Rutledge Annex.

A. According to the Development Assistance Department, the area described in the petition meets all of the standards set out in G.S. 160A-58.1(b).

1. The petition follows the prescribed form.
2. The petition was signed by the owners of the subject property.
3. The subject property adjoins the present city limits line.

Having made the findings stated above, I hereby certify the petition for contiguous annexation presented by Jennifer Fleming is valid.

In witness whereof, I have here unto set my hand and affixed the seal of the City of Hendersonville, this 12 day of Sept., 2018.

Tammie K. Drake

Tammie K. Drake, MMC, City Clerk

Agenda

Print Form

CITY OF HENDERSONVILLE

DEVELOPMENT ASSISTANCE DEPARTMENT

100 N. King St. ~ Hendersonville, NC ~ 28792
Phone (828) 697-3010 ~ Fax (828) 697-6185
www.cityofhendersonville.org

PETITION REQUESTING ANNEXATION

The following are required to constitute a complete application for voluntary annexation:
- ~This form including the property owner's signature
- ~A copy of the deed indicating ownership of the property.
- ~A survey plat (81/2 " by 11") of the property prepared by a registered surveyor licensed to practice in the state of North Carolina.
- ~ A typed boundary description of the property, in digital format if possible.

Date: 8/7/18

Location / Property Address: 917 Rutledge Anx

List 10 digit PIN or 7 digit PID number: 01-04579

Does this property adjoin the present City Limits? ☑ YES ☐

Is the property within the ETJ? ☑ YES ☐

Reason for annexation: connection to new sewer line (Septic Issue)

Applicant Name: Jennifer Fleming

Address: 917 Rutledge Anx

Phone: 818-216-4242 Fax: Email: jen21jen@adl.com

Property Owner: Name: Christine Aldrich Costello, Teresa Fleming, Jennifer Fleming

Address: 917 Rutledge Anx 28739

Christine Aldrich-Costello
Christine Aldrich-Costello
Teresa Fleming

Signature

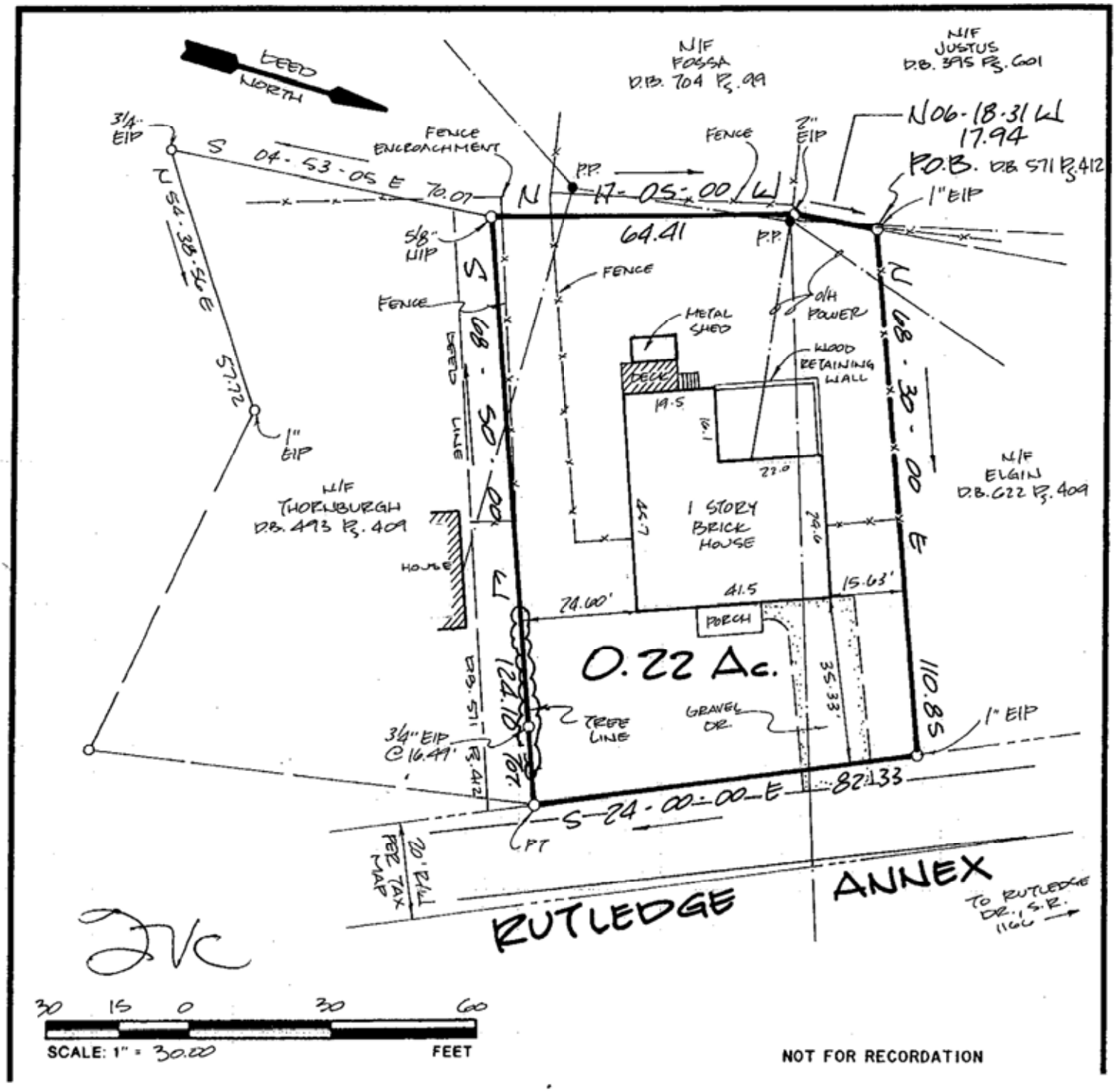
Printed Name: Jennifer Fleming

Official Use:
DATE RECEIVED: 8/8/18 BY Matt Champion FEE RECEIVED $ N/A

P18-25-ANX

Agenda

335258



BOOK 1626 PAGE 212 (2)
825770

This document presented and filed:
07/31/2015 04:15:20 PM
WB
WILLIAM LEE KING, Henderson COUNTY, NC
Transfer Tax: $276.00

RETURN TO: MICHAEL THOMPSON, ESQ.
VAN WINKLE LAW FIRM

PREPARED BY: EDWARD L. HARRELSON
COINER, HARRELSON & SHELTON, P.A.

Stamps: $276.00
Tax Parcel No.: 01-04579
(NO TITLE EXAMINATION PERFORMED BY PREPARER)

STATE OF NORTH CAROLINA
COUNTY OF HENDERSON

GENERAL WARRANTY DEED

THIS DEED, made this the 31st day of JULY 2015, by and between

LOUIS E. BARNEY and wife, BEVERLY BARNEY, hereinafter called Grantor, whose address is: 2185 Deep Gap Road, Flat Rock, NC 28731; and

CHRISTINE ALDRICH-COSTELLO, hereinafter called Grantee, whose address is: 62 Briarbrook Road, Fletcher, NC 28732

WITNESSETH:

WHEREAS, the property herein granted was acquired by Louis E. Barney and wife, Beverly Barney by deed from Marion Oliver Eikeland, individually and as trustee, dated July 26, 2012 and recorded at Deed Book 1503 at Page 360 of the Henderson County Registry; and

WHEREAS, the Grantor has utilized the property as their primary residence; and

WHEREAS, the Grantor now desires to sell and convey the herein described property;

NOW, THEREFORE, Grantor, for and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable considerations to him paid by Grantee, receipt of which is hereby acknowledged, does give, grant, bargain, sell and convey unto Grantee, their heirs and assigns, in fee simple, the following described property located in Hendersonville Township, Henderson County, North Carolina:

BEGINNING at a one-inch existing iron pin, said existing iron pin being the beginning corner of that property described in deed found in Deed Book 571 at Page 412 of the Records of the Henderson County Registry, said existing iron pin also being the southwestern corner of the Elgin tract (now or formerly) as shown and described in deed found in Deed Book 662 at Page 409 of the Records of the Henderson County Registry, and moving thence from said beginning point and traveling North 68 deg. 30 min. 00 sec. East 110.85 feet to an existing iron pin in the western boundary of Rutledge Annex, a 20-foot right of way leading to Rutledge Drive (S.R. 1166); thence along and with the eastern margin of the right of way of Rutledge Annex, South 24 deg. 00 min. 00 sec. East 82.33 feet to a point; thence turning and running South 68 deg. 50 min. 00 sec. West

124.10 feet to a point; thence turning and running North 17 deg. 05 min. 00 sec. West 64.41 feet to a point; thence North 06 deg. 18 min. 31 sec. West 17.94 feet to the iron pin that is the point and place of BEGINNING, and containing .22 acres, more or less, according to a "Survey for Michiel Frank Wynne" under date of November 23, 1993 by Freeland-Clinkscales & Associates, Inc., and being Drawing No. HNC-13666. For legal reference see deed found in Deed Book 571 at Page 412 of the Records of the Henderson County Registry.

There is also CONVEYED to Grantee, his heirs and assigns, a non-exclusive right of way for ingress, egress, and regress over the presently existing Rutledge Annex to and from the property above described, said Annex leading to Rutledge Drive (S.R. 1166).

BEING that same property described in a deed from Michiel Frank Wynne to Marion Oliver Eikeland and wife, Rosa West Eikeland at Deed Book 1322 at Page 054, and from the Eikeland's into the Eikeland Family Trust u/a/d April 11, 2011 at Deed Book 1468 at Page 341, both references to the Henderson County Registry.

TO HAVE AND TO HOLD the above described premises, with all privileges and appurtenances thereunto appertaining unto Grantee, their heirs and/or successors and assigns, in fee simple.

Grantor covenants with Grantee that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions herein stated.

Subject to restrictions, easements, rights of way of record and for *ad valorem* taxes for the current year.

IN WITNESS WHEREOF, Grantor has hereunto set his hand and seal, the day and year first above written.

Louis E. Barney (Seal)
LOUIS E. BARNEY

Beverly Barney (Seal)
BEVERLY BARNEY

STATE OF NORTH CAROLINA
COUNTY OF HENDERSON

I, Deborah A Kuiper, a Notary Public, do hereby certify that LOUIS E. BARNEY and wife, BEVERLY BARNEY, Grantor, personally appeared before me this day and acknowledged the due execution of the foregoing instrument. Witness my hand and official seal this the 31st day of July, 2015.

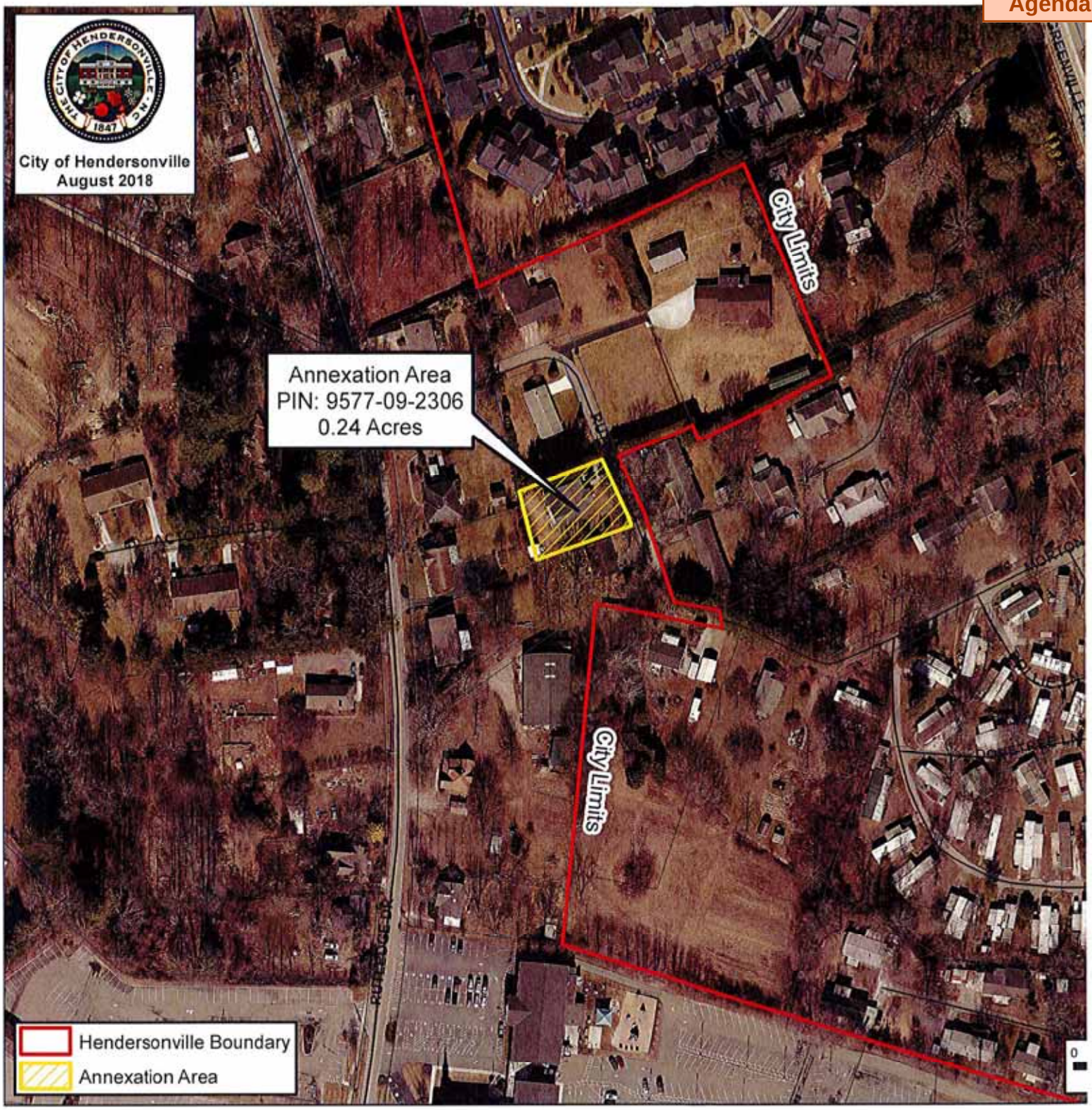
(Affix
SEAL)

Notary Public

My commission expires: 3/12/17

Notary Public, North Carolina
County of Henderson
DEBORAH A. KUIPER
My Commission Expires 3-12-17

BEGINNING at a one-inch existing iron pin, said existing iron pin being the beginning corner of that property described in deed found in Deed Book 571 at page 412 of the Records of the Henderson County Registry, said existing iron pin also being the southwestern corner of the Elgin tract (now or formerly) as shown and described in deed found in Deed Book 662 at Page 409 of the Records of the Henderson County Registry, and moving thence from said beginning point and traveling North 68 deg. 30 min. 00 sec. East 110.85 feet to an existing iron pin in the boundary of Rutledge Annex, a 20-foot right-of-way leading to Rutledge Drive (S.R. 1166): thence along and with the eastern margin of the right-of-way of Rutledge Annex, South 24 deg. 00 min. 00 sec. East 82.33 feet to a point; thence turning and running South 68 deg. 50 min. 00 sec. West124.10 feet to a point; thence turning and running North 17 deg. 05 min. 00 sec. West 64.41 feet to a point; then North 06 deg. 18 min. 31 sec. West 17.94 feet to the iron pin that is the point and place of the BEGINNING, and containing .22 acres, more or less, according to a "Survey for Michiel Frank Wynne" under date of November 23, 1993 by Freeland-Clinkscales & Associates, Inc., and being Drawing No. HNC-13666. For legal reference see deed found in Deed Book 571 at Page 412 of the Records of the Henderson County Registry.


City of Hendersonville
August 2018
Annexation Area
PIN: 9577-09-2306
0.24 Acres
City Limits
City Limits
Hendersonville Boundary
Annexation Area

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: Jennifer Harrell

Department: Admin

Date Submitted: 09/13/2018

Presenter: Jennifer Harrell

Date of Council Meeting to consider this item: 10/04/2018

Nature of Item: Council Action

Summary of Information/Request: **Item #** 05d

When positions are vacated, normally staff will evaluate them to see if the functions are current and meeting the departments needs. Staff has looked at various positions in the Finance and Human Resources departments.

The Accounts Payable Specialist position in the Finance department is being vacated due to retirement. The position has been evaluated and it has been determined that the position should have increased accounting functions, thus staff is recommending the job description be rewritten, the title changed to Accounting Coordinator and the position reclassified from Grade 10 to Grade 14 of the City's pay & classification plan.

Staff has further determined that the Payroll & Benefits Coordinator position in the Finance department is performing duties that are primarily functions of the Human resources department. It is being recommended that the position assume further Human Resource functions and reallocated to the Human Resources department. The position would be reclassified to Human Resources Analyst staying in Grade 13.

Staff has also determined the Human Resources Coordinator in the Human Resources department should assume more duties and be reclassified from Grade 13 to Grade 15 in the City's pay & classification plan.

These changes are being recommended to ensure the duties performed in these positions meet the requirements of the City. All job descriptions are attached.

Budget Impact: $ 0.00 Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

I move City Council approve the position reclassifications and job descriptions as presented.

Attachments:

Job descriptions

~~Payroll and Benefits Coordinator~~
Human Resource Analyst

Primary Reason Classification Exists

~~To perform responsible paraprofessional and administrative work in payroll and benefit programs for the City~~. To perform Human Resources related functions on a paraprofessional level and to perform technical and administrative work in support of the Human Resources department of the City.

Distinguishing Features of the Class

An employee in this class plans, organizes and administers the payroll, ~~and~~ benefits and other Human Resource functions for City personnel. Work includes administration of ~~payroll and benefits~~ these functions for City employees in accordance with payroll laws, regulations and City policies. Work requires an understanding ~~of pay and benefit~~ Human Resource administration, related ~~accounting activity and~~ functions, the laws and regulations affecting ~~employee benefit~~ human resource practices and payroll. Work requires employee to exercise considerable judgment and accuracy in interpretation, application, and administration of payroll and ~~benefit~~ human resource policy and practices. Work involves exercising sound judgment in maintaining confidential personnel records. Employee maintains personnel records and files and employee database; conducts employee orientation. Work also includes generating a variety of ~~financial records and~~ reports related to Human Resources, ~~performing related fiscal duties and other accounting clerical duties.~~ Work is performed under regular supervision of the Human Resources Director and is evaluated through observation, conferences, and review of work.

Illustrative Examples of Work

- Manages personnel records and employee database including entering new hire information and employee changes into system. Assists with records maintenance.
- Conducts employee orientations including new hire orientations and notarize forms as needed.
- Assists with applicant tracking and maintains applicant records.
- ~~Manages payroll system software; administers special payrolls~~ Calculates payroll and special pay, i.e. Longevity Pay, etc.).
- ~~Administers payroll system to calculate payroll, withholdings and deductions. printing and distribution earning statements, and transmission of direct deposits.~~
- ~~Manages payroll reporting; prepares and reconciles all reports for tax withholdings; communicates with federal and state agencies regarding tax withholdings, garnishments, and other payments.~~
- ~~Coordinates preparations of management reports; assists departments in preparation and maintenance of special payroll reports.??~~
- Assists with completing employee benefit orientations and in coordinating annual open enrollment for employee insurance.
- Assist in providing benefits information to employees on a variety of insurance and retirement programs; enrolls employees in benefits and enters insurance changes in insurance websites for medical and other insurances.
- Assist employees in benefit problem solving.

- Makes recommendations affecting relevant policies and programs, assists departments in complying with policies and procedures.
- Administers payroll changes affected by ~~year-end, fiscal year, and/or~~ personnel policy.
- ~~Audits and reconciles salary and benefit accounts to general ledger.~~
- Assists with maintaining payroll administration software and testing and implementing system changes and updates as required.
- Assists the Human Resources Director with a variety of records, reports and research ~~tax reports, and other report~~s required by supervisor, State, or other external agency.
- Administers the Affordable Care Act program and reporting.
- ~~Assists with year-end audit. Prepares annual payroll reports, calculations and accruals for year-end payroll accounting.~~
- ~~Serves as backup to other staff in finance office~~.
- Receives and greets visitors in the department; gives information concerning visitors' needs.
- Performs related duties as required.

Knowledge, Skills, and Abilities

- Considerable knowledge of the laws, rules and regulations ~~and accounting~~ that apply to human resource policies and practices in the public sector.
- Considerable knowledge of payroll and benefit principles and practices.
- Considerable knowledge of federal and state tax guidelines.
- Considerable knowledge of payroll ~~and accounting~~ human resource software applications.
- Considerable knowledge in record management procedures and practices.
- Considerable knowledge of computer operations as they relate to assigned tasks.
- ~~Some~~ Considerable knowledge of employee insurance and retirement plans.
- Ability to compile and evaluate and reconcile a variety of ~~accounting~~ human resource records and reports.
- Ability to make arithmetic computations accurately and with reasonable speed.
- Ability to ~~perform a variety of fiscal or accounting functions and t~~o change priorities quickly and maintain accuracy level.
- ~~Some of theory, principles and practices of human resources administration in the public sector.~~
- Ability to apply basic payroll and accounting principles and practice in problem solving challenges arising in payroll and/or employee insurances.
- Ability to assist Human Resources Director in developing ~~payroll and benefit~~ policy, practice and procedures.
- Ability to maintain the confidentiality of personnel records and discussions.
- Ability to establish and maintain effective working relationships with other staff, department heads, employees, and the general public.
- Ability to plan and coordinate projects and activities as well as develop and conduct training and orientation programs.
- Ability to communicate effectively in oral and written forms.
- Skill in using computer hardware and software applications; operating office technology.
- ~~Skill in training employees and conducting employee orientations.~~
- Skill in preparing payroll and human resources reports for departments and management.

- ~~Skill in preparing and transmitting payroll data electronically.~~

Education

~~Graduation from a two-year college with a major in accounting, business administration or related~~
Graduation from an accredited community college with an Associate's Degree in business/ human resources or related field.

Experience

~~Three (3) to five (5) years' experience in an automated fiscal or accounting environment, preferably in the public sector~~ One (1) or more years of responsible and broad-based professional experience in human resources; or an equivalent combination of experience and education.

Physical Requirements

Must be able to physically perform the basic operational functions of fingering, talking, hearing, and repetitive motions. Must be able to perform sedentary work exerting up to 10 pounds of force occasionally, and/or a negligible amount of force frequently or constantly to move objects.
~~Must possess the visual acuity to prepare data and statistics, work with accounting processes, operate a computer terminal, and do extensive reading.~~ An employee must have such visual acuity as to be able to read and write handwritten and typewritten material to prepare data and statistics, including being able operate a computer and do extensive reading. An employee in this class must be able to talk and hear in order to be able to respond to the public and other employees.

Working Conditions

Work is typically performed in an office setting with a temperature controlled environment and no exposure to external environmental conditions.

Special Requirements

Valid Drivers' License
Notary Public or the ability to obtain with in one (1) year of hire date.

FLSA Status: Non-Exempt

Disclaimer

This classification specification has been designed to indicate the general nature and level of work performed by employees within this classification. It is not designed to contain or be interpreted as a comprehensive inventory of all duties, responsibilities, and qualifications required of employees to perform the job. The City of Hendersonville reserves the right to assign or otherwise modify the duties assigned to this classification.

October 2018

Accounting Coordinator – (New)

Primary Reason Classification Exists
To perform various accounting functions for the finance operations in the City.

Distinguishing Features of the Class
An employee in this class is responsible for a range of administrative and accounting functions. This will primarily consist of accounts payable functions including processing of invoices, distribution of checks, employee reimbursement requests, and verifying g/l account coding as it relates to municipal operations. In addition, the Accounting Coordinator will also oversee capital assets for the City and provide financial analysis as required. Work is performed with some degree of discretionary judgment, independence, and confidentiality. Work is performed under general supervision of the Accounting Supervisor.

Illustrative Examples of Work
- Prepares and processes weekly accounts payable including assigning account codes and vendor numbers for proper payment; resolves inconsistencies with departmental directors and prepares checks
- Liaison between internal departments and Accounting in addition to external parties
- Maintain vendor information in financial database
- Research and resolve account payable issues
- Reconcile account payables to vendor statements and sub-ledger
- Initiates or follows up with vendors regarding missing or incorrect invoices
- Monitor and record capital asset acquisitions and dispositions for the City in the accounting system
- Backup payroll processing and reporting of payroll information
- Preparation of various reconciliations
- Processes various journal entries
- Processes department mail daily
- Performs other related duties as assigned

Education
Bachelor's Degree in Accounting, Business or related field and 1 year experience preferred; or Associate's Degree in Accounting, Business, or related field and minimum 2 years of experience required.

Experience
One (1) or more years' experience in an automated fiscal or accounting environment, preferably in the public sector.

Physical Requirements
Work is generally sedentary requiring the exertion of up to 10 pounds of force occasionally and a negligible amount of force frequently or constantly to move objects. Employee must have visual acuity to be able to prepare and analyze data and figures for accounting, perform extensive reading, operate a computer and other office equipment, determine accuracy and thoroughness of

work, observe general surroundings and activities. Vocal communication is required for expressing or exchanging ideas by means of the spoken word. Hearing is required to perceive information at normal spoken word levels.

Working Conditions
Work is performed in an office with a controlled environment without exposure to harmful conditions.

Special Requirements
Valid Drivers' License

FLSA Status: Non-Exempt

Disclaimer

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October 2018

Accounts Payable Specialist –(Old)

Primary Reason Why Classification Exists

To perform responsible technical accounts payable and related accounting work.

Distinguishing Features of Class

An employee in this class is responsible for accounts payables functions. Emphasis of the work is on verifying, coding, balancing, and otherwise maintaining financial records relating to municipal operations. Work is performed with some degree of discretionary judgment, independence, and confidentiality. Work is performed under general supervision of the Accounting Supervisor and is evaluated on the basis of attainment of individual performance objectives, observation, accuracy of reports, and feedback from other accounting staff.

Illustrative Examples of Work

- Prepares and processes weekly accounts payable including assigning account codes and vendor numbers for proper payment; resolves inconsistencies with departmental directors and prepares checks for management signatures
- Analyzes and verifies bookkeeping transactions; documents and posts financial data to accounts or ledgers; makes adjusting and reversing entries in journals and ledgers
- Enters City's electric utility usage into spreadsheet to make and ensure proper charges to departments for actual usage
- Initiates or follows up with vendors regarding missing or incorrect invoices
- Processes department mail daily; places in postage machine to ensure proper postage; allocates monthly postage usage amounts and charges to departments; orders postage machine supplies, postage as well as checks and envelopes
- Allocates monthly garage expenses to departments in accordance with actual charges
- Performs other related duties as required

Knowledge, Skills and Abilities

- Considerable knowledge of the organization's financial program, policies, records and related practices
- Knowledge of the concepts and practices of governmental fund accounting
- Knowledge of established bookkeeping and accounting principles and techniques to standard and specialized accounting transactions
- Knowledge of office practices and procedures, business arithmetic, English grammar and sentence structure, and filing and record keeping practices
- Knowledge of computers and common software applications including word processing and spreadsheet applications
- Knowledge of effective interpersonal skills sufficient to communicate, both orally and in writing, with others within and outside the organization to which assigned
- Ability to implement and maintain accounting methods, procedures, forms and records, including processes for internal auditing
- Ability to plan, organize, and prioritize work; ability to prepare and interpret financial reports and statements; ability to make arithmetic calculations quickly and accurately

- Ability to establish and maintain effective working relationships with other employees, governmental officials, and the general public; ability to communicate effectively, both orally and in writing, with other staff, the public, and municipal officials
- Ability to work independently without close supervision and coordinate the work of others
- Ability to use a calculator, personal computer, and other office equipment as required by the position

Physical Requirements
Work in this class is generally sedentary. Work requires some light physical activity such as walking, reaching, stooping and repetitive motion of the wrists, hands, and fingers using dexterity in the hands for typing and operation of standard office equipment. Work also includes the ability to see, hear, talk, and physically move about the office. Visual acuity is necessary to read materials and operate computer terminals and other office equipment.

Working Conditions
Work is performed primarily in an atmospheric controlled environment without exposure to harmful chemicals or other workplace hazards.

Education
Graduation from high school or GED equivalency supplemented by courses in accounting, business management, or related field; an Associate's degree in accounting is preferred.

Experience
One (1) or more years' experience in municipal accounting, accounts payables/receivables, and payroll

Special Requirements
Valid driver's license

FLSA Status: Nonexempt

Disclaimer
This classification specification has been designed to indicate the general nature and level of work performed by employees within this classification. It is not designed to contain or be interpreted as a comprehensive inventory of all duties, responsibilities, and qualifications required of employees to perform the job. The City of Hendersonville reserves the right to assign or otherwise modify the duties assigned to this classification.

April 2018

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: John Connet

Department: Admin

Date Submitted: 9/25/2018

Presenter: John Connet

Date of Council Meeting to consider this item: 10/04/2018

Nature of Item: Council Action

Summary of Information/Request: **Item #** 05e

Hands On! Children Museum has requested the use of Berkeley Park for the 2019 Mud Run on Friday, May 31, 2019 and Saturday, June 1, 2019. The Mud Run requires the utilization of the entire park and City staff to help construct the course. City Council must also approve the consumption of alcohol on City property as part of this fundraising event.

Budget Impact: $ TBD Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

I move that the City Council approve the use of Berkeley Park for the 2019 Mud Run on May 31, 2019 and June 1, 2019 and waive the restriction regarding the consumption of alcohol on City of Hendersonville property for this fundraising event.

Attachments:

Email request from Executive Director Joseph Knight

Agenda

Connet, John

From: Joseph Knight <joseph@handsonwnc.org>
Sent: Tuesday, September 18, 2018 9:49 AM
To: Connet, John
Subject: Re: Community Engagement Workshop
Attachments: image001.jpg

Follow Up Flag: Follow up
Flag Status: Flagged

Hi John!

Thanks for letting me know. We appreciate the city's support of the museum and we're thankful to have you as a partner.

On a separate note, yesterday our board approved the dates of the 2019 Mad Mountain Mud Run and Family Mud Fun. The Family Mud Fun will take place Friday, May 31, 2019 and the Mud Run will take place on Saturday, June 1, 2019. Can we have these dates presented to the City Council in October for consideration/approval?

Thank you,

Joseph

On Tue, Sep 18, 2018 at 9:43 AM Connet, John <jconnet@hvlnc.gov> wrote:

> Joseph,
>
> I am sorry that I cannot attend the Community Engagement Workshop on September 25. I teach a class at WCU on Tuesday nights. Hands On is very important to our community. Good luck with master planning process.
>
> John Connet
>
> John F. Connet
>
> City Manager
>
> City of Hendersonville, NC

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: Brian Pahle

Department: Admin

Date Submitted: 09/25/18

Presenter: Brian Pahle

Date of Council Meeting to consider this item: 10/04/18

Nature of Item: Council Action

Summary of Information/Request: **Item #** 05f

A request to direct staff to execute an easement agreement with the Education Research Consortium of the Western Carolinas (ERC) for the placement of a Point of Presence (PoP) for their fiber network in and around the City of Hendersonvillle and greater Henderson County. The easement will be located on 4 parking spots in the Maple Annex Lot. The current tenants' spaces will be moved to the top of the Maple Lot. We have spoken with each tenant and they are comfortable with this move. This PoP will greatly enhance the resilience of the network located in Hendersonville and promote additional broadband opportunities.

Budget Impact: $ None Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

None

Suggested Motion:

I move to approve the resolution as presented.

Attachments:

Resolution
Maple Annex Lot spaces

RESOLUTION # _____

A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AN EASEMENT AGREEMENT WITH EDUCATION AND RESEARCH CONSORTIUM OF THE WESTERN CAROLINAS, INC.

WHEREAS the City Council has determined that it is advantageous to the health, safety and welfare of the residents and business of, and visitors to, the city to have access to improved internet service; and

WHEREAS an nonprofit corporation known as Education Research Consortium of the Western Carolinas, Inc. ("ERC") has engaged with the city to provide at terms advantageous to the city highly accelerated internet service within the city; and

WHEREAS it is necessary and convenient to ERC, in providing internet service within the city, to establish certain internet infrastructure in particular locations; and

WHEREAS it is to the benefit of the city to provide ERC an easement for the location of the said infrastructure;

NOW THEREFORE the City Council resolves as follows:

1. The city manager and the city attorney are authorized and directed to prepare and execute such documents as may be reasonably necessary to grant to Education Research Consortium of the Western Carolinas, Inc. an easement within the Maple Annex Lot sufficient to enable it to establish, repair and maintain indefinitely internet-related infrastructure, a Point of Presence ("PoP") for Education Rearch Consortium's fiber network in and around the City of Hendersonville and greater Henderson County.

2. The city manager is authorized to effect the moving of current parking lot tenants' spaces to such spaces elsewhere in the Maple Lot as the city manager deems reasonable.

Adopted this 4th day of October 2018.

_____

Barbara Volk
Mayor, City of Hendersonville

ATTEST:

_____

Tammie K. Drake, MMC
City Clerk

N King St
CITY OF
HENDERSONVILLE
5th Ave E
5th Ave E
N Edwards St
423
118
20
12
12
12
12
12
14
15

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: John Connet

Department: Admin

Date Submitted: 9/25/2018

Presenter: Tom Wooten

Date of Council Meeting to consider this item: 10/04/2018

Nature of Item: Presentation Only

Summary of Information/Request: **Item #** 06a

Congratulations on Hendersonville's Tree City of the Year Award for North Carolina!

A representative from the U.S. Forest Service will present the City of Hendersonville with the 2018 Tree City of the Year Award for North Carolina.

Budget Impact: $ na Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

Attachments:

NA

Agenda

American Pharmacists Month Proclamation
Office of Mayor Barbara G. Volk
Hendersonville, North Carolina

YOUR PHARMACIST KNOW YOUR MEDICINE

AMERICAN PHARMACISTS MONTH PROCLAMATION

Whereas, Pharmacy is one of the oldest of the health professions concerned with the health and well-being of all people; and

Whereas, Today, there are more than 300,000 pharmacists licensed in the United States providing services to ensure the safe and effective use of all medications; and

Whereas, The safe and effective use of medication, as a cost-effective alternative and a mechanism to avoid more expensive medical procedures, is a major force in moderating overall health care costs; and

Whereas, Today's powerful and complex medications require greater attention to the manner in which they are used by different patient population groups—both clinically and demographically; and

Whereas, It is important that all users of prescription and nonprescription medications, their families or their caregivers, be knowledgeable about and share responsibility for their own drug therapy; and

Whereas, Pharmacists have extensive education and expertise on drugs and medication therapy, which makes them ideally suited to work collaboratively with patients and their health care team members to improve medication use and outcomes; and

Whereas, Pharmacists provide patients with expertise, knowledge and accessibility, all crucial factors to support improvement in our nation's public health; and

Whereas, Pharmacists are best positioned to be the health care professionals to help patients improve their adherence to their medications, and provide patient care services that ensure optimal medication therapy outcomes; and

Whereas, the American Pharmacists Association and the City of Hendersonville have declared October as American Pharmacists Month with the theme

"Know Your Pharmacist, Know Your Medicine."

IN WITNESS WHEREOF, I have hereunto set my hand this fourth day of October, in the year two thousand eighteen.

NOW, THEREFORE, I, Barbara G. Volk, Mayor of the City of Hendersonville, by virtue of the authority vested in me, do hereby proclaim October as American Pharmacists Month in the City of Hendersonville and urge all our citizens to acknowledge the valuable services of pharmacists to provide safe, affordable and beneficial pharmaceutical care services and products to all citizens.

THE CITY OF HENDERSONVILLE NC 1847

Barbara G. Volk

Barbara G. Volk
Mayor

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: Joseph Vindigni

Department: Fire

Date Submitted: September 14, 2018

Presenter: Mayor Volk

Date of Council Meeting to consider this item: October 4, 2018

Nature of Item: Presentation Only

Summary of Information/Request: **Item #** 06c

Fire Chief Joseph Vindigni has requested a proclamation for Fire Prevention Week. This year fire prevention week is from October 7-13, 2018 and the theme is "Look. Listen. Learn. Be aware – fire can happen anywhere™". Fire Marshal Justin Ward and Assistant Fire Marshal Jerry Hinson will receive the proclamation.

Budget Impact: $ 0 Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

Attachments:

Fire Prevention Proclamation for 2018

Agenda

City of Hendersonville, North Carolina Mayor's Proclamation

WHEREAS, the City of Hendersonville is committed to ensuring the safety and security of all those living in and visiting Hendersonville; and

WHEREAS, fire is a serious public safety concern both locally and nationally, and homes are the locations where people are at greatest risk from fire; and the majority of U.S. fire deaths (4 out of 5) occur at home each year; and

WHEREAS, Hendersonville's residents should identify places in their home where fires can start and eliminate those hazards; and

WHEREAS, Hendersonville's residents should listen for the sound of the smoke alarm and when it sounds respond by going outside immediately to the designated meeting place;

WHEREAS, Hendersonville's residents who have planned and practiced a home fire escape plan are more prepared and will therefore be more likely to survive a fire; and

WHEREAS, Hendersonville's first responders are dedicated to reducing the occurrence of home fires and home fire injuries through prevention and protection education; and

WHEREAS, the 2018 Fire Prevention Week theme, "Look. Listen. Learn. Be aware – fire can happen anywhere™" effectively serves to remind us that we need to take personal steps to increase our safety from fire.

THEREFORE, I Barbara G. Volk Mayor of the City of Hendersonville do hereby proclaim October 7-13, 2018, as Fire Prevention Week throughout this city, and I urge all the people of Hendersonville to be aware of their surroundings, look for available ways out in the event of a fire or other emergency, respond when the smoke alarm sounds by exiting the building immediately, and to support the many public safety activities and efforts of the Hendersonville fire department during Fire Prevention Week 2018.

_____

Barbara G. Volk, Mayor

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: Melissa Justus

Department: Police

Date Submitted: 09.27.18

Presenter: Chief Herbert Balke

Date of Council Meeting to consider this item: 10.04.18

Nature of Item: Presentation Only

Summary of Information/Request: **Item #** 06d

Chief Blake would like to introduce Police Officers Zeke Johnston and Keenan Nesbitt.

Ezekiel Dauhn Johnston, or Zeke as he is referred to, started with the Hendersonville Police Department on August 18, 2018. Zeke graduated from Owen High School in 2015. He attended and graduated from BLET (Basic Law Enforcement Training) on August 17, 2018 from McDowell Community College. He is married to Shelby and they have a son, Joshua.

Keenan Nakoa Nesbitt started with the Hendersonville Police Department on June 9, 2018. Keenan graduated from Polk County High School in 2010. He attended and graduated from BLET (Basic Law Enforcement Training) on December 5, 2017 from Isothermal Community College. Keenan is married to Maria and has two step-children, Christian and Yuri.

Please welcome them both to the City of Hendersonville.

Budget Impact: $ N/A Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

N/A

Attachments:

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: Susan G. Frady

Department: Development Asst Dept

Date Submitted: 9.13.18

Presenter: Daniel Heyman, Planner

Date of Council Meeting to consider this item: October 4, 2018

Nature of Item: Council Action

Summary of Information/Request: **Item #** 07

The Development Assistance Department is in receipt of an application for a conditional zoning district rezoning from Ebenezer Baptist Church. The applicant is requesting to rezone 2557 Chimney Rock Road from HMU, Highway Mixed Use to C-3CZD Highway Business Conditional Zoning District. The applicant would like to install an animated sign on the property that is not permitted in the HMU. Highway Mixed Use District. The sign is the same size as the existing sign but would contain time, temperature and church announcements. The church has already purchased the sign.

Budget Impact: $ 0 Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

The suggested motions are on page 3 of the Memorandum.

Attachments:

Memorandum
Maps

MEMORANDUM

TO: Honorable Mayor and City Council

FROM: Development Assistance Department

RE: Ebenezer Baptist Church Conditional Rezoning

FILE #: P18-23-CZD

DATE: October 4, 2018

PROJECT HISTORY

The City is in receipt of an application for a conditional rezoning from Ebenezer Baptist Church. The applicant is requesting to rezone 2557 Chimney Rock Road, from HMU Highway Mixed Use to C-3CZD Highway Business Conditional Zoning District, in order to install an animated sign. This application, if approved, would rezone the entire parcel as indicated on the attached maps. Uses would be limited to those shown on the plan and indicated on the approved list of uses and conditions.

EXISTING LAND USE & ZONING

The subject parcel is currently zoned HMU, Highway Mixed Use, and contains a religious institution. The parcels to the west and north across Howard Gap Road are zoned R-20, Low-Density Residential, and include single-family homes, an electrical substation, and vacant property. Properties to the east are zoned HMU and contains the Brookdale Senior Living facility and the Blue Ridge Health Center. Property to the southeast is zoned C-3, Highway Business and contains Moores Grove United Methodist Church. Property to the southwest is zoned PCD, Planned Commercial Development, and contains the Highland Square Shopping Center. Surrounding land uses and zoning districts are shown on the "Existing Land Use Map" and "Zoning Map" located on pages 8 and 9 respectively.

COMPREHENSIVE PLAN CONSISTENCY

According to N.C.G.S.160A-383, zoning map amendments shall be made in accordance with a comprehensive plan. As shown on the attached map, the 2030 Comprehensive Plan's Future Land Use Map designates the subject area as Regional Activity Center.

The goal of the Regional Activity Center future land use category is to meet the large-scale retail needs of Hendersonville residents while encouraging mixed-use, walkable design through redevelopment and infill projects.

The 2030 Comprehensive Plan's Future Land Use Map is located on page 10.

PLAN REVIEW

Proposed Sign

The applicant has proposed to install a LED animated sign within the existing sign-face located at the entrance on Chimney Rock Road. The sign details are attached to this memo.

Animated signs are not permitted in the HMU zoning district. The only districts where such signs are permitted are the C-2, C-3, and I-1 zoning districts, or in corresponding conditional zoning districts.

NEIGHBORHOOD COMPATIBILITY

A neighborhood compatibility meeting concerning the application was held on August 21, 2018. Notice was provided by U.S. mail to the owners of record of all property situated within 400 feet of the subject property as required by the Zoning Ordinance. No one representing the general public attended the meeting.

PLANNING BOARD

The Planning Board took this matter up at its regular meeting on September 10, 2018. The Planning Board voted unanimously to recommend that City Council adopt an ordinance amending the official zoning map of the City of Hendersonville changing the zoning designation of parcel number 9579-69-3917 from HMU, Highway Mixed Use to C-3CZD, Highway Business Conditional Zoning District, based on the site plan submitted by the applicant and subject to the limitations and conditions stipulated on the Published List of Uses and Conditions, finding that the rezoning is consistent with the Comprehensive Plan's Future Land Use map, and that the rezoning is reasonable and in the public interest for the following reasons: it is the highest and best use of the property.

ZONING ORDINANCE GUIDELINES

Per Section 11-4 of the City's Zoning Ordinance, the following factors shall be considered prior to adopting or disapproving an amendment to the City's Official Zoning Map:

1. **Comprehensive Plan consistency.** Consistency with the Comprehensive Plan and amendments thereto.

2. **Compatibility with surrounding uses.** Whether and the extent to which the proposed amendment is compatible with existing and proposed uses surrounding the subject property.

3. **Changed conditions.** Whether and the extent to which there are changed conditions, trends or facts that require an amendment.

4. **Public interest.** Whether and the extent to which the proposed amendment would result in a logical and orderly development pattern that benefits the surrounding neighborhood, is in the public interest and promotes public health, safety and general welfare.

5. **Public facilities.** Whether and the extent to which adequate public facilities and services such as water supply, wastewater treatment, fire and police protection and transportation are available to support the proposed amendment.

6. **Effect on natural environment.** Whether and the extent to which the proposed amendment would result in significantly adverse impacts on the natural environment including but not limited to water, air, noise, storm water management, streams, vegetation, wetlands, and wildlife.

SUGGESTED MOTIONS

For recommending approval:

I move that City Council adopt an ordinance amending the official zoning map of the City of Hendersonville changing the zoning designation of 2557 Chimney Rock Road, parcel number 9579-69-3917, from HMU, Highway Mixed Use to C-3 CZD, Highway Business Conditional Zoning District, based on the site plan submitted by the applicant and subject to the limitations and conditions stipulated on the Published List of Uses and Conditions, finding that the rezoning is consistent with the Comprehensive Plan's Future Land Use map, and that the rezoning is reasonable and in the public interest for the following reasons:

[PLEASE STATE YOUR REASONS]

For recommending approval with conditions:

I move that City Council adopt an ordinance amending the official zoning map of the City of Hendersonville changing the zoning designation of 2557 Chimney Rock Road, parcel number 9579-69-3917, from HMU, Highway Mixed Use to C-3 CZD, Highway Business Conditional Zoning District, based on the site plan submitted by the applicant and subject to the limitations and conditions stipulated on the Published List of Uses and Conditions, and with the following, mutually agreed upon additions:

[STATE ADDITIONAL CONDITIONS]

The rezoning is consistent with the Comprehensive Plan's Future Land Use map, and is reasonable and in the public interest for the following reasons:

[PLEASE STATE YOUR REASONS]

For recommending denial:

I move that City Council not adopt an ordinance rezoning 2557 Chimney Rock Road, parcel number 9579-69-3917.

[PLEASE STATE YOUR REASONS]

Planning Report
Neighborhood Compatibility Meeting
Application for a Conditional Zoning District
Ebenezer Baptist Church File #P18-23-CZD
Tuesday, August 21, 2018 2:00 p.m.

Susan Frady, Development Assistance Director, convened the compatibility meeting at 2:00 pm in the Assembly Room of the City Operations Center. The following were in attendance:

Name	***Address***	***Name***	***Address***
Donald Anderson (applicant)	2557 Chimney Rock Rd.	Susan Frady, Staff	
Steven Blanton (applicant)		Terri Swann, Staff	100 N. King Street
Chris Sweeney, Applicant			

Adjacent property owners within 400 feet of the proposed project were notified by mail. No one attended the meeting except the applicants and staff.

Ms. Frady closed the meeting at 2:10 pm.

IN RE: Ebenezer Baptist Church (File # P18-23-CZD)

List of Uses & Conditions

I. Stipulated Uses:

Only the following uses are authorized for the referenced development:

Accessory uses
Religious institutions
Signs, subject to the provisions of Article XIII

II. Conditions:

(1) Shall be satisfied prior to issuance of a zoning compliance permit:

(2) Shall Be Attached to the Conditional Rezoning:

Any revised plans for the project shall comply with approved plans, the conditions agreed to on the record of this proceeding and applicable provisions of the Hendersonville Zoning Ordinance and Code of Ordinances.

Trustees of Ebenezer Baptist Church, Inc.

Signature: _____

Printed Name: _____

Date: _____

AN ORDINANCE AMENDING THE OFFICIAL ZONING MAP OF THE CITY OF HENDERSONVILLE

IN RE: FILE NO. P18-23-CZD

Be it ordained by the City Council of the City of Hendersonville:

1. Pursuant to Article XI Amendments of the Zoning Ordinance of the City of Hendersonville, North Carolina, the Zoning Map is hereby amended by changing the zoning designation of parcel number 9579-69-3917 from City of Hendersonville HMU, Highway Mixed Use to City of Hendersonville C-3CZD, Highway Business Conditional Zoning District.

2. This ordinance shall be in full force and effect from and after the date of its adoption.

Adopted this 4th day of October, 2018.

_____
Barbara Volk, Mayor

ATTEST:

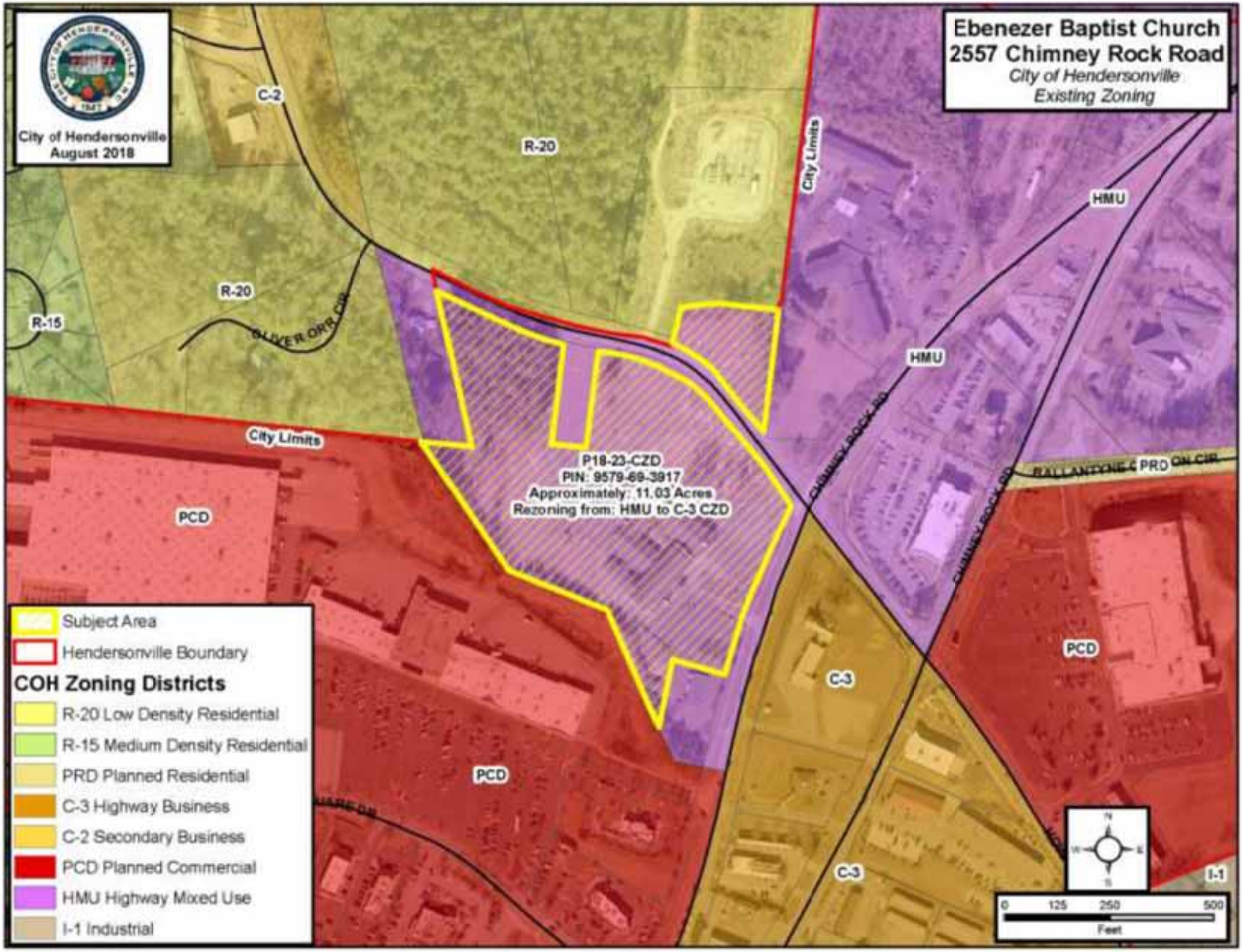
_____
Tammie K. Drake, CMC, City Clerk

Approved as to form:

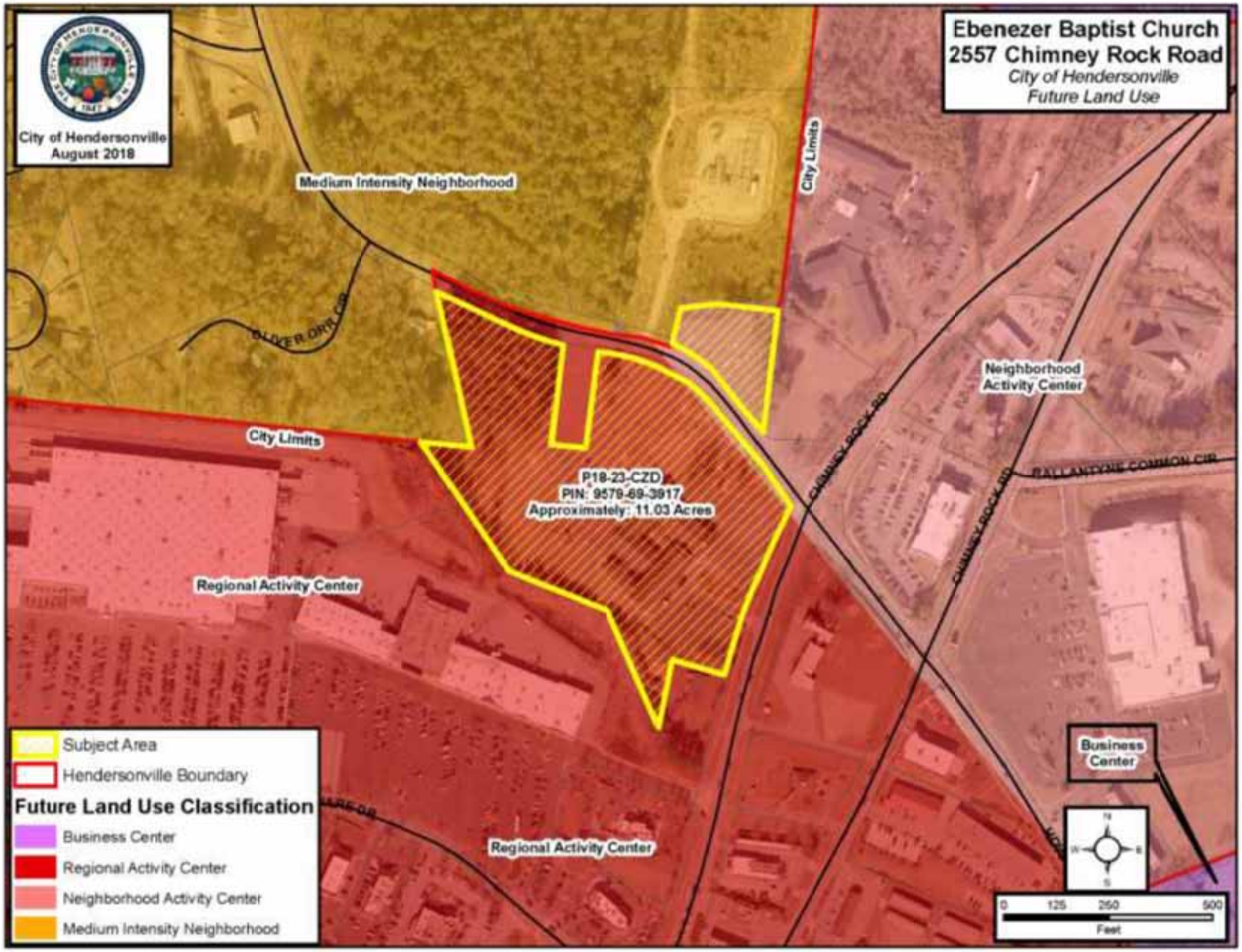
_____
Samuel H. Fritschner, City Attorney

Ebenezer Baptist Church
2557 Chimney Rock Road
City of Hendersonville
Existing Land Use
City of Hendersonville
August 2018
Residential
Vacant
Duke Energy Substation
Brookdale Senior Living
Residential
City Limits
P18-23-CZD
PIN: 9579-69-3917
Approximately: 11.03 Acres
Blue Ridge Community Health Services
Location of existing sign
Highland Square Shopping Center
Moores Grove United Methodist Church
Ingles
Carolina Farm Credit
Subject Area
Hendersonville Boundary
0 125 250 500
Feet

Agenda


Ebenezer Baptist Church
2557 Chimney Rock Road
City of Hendersonville
Existing Zoning
City of Hendersonville
August 2018
P18-23-CZD
PIN: 9579-69-3917
Approximately: 11.03 Acres
Rezoning from: HMU to C-3 CZD
C-2
R-20
R-15
SILVER OPR CIR
City Limits
HMU
PCD
C-3
I-1
BALLANTONE PRD CIR
CHIMNEY ROCK RD
Subject Area
Hendersonville Boundary
COH Zoning Districts
R-20 Low Density Residential
R-15 Medium Density Residential
PRD Planned Residential
C-3 Highway Business
C-2 Secondary Business
PCD Planned Commercial
HMU Highway Mixed Use
I-1 Industrial
0 125 250 500
Feet

genda


Ebenezer Baptist Church
2557 Chimney Rock Road
City of Hendersonville
Future Land Use
City of Hendersonville
August 2018
Medium Intensity Neighborhood
City Limits
Neighborhood Activity Center
City Limits
P18-23-CZD
PIN: 9579-69-3917
Approximately: 11.03 Acres
Regional Activity Center
Regional Activity Center
Business Center
Subject Area
Hendersonville Boundary
Future Land Use Classification
Business Center
Regional Activity Center
Neighborhood Activity Center
Medium Intensity Neighborhood
0 125 250 500
Feet

stewartsigns

DAYSTAR EXP

EBENEZER BAPTIST CHURCH
2557 CHIMNEY ROCK ROAD
HENDERSONVILLE, NC 28792-9181

Consultant:
Charlie Miller, x216
cmiller@stewartsigns.com
Direct Fax: (888) 237-8137

Customer ID: 1369861
Quote #: 916255 / 7
Quoted: 4/11/2018

Attn: Donald Anderson
828-808-7582

DESCRIPTION

Daystar EXP Sign: Single sided identification sign cabinet and Single Sided Full Color LED Display, 20mm 64 x 144 Matrix with 4 LEDs per Pixel

Face / Cabinet Details

LED Cabinet Height: 4' 5"
LED Cabinet Width: 9' 8"
EXP Cabinet Assembly for 4 High x 9 Wide 320x 320mm, OR 8 High x 9 Wide 160x 320mm LED Boards

LED Display Specifications

Over 281 Quintillion Colors
Displays 8 Lines of 5.5" tall characters with approx 24 - 30 characters per line
Capable of displaying 1 - 8 lines of text
Variable fonts & text sizes up to 50.4" tall

SignCommand.com Cloud-Based Software Included FREE for Lifetime of Product. Please visit www.signcommand.com for more information**.
LED Communication Method: Short-range Wireless; connectivity requires line-of-sight between sign antenna and wireless device antenna mounted on building by customer. Maximum distance of 1,500 feet* between antennas.

Electrical Information

LED Cabinet Requires 1 - 20 amp Circuit
240 Volts, Max Draw: 10.8 amps per circuit

Structural Details

Mount Style: Brackets (Wall)
Mount Size:
Minimum Wind Load Rating: 120mph, Exposure B

Miscellaneous Items

Single sided identification sign
Shipping included in this price
QC Kit for LED Sign
On-site LED Sign Quality Check

***** Review Custom Artwork for Text, Graphic and Layout Details *****

LED Cabinet: Black

Special Instructions:
One single side fed cabinet and one single sided identification cabinet to create a double sided sign for existing opening filler panels included in this price

Freight is included in your quote
Self-installation kit included in this price
Your sign investment comes with Lifetime technical support.
You get access to our on-line Graphics and video Library free for life.
10 months same as cash financing available with 0% interest and no credit check
View our videos on the cloud software tutorials
https://www.signcommand.com/support/videos/

Investment:	$22,998.00
Special Price:	$18,798.00

Unless otherwise noted in Special Instructions, these prices are valid for 60 days. Freight, storage, other freight services, and applicable sales tax will be added to your invoice. Organizations exempt from sales tax must include exempt certificate with order.

Shipping Terms: F.O.B. Origin
Payment Terms: 50% Down, Balance due 10 days after shipment

**By purchasing the SignCommand.com product, you are agreeing with the Website Terms of Use (https://www.signcommand.com/terms) and Software End User License Agreement (https://www.signcommand.com/eula).

Your Consultant: Charlie Miller (800) 237-3928, x216	Customer ID: 1369861	Quote Number: 916255 / 7	Date Quoted: 4/11/2018

Customer's Authorized Signature

Print Name

Date

4/11/2018

Charlie Miller, Regional Manager - Church Division
(800) 237-3928, x216
cmiller@stewartsigns.com

Date

genda

DAYSTAR EXP COLOR 20mm 64x144
LED CABINET: 4' 5" x 9' 8"
Wall Brackets

SIGNATURE 5.10
CABINET SIZE: 5'x10'

Header Vinyl:	Paint Color: Black	Approved as shown
Text Color:	Draft:	Date
Cowling Text Vinyl:	SIGN DESIGN #	Approved with listed changes
		Date

GRAPHICS DISCLAIMER: This custom artwork is not intended to provide an exact match between ink, vinyl, paint, or LED color. Brickwork, masonry and landscaping is not included in the proposal. Measurements shown are approximations; dimensions of final product may vary. LED images shown are simulated to replicate optimum viewing distance. Sign is designed to be illuminated at all times. Sketches are based off of this premise. Non-illumination during daylight hours may result in graphics appearing darker than expected.

stewartsigns
America's Premier Sign Company

3/8"=1'
Sk: 916255-7b
Cust: 1369861
4/16/2018
Ca/cMiller
PROPOSAL

ORIGINAL DESIGN DO NOT DUPLICATE

PH. 1-800-237-3928 · FAX 1-800-485-4280

50 YEARS OF EXCELLENCE

Agenda

Header Vinyl:	Paint Color: Black	Approved as shown
Text Color:	Draft:	Date
Cowling Text Vinyl:	SIGN DESIGN #	Approved with listed changes
		Date

GRAPHICS DISCLAIMER: This custom artwork is not intended to provide an exact match between ink, vinyl, paint, or LED color. Brickwork, masonry and landscaping is not included in the proposal. Measurements shown are approximations; dimensions of final product may vary. LED images shown are simulated to replicate optimum viewing distance. Sign is designed to be illuminated at all times. Sketches are based off of this premise. Non-illumination during daylight hours may result in graphics appearing darker than expected.

stewartsigns
America's Premier Sign Company

NOT TO SCALE
Sk: 916255-7b
Cust: 1369861
4/16/2018
Ca/cMiller
PROPOSAL

ORIGINAL DESIGN DO NOT DUPLICATE

PH. 1-800-237-3928 • FAX 1-800-485-4280

50 YEARS OF EXCELLENCE

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: Tammie Drake

Department: Admin

Date Submitted: 09.26.18

Presenter: Jonathan Woodard, NCDOT

Date of Council Meeting to consider this item: 10.04.18

Nature of Item: Discussion/Staff Direction

Summary of Information/Request: **Item #** 08

The City was contacted by Mr. Woodard, NCDOT Project Engineer, who stated they are contemplating some design changes to the proposed roundabouts at White Street from Willow Road to U.S. 176 and NC 225 from S. King Street to U.S. 176 under projects U-5886/U-6049.

Attached is a report prepared for NCDOT by an engineering firm hired by them to review the preliminary designs for the roundabouts proposed by this project. The report makes several recommendations regarding the roundabouts and they would like to discuss some of the recommendations with the Council and get their feedback.

Budget Impact: $_____ Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

Attachments:

Agenda

KITTELSON & ASSOCIATES
555 FAYETTEVILLE STREET, SUITE 300
RALEIGH, NC 27601
P 919.271.6891

MEMORANDUM

Date: August 14, 2018

Project #: 22488.1

To: Jim Dunlop, PE
North Carolina Department of Transportation
Transportation Mobility and Safety Division

From: Zachary Bugg, PhD, PE; Bradley Reynolds, PE, and Ed Myers, PE

Project: White St from Willow Rd to U.S. 176 and NC 225 from South King St to U.S. 176 (U-5886 and U-6049)

Subject: Roundabouts Design Review

At the request of North Carolina Department of Transportation (NCDOT) Transportation Mobility and Safety Division, Kittelson & Associations, Inc. (KAI) performed a review of three proposed roundabouts along White Street and NC 225 (STIP U-5886 and U-6049) in Henderson County, NC. The project location is displayed in Figure 1 (Reference 1).

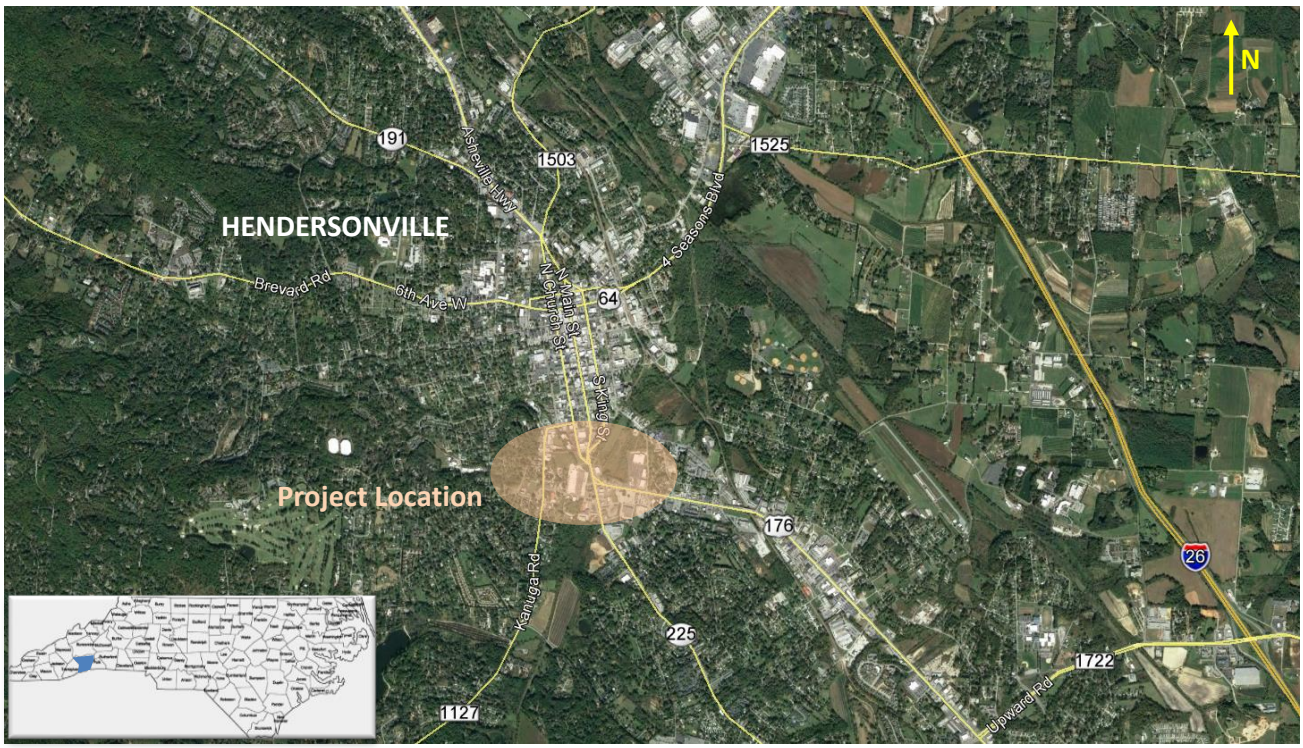


Figure 1. Project Location (Reference 1)

The project includes roundabouts at the following intersections:

Roundabout 1: South Main Street (U.S. 25 Business)/South Church Street – Multilane roundabout

Roundabout 2: Kanuga Road (SR 1127)/White Street (SR 1170) – Single-lane roundabout + bypass lanes

Roundabout 3: Willow Road (SR 1171)/Hebron Road (SR 1172) – Mini-roundabout

Figure 2 displays a schematic of the two projects from the design plans, including the locations of the three proposed roundabouts.

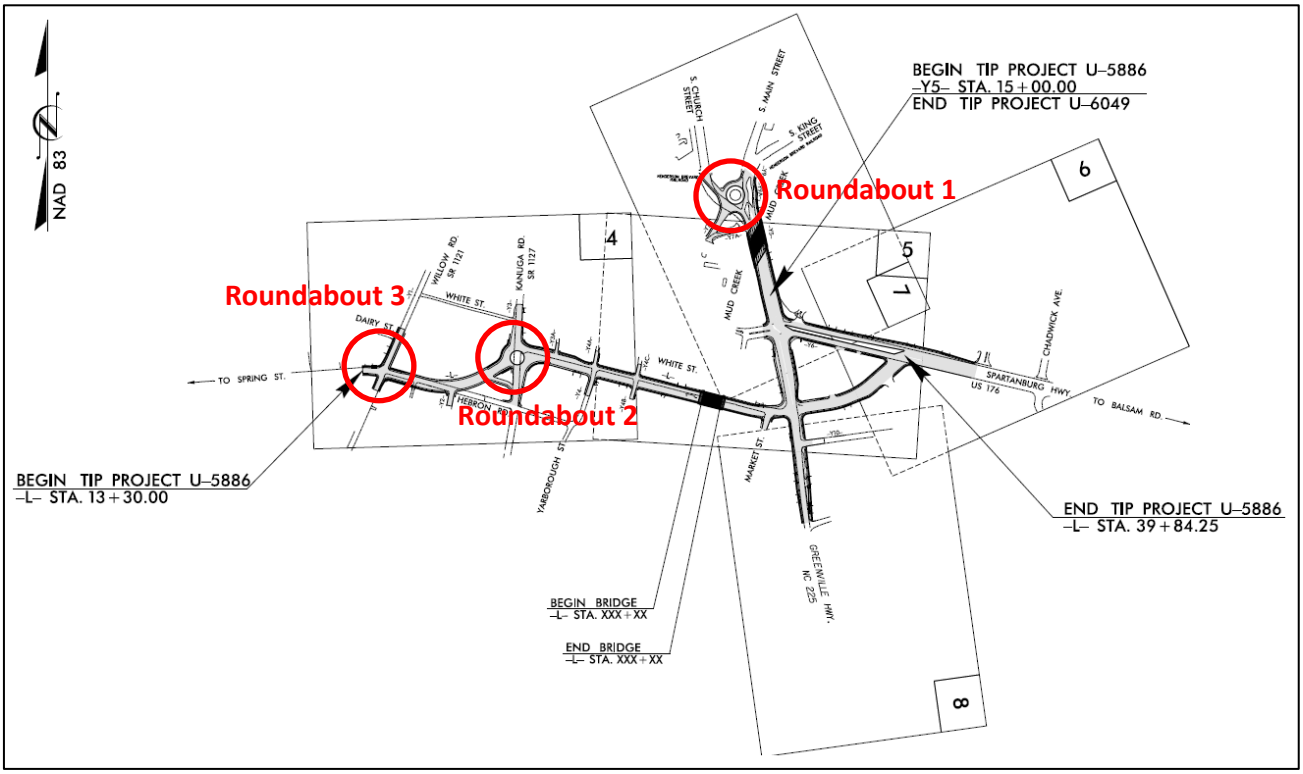


Figure 2. U-5886 and U-6049 Project Schematic

As shown, Project U-5886 will realign White Street from Willow Road to U.S. 176 (Spartanburg Highway), replacing the bridge over Mud Creek. The project will also connect Hebron Road to White Street west of Kanuga Road. Project U-6049 will improve South Main Street from South King Street to U.S. 176, including the widening of the bridge over Mud Creek to five lanes. This project includes major modifications to the South Main Street / NC 225 (Greenville Highway) / U.S. 176 / Fresh Market access intersection and will redirect left turns at the intersection to adjacent intersections at the relocated White Street and the proposed Roundabout 1.

We reviewed the 25 percent preliminary design plans for the three roundabouts provided by NCDOT, including the following elements:

- Operational performance assessment
- Lane geometry

- Horizontal design:
  - Roundabout sizing and placement,
  - Entry and circulatory roadway widths,
  - Fastest path checks,
  - Design vehicle checks,
  - Natural path and approach alignment,
  - Splitter island design,
  - Sidewalk design,
  - Bicycle design, and
  - Preliminary stopping and sight distance checks.
- Vertical design.

Each of these elements was reviewed against guidance provided in *NCHRP Report 672: Roundabouts: An Informational Guide, 2nd Edition* (Reference 2). The following sections provide a review of these elements for each individual roundabout. A design sketch with potential modifications was not included in the review. This can be prepared at NCDOT's request to aid in updating the roundabout designs.

ROUNDABOUT 1: SOUTH MAIN STREET / SOUTH CHURCH STREET

The South Main Street / South Church Street intersection is currently two-way stop control, with the southbound South Church Street and northbound South Main Street approaches being free-flow and the southbound South Main Street approach being stop-controlled. The Fresh Market shopping center right-in/right-out access forms the west leg of the intersection and is also stop-controlled. As shown in Figure 3, the proposed roundabout is a hybrid of single- and multilane approaches, with a two-lane approach on southbound South Church Street, a northbound continuous right-turn bypass lane on northbound South Main Street, an eastbound right-turn bypass lane at the Fresh Market driveway, and single-lane entries on all other approaches.

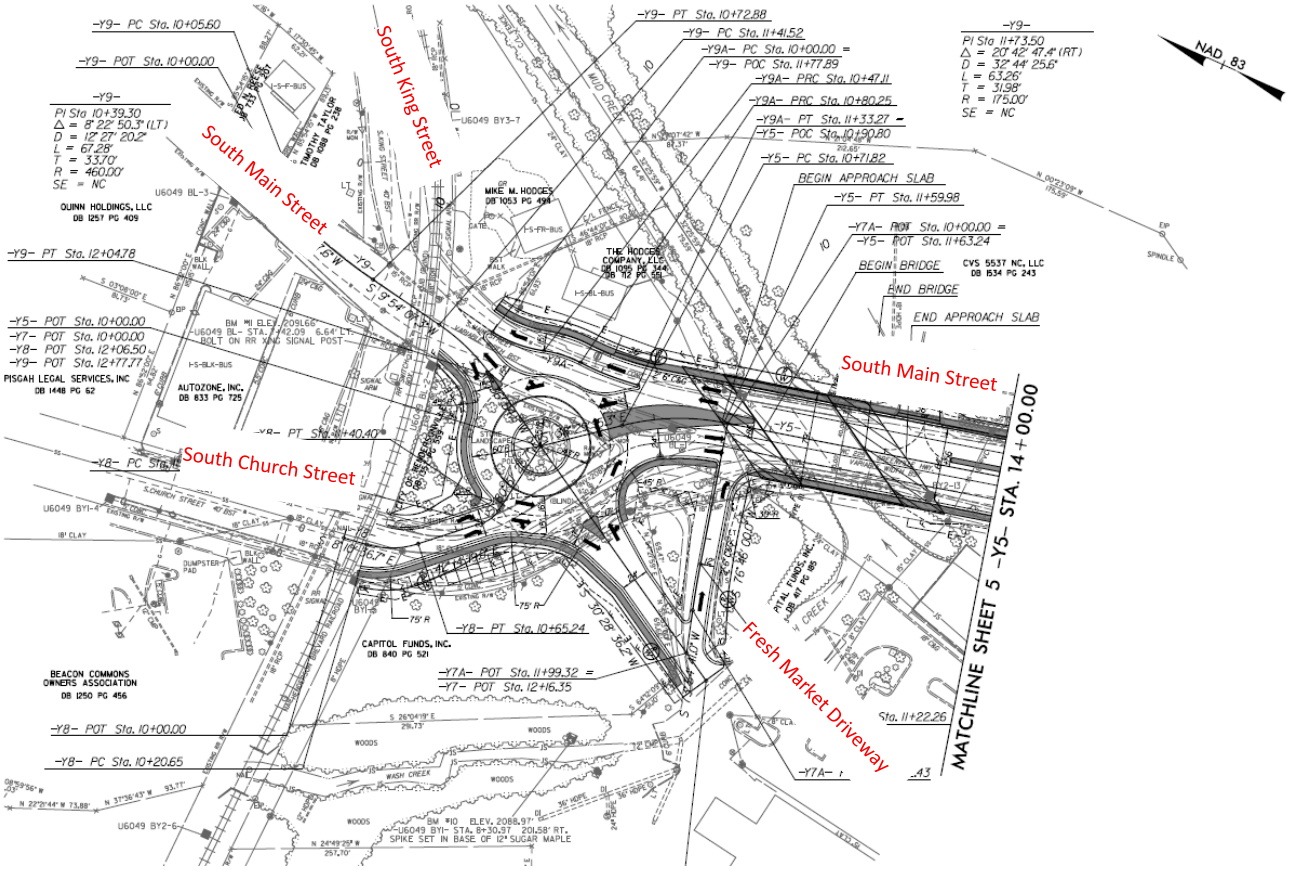


Figure 3. Roundabout 1 Overview

Operational Analysis

We obtained the 2040 design year AM and PM peak hour turning movement volumes and corresponding SIDRA and Highway Capacity Software (HCS) analysis from NCDOT. We duplicated the analysis in HCS 2010, with model parameters adjusted to reflect the *Highway Capacity Manual (HCM), 6th Edition* roundabout capacity models (Reference 3). Table 1 displays the resulting traffic operations, including the level of service (LOS), control delay (seconds per vehicle), volume-to-capacity ratio (v/c), and 95th-percentile queue length (Q95) (in feet, rounded to the nearest 25 feet to reflect the average vehicle length) for each lane group. As configured, the roundabout is expected to operate at LOS A during the 2040 AM and PM peak hours, with a maximum v/c ratio of 0.54. *Appendix "A"* provides the HCS output sheets for all scenarios.

Table 1. Roundabout 1 Traffic Operations

Roundabout	Movement	2040 AM Peak Hour				2040 PM Peak Hour			
		Delay (s)	LOS	v/c	Q95 (ft)	Delay (s)	LOS	v/c	Q95 (ft)
South Main Street / South Church Street	Eastbound Through	6.6	A	0.01	<25	7.9	A	0.01	<25
	Eastbound Right	6.6	A	0.01	<25	7.9	A	0.02	<25
	Southbound Main Street	3.0	A	0.03	<25	3.2	A	0.06	<25
	Northbound Left	2.7	A	0.01	<25	2.8	A	0.01	<25
	Northbound Right	0.0	A	0.00	<25	0.0	A	0.00	<25
	Southbound Church Street	6.6	A	0.42	50	8.4	A	0.54	75
	Average	**3.0**	**A**	**N/A**	**N/A**	**4.6**	**A**	**N/A**	**N/A**

The low delays, v/c's, and queues at the roundabout suggest that it may be overdesigned for the 2040 turning movement volumes—specifically, the multilane approaches on northbound South Main Street and southbound South Church Street may not be necessary. While additional capacity would service higher traffic volume in the event of unanticipated area developments or general traffic growth, research in NCHRP 672 has shown that roundabouts operate best when "right-sized" to the appropriate turning movement demands, and the additional lanes would require more right-of-way, create additional capital and maintenance costs, and lead to additional impervious surface than a single-lane design. As described in later sections of this memorandum, multilane approaches also introduce additional design challenges over single-lane approaches, including the potential for higher speeds and path overlap, both of which could lead to additional crashes if the roundabout is not designed accordingly.

To investigate the potential tradeoffs between different elements of the design, we performed a sensitivity analysis of a reduced design with only single-lane approaches and no right-turn bypass lanes. The resulting operations (using both existing and 2040 design year volumes) are displayed in Table 2.

Table 2. Roundabout 1 Traffic Operations (Single-lane Design)

Analysis Year	Movement	AM Peak Hour				PM Peak Hour			
		Delay (s)	LOS	v/c	Q95 (ft)	Delay (s)	LOS	v/c	Q95 (ft)
Existing	Eastbound Through	6.8	A	0.02	<25	7.9	A	0.02	<25
	Southbound Main Street	2.9	A	0.03	<25	3.1	A	0.05	<25
	Northbound Main Street	14.4	B	0.76	200	10.7	B	0.64	125
	Southbound Church Street	11.5	B	0.66	125	18.7	C	0.82	250
	Average	**12.8**	**B**	**N/A**	**N/A**	**14.6**	**B**	**N/A**	**N/A**
2040 Design Year	Eastbound Through	8.4	A	0.02	<25	10.4	B	0.03	<25
	Southbound Main Street	3.0	A	0.03	<25	3.2	A	0.06	<25
	Northbound Left	27.7	D	0.92	400	16.0	C	0.79	225
	Southbound Church Street	18.6	C	0.82	275	61.9	F	1.06	675
	Average	**23.0**	**C**	**N/A**	**N/A**	**40.0**	**E**	**N/A**	**N/A**

As shown in Table 2, the intersection is expected to operate under capacity as a single-lane roundabout in the design year, with the exception of the southbound South Church Street approach, which will operate over capacity (v/c = 1.06) during the 2040 PM peak hour. However, based on the lower v/c ratio of this approach under existing volumes (v/c = 0.82), it may be possible to open the roundabout as a single-lane roundabout and then expand to multiple lanes when they become required for capacity, which could be 10 or more years after opening. While South Church Street already has two southbound lanes upstream of the roundabout, one of these lanes could be temporarily converted to a bicycle lane, green space, or other uses.

We also analyzed the intersection with the 2040 design year volumes with the existing two-way stop control and lane configuration. A Synchro analysis of this configuration indicates the two-way stop control would operate at LOS C or better during the 2040 AM and PM peak hours, as shown in Table 3. *Appendix "A"* provides the Synchro output sheets for the two-way stop control analysis.

Table 3. South Main Street / South Church Street Two-Way Stop Control Operations (2040 Design Year)

Movement	2040 AM Peak Hour				2040 PM Peak Hour			
	Delay (s)	LOS	v/c	Q95 (ft)	Delay (s)	LOS	v/c	Q95 (ft)
Eastbound Right	12.1	B	0.01	<25	13.1	B	0.02	**<25**
Southbound Main Street	14.9	B	0.11	<25	19.9	C	0.25	**25**
Northbound Left	-	-	-	-	-	-	-	**-**
Northbound Right	-	-	-	-	-	-	-	**-**
Southbound Church Street	-	-	-	-	-	-	-	**-**

Regarding traffic operations, the roundabout offers only the following benefits over the existing two-way stop control:

- Improvement in level of service (from LOS C to LOS A) for the southbound South Main Street movement, which is anticipated to serve approximately 40 vehicles during the AM peak hour and 71 vehicles during the PM peak hour, per the SIDRA files provided. Note that some vehicles may already divert from southbound South Main Street to access South Church Street at upstream intersections to the north such as Kanuga Road and Barnwell Street.
- An additional permitted movement from the Fresh Market driveway onto South Main Street and South King Street, which would be removed from the main signalized access at South Main Street / U.S. 176 in the proposed configuration. The design hour volume for this movement provided in the SIDRA files is four vehicles during the AM and PM peak hours, and these movements could potentially be shifted to the third access on White Street on the south boundary of the Fresh Market shopping center.

With the added yield control on southbound South Church Street, the roundabout may in fact increase the overall delay to vehicles using the intersection. While a full feasibility study and project alternatives analysis (including crash analysis, cost estimation, etc.) is outside the scope of this peer review, based on the findings of the operations analysis, the proposed roundabout does not offer a clear operational

benefit over the existing two-way stop control, and, as described in the following sections, it may even introduce additional operational and safety issues as designed.

Roundabout Feasibility and Queuing Issues

The roundabout would be located just south of two at-grade crossings of the Blue Ridge Southern Railroad–TR Line (Reference 4). Per NCDOT, this railroad line is no longer in service and is expected to be rededicated toward a paved pedestrian/bicycle trail. The roundabout operational analysis and design should account for this future re-use of the railroad right-of-way. Crosswalks at the roundabout should be placed one vehicle length beyond the yield line (approximately 25 feet from the circulatory roadway) to control vehicle speeds near the crosswalk and to provide a consistent level of separation between driver decision points. As shown in the design plans, the railroad crosses the roundabouts more than 50 feet upstream of the yield line.

Additionally, the design year analysis should account for queue spillback on South Main Street in both directions between the roundabout and the NC 225 / U.S. 176 signalized intersection located approximately 600 feet to the south (Figure 2). While the design includes operational improvements to the NC 225 / U.S. 176 intersection, heavy PM peak hour demand there may still create long queues on southbound South Main Street extending to the roundabout, which could create sight distance issues and/or unexpected spillback into the roundabout exit. Additionally, due to limitations of the HCM models, the HCS analysis of the northbound continuous right turn bypass lane at the roundabout does not consider the queuing and lane imbalance upstream of the bypass lane, where merging into a single lane could create a bottleneck (the 2040 design year AM peak hour volume in the left lane of the northbound approach is six vehicles, versus 1,095 vehicles in the right lane)—this is not an issue in the existing two-way stop control configuration. A microsimulation analysis may be required to fully understand the potential queuing issues along the corridor. The existing two-way stop-control design, while less efficient than the roundabout, provides more space between the intersection and the at-grade railroad crossing and avoids potential queuing issues along the corridor.

As shown on the design plans and highlighted in Figure 4, the northbound continuous right-turn bypass lane creates a weaving segment between northbound traffic exiting the roundabout and the diverge point between South Main Street and South King Street. This could be removed by modifying the exit geometry to only allow traffic from the bypass lane to access South King Street. Traffic continuing to South Main Street would need to enter the roundabout from the south leg without using the right-turn bypass lane.

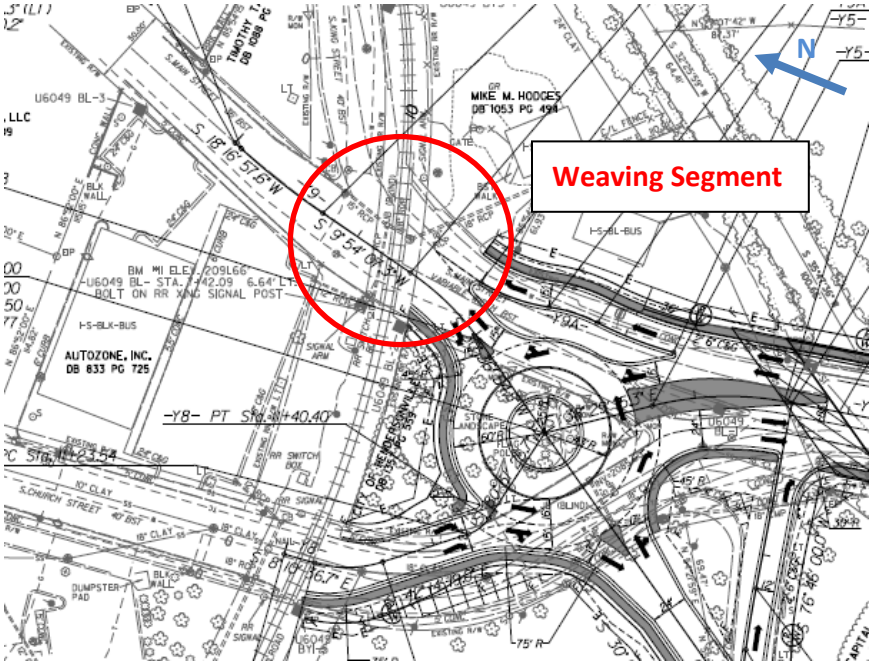


Figure 4. South Main Street / South King Street Weaving Segment

Both the merge issue on northbound Main Street approaching the proposed right-turn bypass lane and the weaving segment north of the roundabout could be eliminated by employing one of the following three techniques:

- Eliminating the northbound right-turn bypass lane and converting the northbound approach to a single lane;
- Converting the northbound right-turn bypass lane into a yielding lane (i.e., the northbound approach would have one exclusive right turn lane and one shared left/right-turn lane; or
- Maintaining the existing two-way stop control.

We recommend considering one of the following changes to the proposed intersection design:

1. *Maintain the existing two-way stop control;*
2. *Open the roundabout with a single-lane approach on southbound South Church Street, expandable to multiple lanes when needed; and/or*
3. *Modify the northbound South Main Street approach to remove the right-turn bypass lane, either by maintaining a single-lane approach or with a yielding right-turn lane.*

We recommend confirming the future uses of the inactive Blue Ridge Southern Railroad-TR Line at-grade railroad crossing the north legs of the roundabout. If the railroad right-of-way is rededicated to pedestrian/bicycle movements, then any at-grade movements should be shifted to one vehicle length (approximately 25 feet) from the roundabout yield line.

We recommend modifying the exit geometry on the northeast leg to remove the weaving segment between the northbound continuous right-turn bypass lane and the South Main Street / South King Street diverge point.

The operations analysis should explore potential queuing interaction between the roundabout and the NC 225 / US 176 signalized intersection.

Entry and Circulatory Roadway Widths

NCHRP Report 672, Sections 6.4.2 and 6.4.3 provide guidance on roundabout circulatory roadway widths. The circulatory roadway width should be at least as wide as the entry width, up to 20 feet. All entry and circulatory roadway widths were found to comply with this guidance, with the exception of the Fresh Market driveway entry width, which is wider than the receiving circulatory lane.

We recommend increasing the circulatory roadway width to be at least as wide as the widest entry width.

Fastest Path Checks

We measured fastest paths in accordance with NCHRP Report 672, Section 6.7.1, which recommends a maximum fastest path speed of 25 mph on single-lane approaches and 30 mph on multilane roundabout approaches. Table 4 displays the fastest path speeds at the roundabout. The fastest path radii are rounded to the nearest five feet, and cells highlighted in yellow show speeds exceeding the recommended maximum. *Appendix "B"* contains the fastest path figures.

Table 4. Roundabout 1 Fastest Paths

Approach	Path	Radius	Speed	Recommended Maximum Speed
Northbound South Main Street	R1	305	28	25
	R4	50	14	25
	R5	205	27	25
Southbound South Church Street	R1	300	31	30
	R2	260	27	30
	R3	205	27	30
	R4	45	14	30
	R5	130	23	30
Southbound South Main Street	R1	90	20	25
	R2	75	17	25
	R3	260	23*	25
	R4	50	14	25
Eastbound Fresh Market Driveway	R1	120	22	25
	R2	65	16	25
	R3	150	22	25
	R5	80	19	25

*Exit speed is limited by circulating speed and maximum acceleration.

As shown, the following fastest path speeds are greater than the maximum speeds recommended by NCHRP Report 672:

- The entry fastest path speed on the multilane southbound South Church Street approach is 31 mph, which is greater than the 30 mph maximum recommended by NCHRP Report 672. Potential updates to the roundabout design should aim to control speeds on this approach.
- The speed on the northbound South Main Street approach is 27 mph, which is greater than the 25 mph maximum recommended by NCHRP Report 672. This can be addressed by introducing more deflection on the approach.
- The speeds within the right-turn bypass lane from northbound South Main Street are greater than the 25 mph maximum recommended by NCHRP Report 672. This can be addressed by using tighter curvature within the right-turn bypass lane or, as previously suggested, removing the right-turn bypass lane altogether.

As the design is updated, we recommend maintaining speeds of 30 mph or less on the southbound South Church Street approach. We recommend modifying the northbound South Main Street approach and right-turn bypass lane to decrease the fastest path speeds to 25 mph or less.

Design Vehicle Checks

Per discussions with NCDOT, we assumed a WB-67 for all movements at the roundabout. We tested the turning paths using AutoTurn 9.0 and found the following potential deficiencies:

- As shown in Figure 5, the southbound South Main Street approach to the roundabout does not permit a WB-67 to enter the roundabout without encroaching upon the outside curb. This can be addressed by increasing the entry radius.

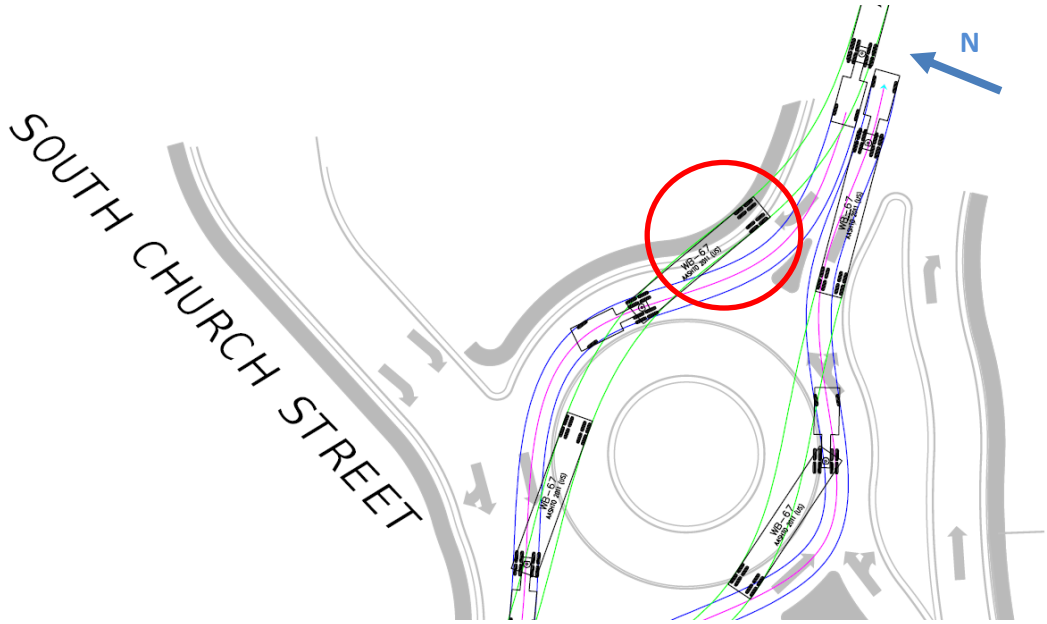


Figure 5. Southbound South Main Street Design Vehicle Checks

- As shown in Figure 6, the Fresh Market right-turn bypass lane geometry does not accommodate a WB-67 truck. This can be addressed by adjusting the radii and curb lines.

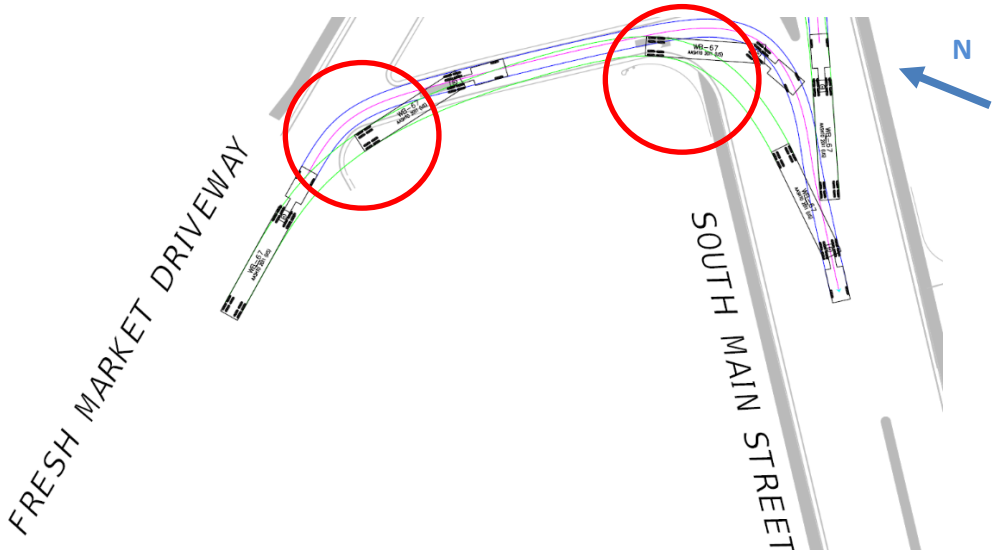


Figure 6. Eastbound Fresh Market Driveway Design Vehicle Checks

- Special care should be given to truck movements on multilane approaches, including the southbound South Church Street approach. Typically, the design strategy for multilane approaches can be classified into one of three cases:
  - Case 1: A truck may sweep over both lanes to enter and circulate the roundabout, and passenger cars should not pass trucks.
  - Case 2: A truck may enter and circulate the roundabout adjacent to passenger cars, i.e. passenger cars may pass trucks within the roundabout.
  - Case 3: Trucks may enter and circulate side-by-side.

  Currently, the southbound through movement through the roundabout is designed for Case 2 operation only if the truck uses the inside lane, as shown in Figure 7. If the truck uses the outside lane (Figure 8), then it will need to use both lanes to exit the roundabout, i.e. passenger cars could not pass trucks on the roundabout exit. The truck volume assumptions in the traffic analysis (3 percent trucks) are sufficiently low not to consider Case 3, which is typically only needed when truck volumes exceed 10 to 15 percent of total demand. However, the design team should consider which of the cases above is appropriate and then design the roundabout accordingly. One technique for helping to position vehicles on multilane approaches where trucks are expected is to use gore striping, as shown in NCHRP Report 672, Exhibit 6-37. Opening the roundabout with a single-lane southbound approach would also avoid passenger cars passing trucks.

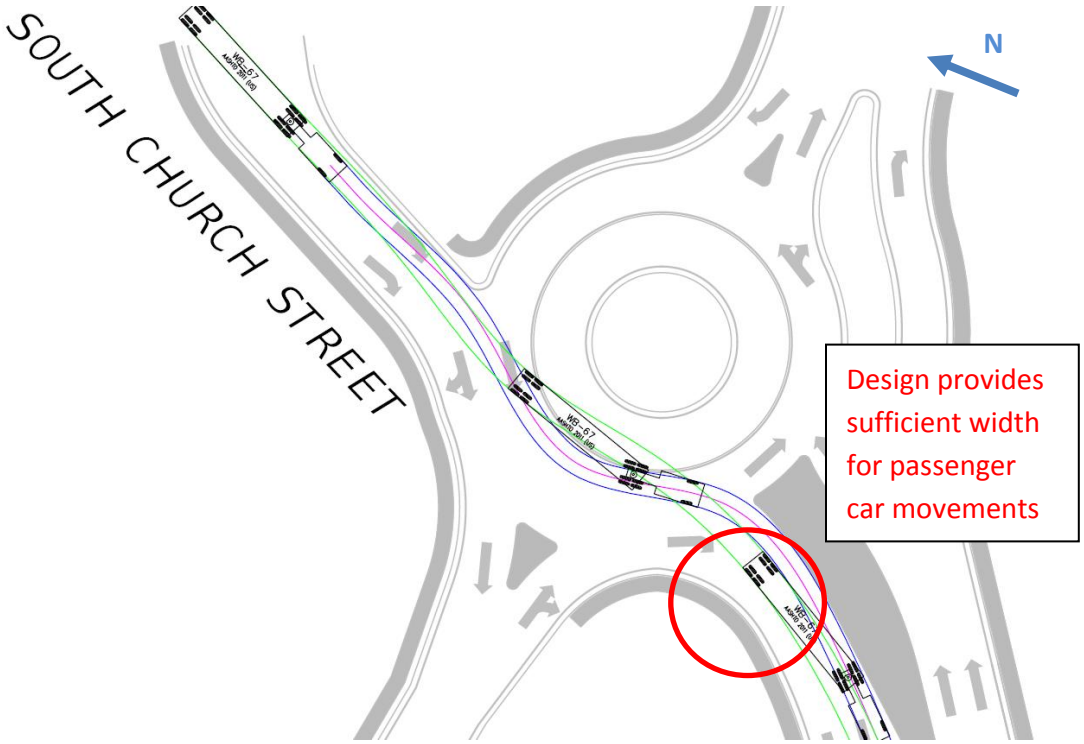


Figure 7. Southbound South Church Street WB-67 Movement (Inside Lane)

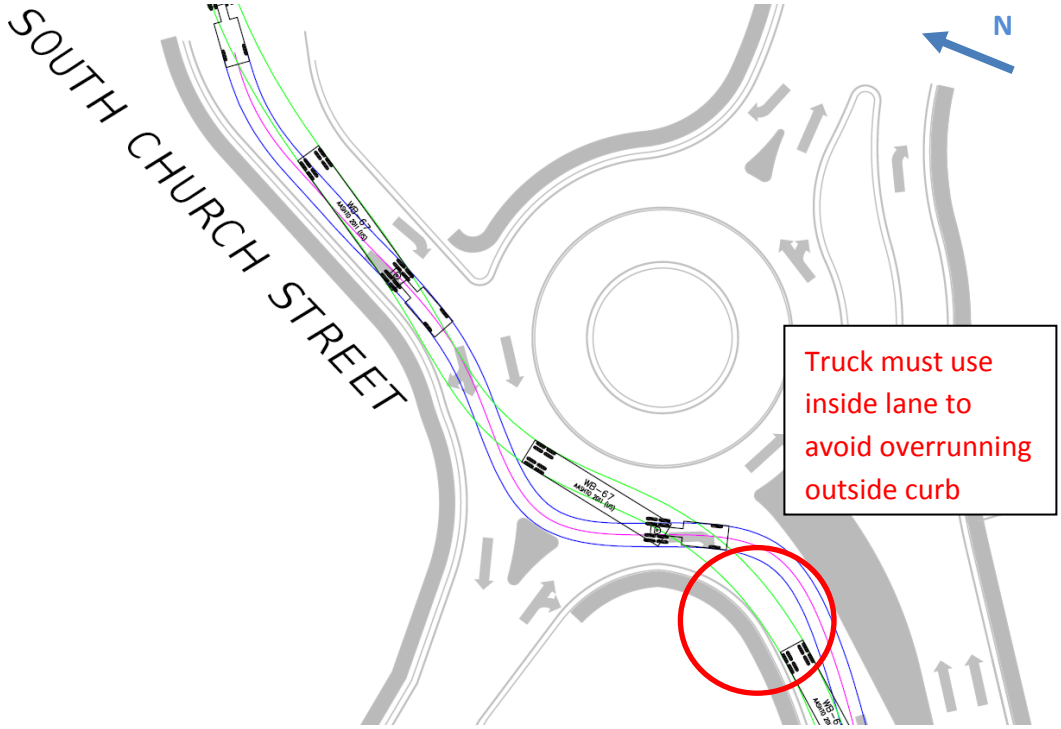


Figure 8. Southbound South Church Street WB-67 Movement (Outside Lane)

Appendix "C" contains the design vehicle turning movement figures.

We recommend adjusting the entry radii and curb lines for the southbound South Main Street approach and eastbound Fresh Market driveway right-turn bypass lane to accommodate WB-67 truck movements.

We recommend using gore striping on the southbound South Church Street approach to help separate trucks from adjacent entering traffic.

Natural Path and Approach Alignment

Path alignment is discussed in NCHRP Report 672, Section 6.5.4. Vehicle path overlap can occur on multilane roundabout segments where the geometry of the design tends to lead vehicles into the incorrect lane. This is exhibited at the southbound South Church Street approach, where the outside entry lane aligns with the inside circulatory lane, as shown in Figure 9. Typically, this issue can be addressed by using a short tangent segment on the entry just upstream of the yield line, as shown in NCHRP Report 672, Exhibit 6-30. Similar deficiencies and treatments apply to the southbound South Main Street exit. Opening the roundabout with a single-lane southbound approach would also avoid path overlap issues.

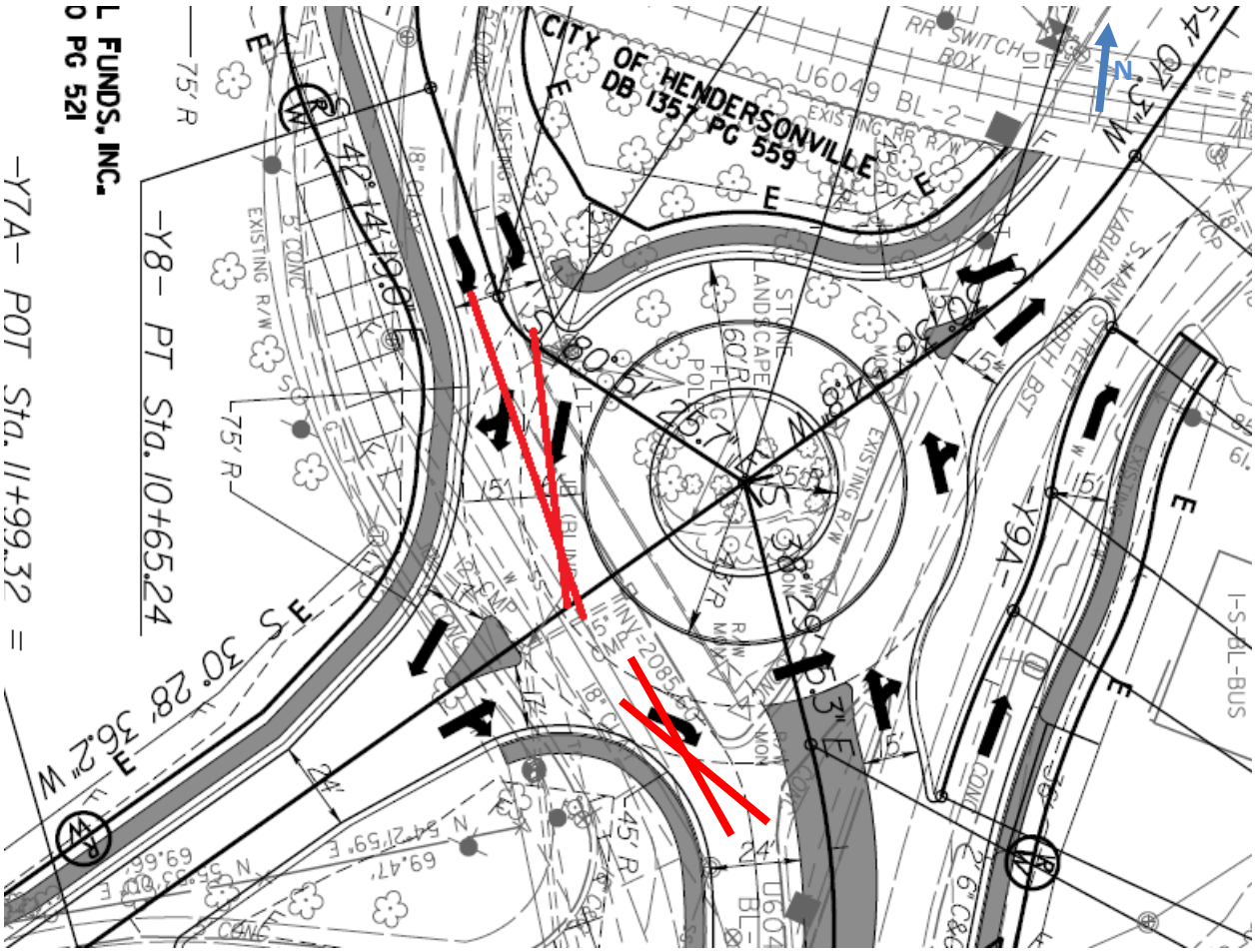


Figure 9. Path Overlap at Roundabout 1

We recommend adjusting the southbound South Church Street approach geometry and South Main Street exit geometry to remove path overlap. One option is to include a short tangent segment on the entry and exit.

Splitter Island Design

Appropriately-designed splitter islands help guide vehicle movements, separate opposing traffic, provide a refuge for pedestrians, and alert oncoming drivers that a change in roadway geometry is imminent. NCHRP Report 672, Section 6.4.1 recommends a minimum splitter island length of 50 feet, with a desirable length of 100 feet. Both the eastbound Fresh Market driveway approach and the southbound South Main Street approach have splitter islands shorter than 50 feet.

Additionally, NCHRP Report 672, Section 6.8.1 recommends placement of crosswalks approximately one vehicle length upstream of the yield bar. The splitter islands should be at least 6 feet wide through this portion of the approach to provide a suitable refuge for pedestrians.

Finally, the splitter island noses should be designed according to NCHRP Report 672, Exhibit 6-13, as shown in Figure 10. The purpose of these design details is to increase the visibility of splitter islands and funnel vehicles to the correct path. These details are consistent with standard AASHTO island design guidelines.

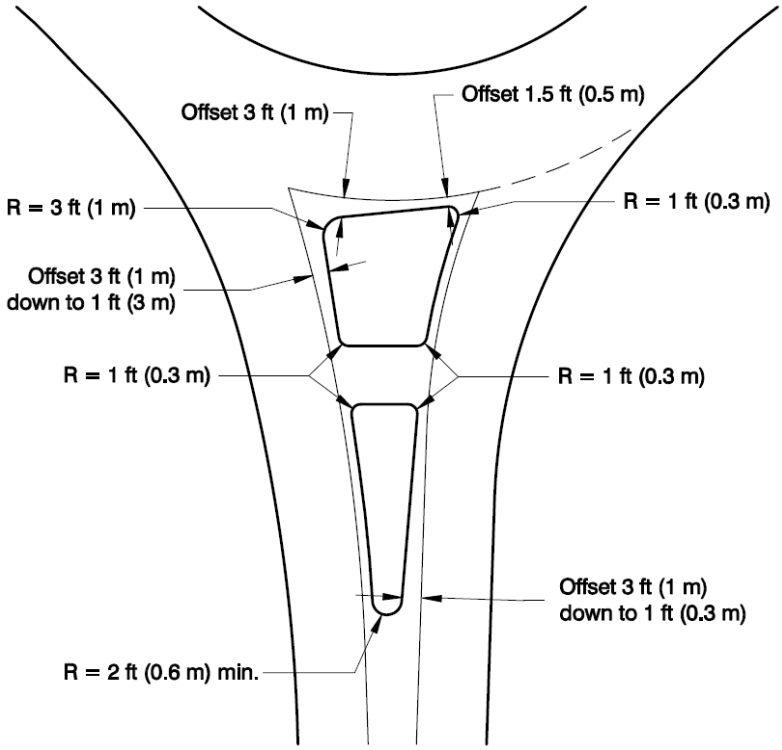


Figure 10. Splitter Island Offsets (Reference 2)

We recommend increasing the splitter island lengths to a minimum of 50 feet.

We recommend providing a 6-foot minimum splitter island width for pedestrian refuges.

We recommend modifying the splitter island noses to conform with standard AASHTO island design guidelines and NCHRP Report 672, Exhibit 6-13.

Sidewalk and Crosswalk Design

NCHRP Report 672, Section 6.8.1 recommends the use of a landscaped buffer or equivalent treatment to separate the sidewalk from the roadway wherever possible. This supports pedestrian wayfinding and discourages pedestrians from crossing to the central island. A 5-foot minimum buffer is preferred, with a 2-foot buffer being the minimum. An example of desirable sidewalk design and buffer widths is provided at the NC 225 / U.S. 176 signalized intersection to the south.

NCHRP Report 672, Section 7.5.2 recommends considering signalized crosswalk treatments at roundabout approaches with high vehicular volume, high pedestrian volume, and/or multiple lanes. The southbound South Church Street approach and the northbound South Main Street exit north of the roundabout are both expected to meet one or more of these criteria, especially if the railroad to the north of the roundabout is converted to a pedestrian/bicycle trail. NCHRP Report 672, Section 7.5.2 discusses a few potential pedestrian signalization options, including warning beacons, rectangular rapid flashing beacons (RRFBs), pedestrian hybrid beacons ("HAWK" signals), and full signalization. If multilane approaches are still included, then the design team should consider selecting one of these treatments as the design moves forward.

We recommend providing a 5-foot minimum buffer between the sidewalk and roadway where possible, with a 2-foot minimum buffer.

We recommend selecting a signalization treatment for crosswalks at multilane entries and exits at the roundabout.

Bicycle Design

Guidance on bicycle design at roundabouts is provided in NCHRP Report 672, 6.8.2. While dedicated bicycle facilities are not currently present on the approach roadways, bike lanes are recommended on South Main Street and South Church Street per the 2017 Hendersonville Bicycle Plan, although these are not included in the list of priority projects (Reference 5). If bicycle lanes are provided on the approach roadways, NCHRP Report 672 recommends terminating the bike lanes at least 100 feet upstream of the yield line.

The roundabout should be designed so that bicycle users can travel safely and comfortably—because not all cyclists have the same experience level and/or expectations, it is preferable to present cyclists with a range of options to navigate a roundabout based on the design speed and functional classification of the roadway. One treatment is to provide shared-use path system in the vicinity of the roundabout to allow cyclists to travel with pedestrians outside the circulatory roadway. NCHRP 672, Exhibit 6-67 shows an

example of this treatment, which is also displayed in Figure 11 below. For this treatment, bike lanes should be transitioned into ramps and onto the shared-use path system at least 100 feet upstream of the yield line. Driveways can also act as ramps if they are located sufficiently far from the roundabout. To avoid future construction costs, it is preferable to construct these ramps even if dedicated bicycle facilities are not yet present along the study area roadways.

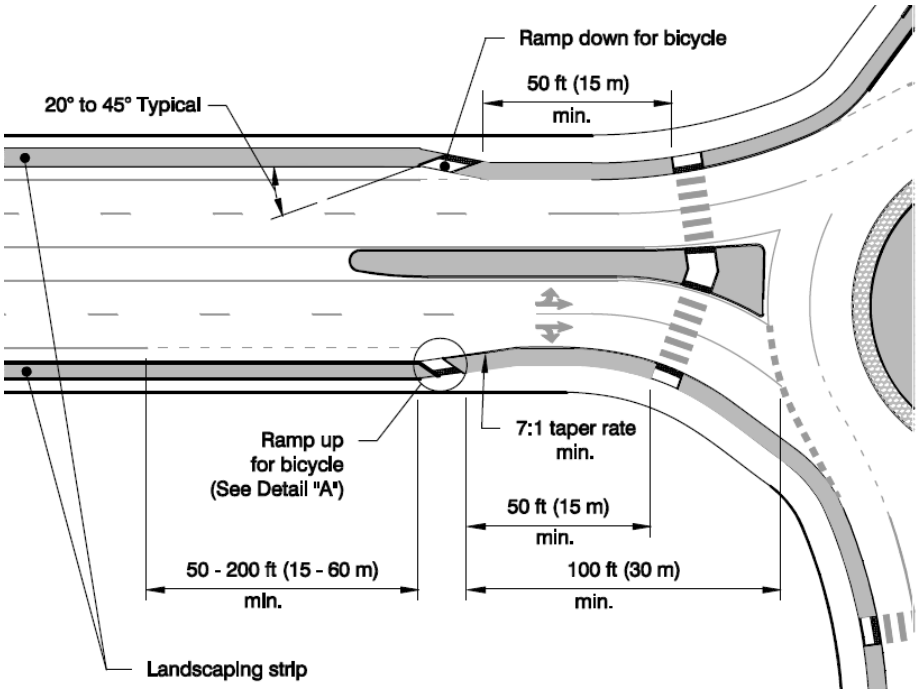


Figure 11. Bicycle Treatments at Roundabouts (Reference 2)

We recommend providing shared-use paths and ramps at the roundabout. If bicycle lanes will be included in the design, then we recommend terminating them at least 100 feet from the roundabouts.

Preliminary Sight Distance Checks

We performed a preliminary assessment of intersection and stopping sight distance at the roundabout according to guidance provided in NCHRP Report 672, Section 6.7.3. The shaded areas in Figure 12 display the areas that should be kept free of high-growth landscaping (i.e. landscaping should be adequately maintained), structures, signage, and other sight distance obstructions. NCHRP Report 672 recommends *limiting* sight distance in other areas (using high-growth landscaping, berms, etc.) to focus approaching drivers' attention on critical areas such as conflicting movements. Note that traversable paved areas including the truck aprons are assumed to be free of sight distance obstructions and are not included in the sight triangles.

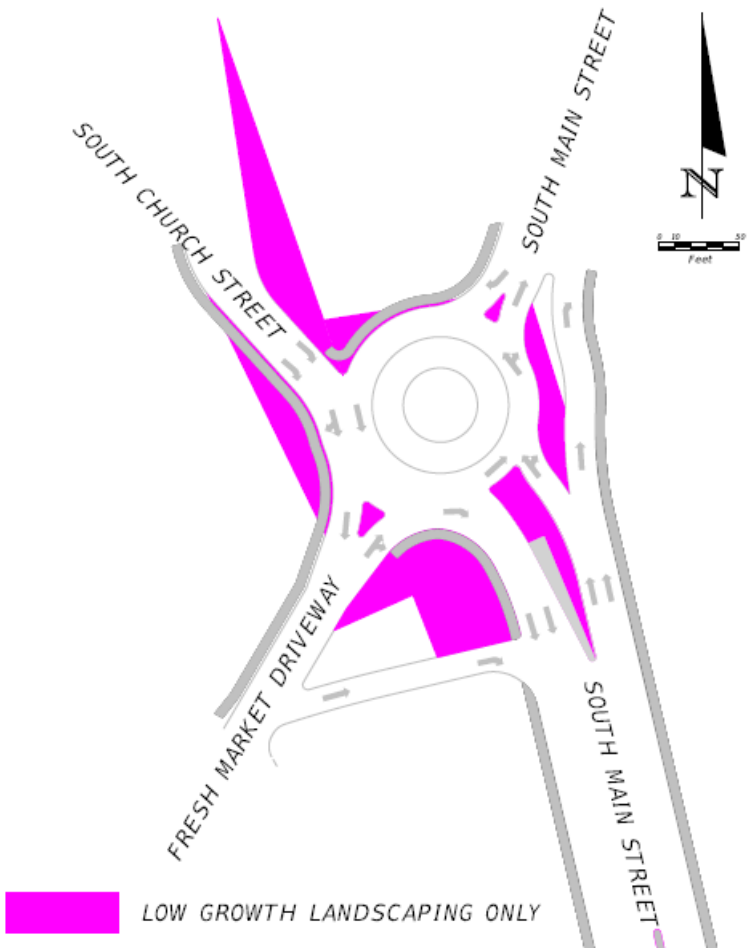


Figure 12. Roundabout 1 Sight Triangles

We recommend keeping the sight triangles free of high-growth landscaping, structures, signage, and other obstructions, as well as strategically using high-growth landscaping outside the sight triangles to focus driver attention on critical areas.

Vertical Design

NCHRP Report 672, Section 6.8.7 provides vertical design considerations at roundabouts and recommends maintaining entry grades of three percent or less within two vehicle lengths of the yield line (approximately 50 feet) to help maintain safe vehicle speeds. The roundabout will be located on nearly flat grade, and a review of the approach profiles did not reveal any vertical design issues. However, NCHRP Report 672 recommends providing a profile for the circulatory roadway—an example of this is shown in Exhibit 6-75 of the report.

No changes are recommended, but we recommend providing a profile for the circulatory roadway.

Recommended Design Changes

- Consider maintaining the existing two-way stop control instead of implementing a roundabout.
- Consider opening the roundabout with a single lane approach on southbound South Church Street, expandable to multiple lanes when needed.
- Consider modifying the northbound South Main Street approach to remove the right-turn bypass lane or convert it to a yielding lane.
- Modify the exit geometry on the northeast leg to remove the weaving segment between the northbound continuous right-turn bypass lane and the South Main Street / South King Street diverge point.
- Perform a more detailed investigation of queues along both directions of the South Main Street corridor between the roundabout the US 176 intersection to the south, including potential queue spillback.
- Increase the circulatory roadway width in the single-lane portion of the roundabout to be at least as wide as the entry width from the Fresh Market Driveway, which is 18 feet.
- Modify the southbound South Church Street approach to limit fastest path speeds to a maximum of 30 mph.
- Modify both the northbound South Main Street right-turn bypass lane and the entry to the roundabout to limit fastest path speeds to a maximum of 25 mph.
- Increase the entry radius on the southbound South Main Street approach to accommodate WB-67 truck movements.
- Modify the geometry of the eastbound Fresh Market driveway right-turn bypass lane to accommodate WB-67 truck movements.
- Use gore striping on the southbound South Church Street approach to help separate trucks from adjacent entering traffic.
- Adjust the southbound South Church Street entry and South Main Street exit geometry to remove path overlap.
- Lengthen the splitter islands to a minimum of 50 feet, preferably 100 feet.
- Provide a pedestrian refuge with of at least six feet within the splitter islands at all crosswalk locations (20 to 30 feet upstream of the yield line on all approaches).
- Modify the splitter island noses to comply with NCHRP Report 672, Exhibit 6-13.
- If the existing at-grade railroad crossing to the north of the intersection is modified into a pedestrian/bicycle path, then consider relocating the crosswalk closer to the roundabout (20 to 30 feet upstream of the yield line).
- Provide a 2-foot minimum landscaped buffer (5-foot preferred) between the sidewalk and roadway on all approaches.
- Provide ramps and paths for bicyclists along the exterior of the roundabout. If bicycle lanes are provided on the approach roadways, they should be terminated at least 100 feet in advance of the roundabout.

- Keep sight triangles free of high-growth landscaping, structures, signage, and other obstructions, and use high-growth landscaping and earthwork outside the sight triangles to focus driver attention on critical areas.
- Provide a profile for the roundabout circulatory roadway.

ROUNDABOUT 2: KANUGA ROAD / WHITE STREET

The Kanuga Road / White Street intersection is currently signalized and is proposed to be replaced by the proposed roundabout (Figure 13), which contains single-lane entries with right-turn bypass lanes on all approaches. White Street will be extended to the west of Kanuga Road to create a fourth leg of the intersection.

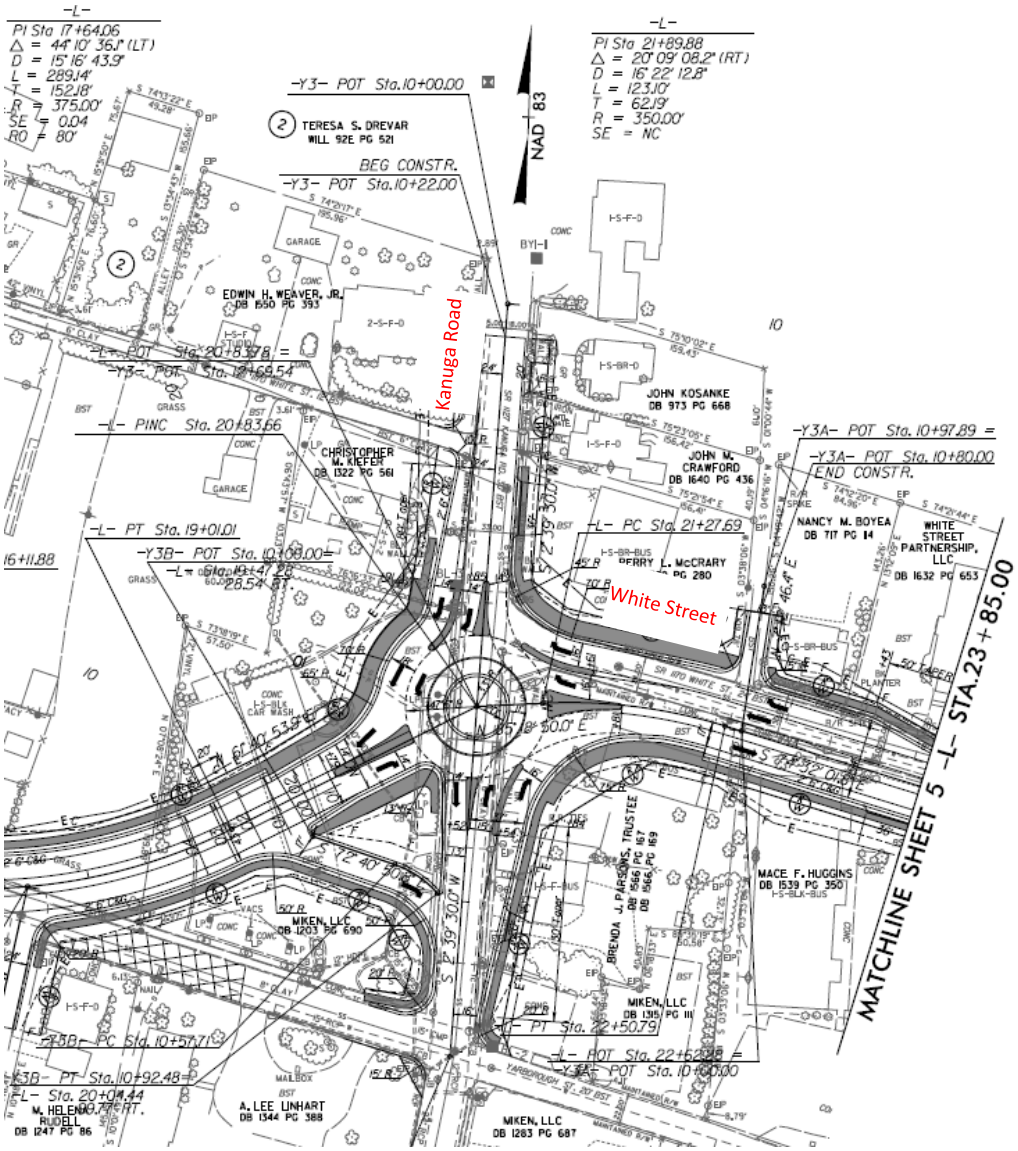


Figure 13. Roundabout 2 Overview

Operational Analysis

Table 5 displays traffic operations at the roundabout, including the LOS, control delay, v/c, and 95th-percentile queue length for each lane group.

Table 5. Roundabout 2 Traffic Operations

Roundabout	Movement	2040 AM Peak Hour				2040 PM Peak Hour			
		Delay (s)	LOS	v/c	Q95 (ft)	Delay (s)	LOS	v/c	Q95 (ft)
Kanuga Road / White Street	Eastbound Left/Through	9.5	A	0.42	50	9.1	A	0.28	25
	Eastbound Right	5.5	A	0.19	25	7.4	A	0.23	25
	Westbound Left/Through	9.6	A	0.29	25	9.9	A	0.42	50
	Westbound Right	6.8	A	0.18	25	5.1	A	0.15	25
	Northbound Left/Through	15.9	C	0.66	125	8.3	A	0.40	50
	Northbound Right	5.5	A	0.20	25	4.2	A	0.10	<25
	Southbound Left/Through	8.0	A	0.37	50	15.1	C	0.62	100
	Southbound Right	4.5	A	0.11	<25	6.0	A	0.22	25
	Average	**9.7**	**A**	**N/A**	**N/A**	**9.5**	**A**	**N/A**	**N/A**

The low delays, v/c's, and queues at the roundabout suggest that it may be overdesigned for the 2040 turning movement volumes—specifically, the right turn bypass lanes may not be necessary. While additional capacity would service higher traffic volume in the event of unanticipated area developments or general traffic growth, research in NCHRP 672 has shown that roundabouts operate best when "right-sized" to the appropriate turning movement demands, and the right-turn bypass lanes would require more right-of-way, create additional capital and maintenance costs, and lead to additional impervious surface than a single-lane design without bypass lanes. Table 6 provides the operations results for a single-lane option without bypass lanes.

Table 6. Roundabout 2 Traffic Operations (Single-lane Geometry)

Roundabout	Movement	2040 AM Peak Hour				2040 PM Peak Hour			
		Delay (s)	LOS	v/c	Q95 (ft)	Delay (s)	LOS	v/c	Q95 (ft)
Kanuga Road / White Street	Eastbound	14.8	B	0.64	125	14.9	B	0.55	75
	Westbound	14.2	B	0.51	75	14.2	B	0.60	100
	Northbound	35.4	E	0.90	300	10.2	B	0.51	75
	Southbound	10.1	B	0.49	75	35.1	E	0.90	300
	Average	**18.6**	**C**	**N/A**	**N/A**	**18.6**	**C**	**N/A**	**N/A**

As shown, a single-lane roundabout would operate at LOS C during the 2040 AM and PM peak hours, with a maximum v/c ratio of 0.90.

We recommend removing the right-turn bypass lanes from the roundabout.

Roundabout Sizing and Placement

The roundabout has an Inscribed Circle Diameter (ICD) of 95 feet, which is on the small end of the range of ICDs suggested in NCHRP Report 672, Exhibit 6-9. As discussed in a later section, the roundabout may be too small to accommodate large trucks.

We recommend increasing the inscribed circle diameter to within the ranges included in NCHRP Report 672, Exhibit 6-9 based on the intended design vehicle, if space allows.

Entry and Circulatory Roadway Widths

The proposed circulatory roadway width is 15 feet, which is below the recommended range of 16 to 20 feet for single-lane circulatory roadways in NCHRP Report 672. Additionally, the entry width on the westbound White Street approach is wider than the receiving circulatory lane. All other entry widths were reviewed and found to comply with guidance in NCHRP Report 672.

We recommend increasing the circulatory roadway width to be at least as wide as the widest entry width.

Fastest Path Checks

Table 7 displays the fastest path speeds at the roundabout. The fastest path radii are rounded to the nearest five feet, and cells highlighted in yellow show speeds exceeding the recommended maximum. As shown, the following fastest path speeds are greater than the maximum speeds recommended by NCHRP Report 672:

- The speeds on westbound White Street entering and exiting the roundabout are both greater than the 25 mph maximum speed recommended by NCHRP Report 672. This can be addressed by increasing the roundabout ICD, which will deflect vehicle movements into and out of the roundabout.
- The speed on southbound Kanuga Road within the right-turn bypass lane is greater than the 25 mph maximum speed recommended by NCHRP Report 672. This can be addressed by either removing the bypass lane (see earlier comment) and increasing the roundabout ICD or introducing more curvature in the right-turn bypass lane.

Table 7. Roundabout 2 Fastest Paths

Approach	Path	Radius	Speed	Recommended Maximum Speed
Northbound Kanuga Road	R1	110	21	25
	R2	45	13	25
	R3	180	23	25
	R4	40	13	25
	R5	110	21	25
Southbound Kanuga Road	R1	160	24	25
	R2	40	13	25
	R3	100	19	25
	R4	40	13	25
	R5	250	29	25
Eastbound White Street	R1	95	20	25
	R2	95	18	25
	R3	165	23	25
	R4	40	13	25
	R5	30	13	25
Westbound White Street	R1	330	32	25
	R2	60	16	25
	R3	315	27*	25
	R4	40	13	25
	R5	85	19	25

*Exit speed is limited by circulating speed and maximum acceleration.

We recommend increasing the inscribed circle diameter to increase vehicle deflection and decrease fastest path speeds.

Design Vehicle Checks

Per discussions with NCDOT, we assumed a design vehicle of a school bus to/from the west leg and a WB-67 truck for all other movements. We tested the turning paths for these design vehicles using AutoTurn 9.0 and found the following potential deficiencies:

- As shown in Figure 14, the eastbound White Street movements do not permit a school bus to enter and circulate around the roundabout without the provision of 1-2 feet of shy distance between the edge of the tire and the face of curb. This can be addressed by adjusting the curb lines and/or increasing the ICD.

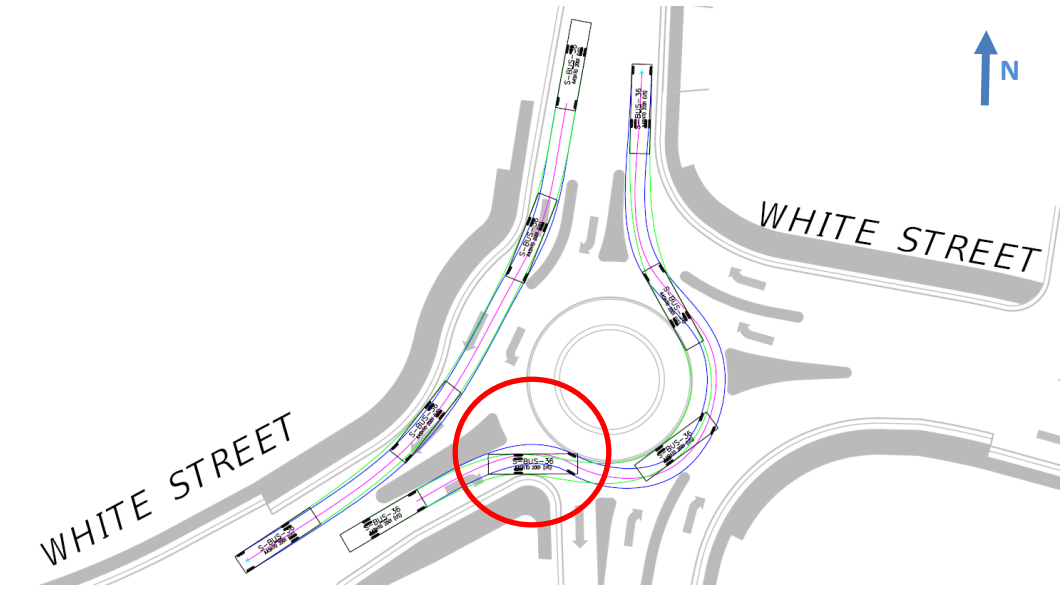


Figure 14. School Bus Movements at Roundabout 2

- As shown in Figure 15, there is insufficient space for a WB-67 truck to enter and circulate the roundabout without encroaching upon the edge of curb, central island (beyond the truck apron), and the channelized islands between the roundabout and right-turn bypass lanes. This can be addressed by increasing the ICD to 130 feet.

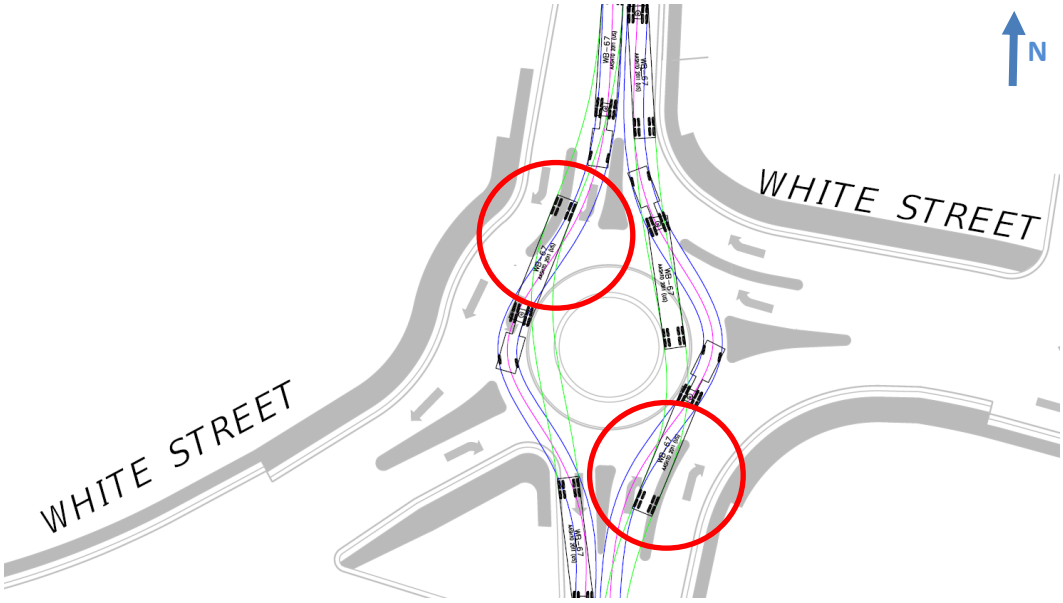


Figure 15. WB-67 Movements at Roundabout 2

We recommend increasing the inscribed circle diameter to 130 feet to accommodate WB-67 truck movements.

We recommend providing 1-2 feet of shy distance between the face of curb and edge of tire for all design vehicle movements.

Splitter Island Design

The splitter islands on the north, south, and east legs of the roundabout are all shorter than the 50 feet minimum recommended by NCHRP Report 672. Additionally, all of the splitter islands should be at least six feet wide to provide a suitable refuge for pedestrians—the splitter islands on the north and south legs of the roundabout are too narrow to meet this requirement. Finally, the splitter island noses should be designed according to NCHRP Report 672, Exhibit 6-13.

We recommend increasing the splitter island lengths to a minimum of 50 feet on all legs.

We recommend providing a 6-foot minimum splitter island width for pedestrian refuges on all legs.

We recommend modifying the splitter island noses to conform with standard AASHTO island design guidelines and NCHRP Report 672, Exhibit 6-13.

Sidewalk and Crosswalk Design

Per NCHRP Report 672, a 5-foot landscaped buffer or equivalent treatment between the sidewalk and the roadway is preferred wherever possible, with a 2-foot buffer being the minimum width.

We recommend providing a 5-foot buffer between the sidewalk and roadway where possible, with a 2-foot minimum buffer.

Bicycle Design

The Hendersonville Bicycle Plan recommends adding bicycle lanes to Kanuga Road and White Street, although these are not identified as priority projects (Reference 5). If bicycle lanes are provided on the approach roadways, NCHRP Report 672 recommends terminating the bike lanes at least 100 feet upstream of the yield line. It may also be desirable to provide a shared-use path system in the vicinity of the roundabout to allow cyclists to travel with pedestrians outside the circulatory roadway.

We recommend providing shared-use paths and ramps at roundabout if space permits. If bicycle lanes will be included in the design, then we recommend terminating them at least 100 feet from the roundabout.

Preliminary Sight Distance Checks

The shaded areas in Figure 16 display the areas that should be kept free of high-growth landscaping (i.e. landscaping should be adequately maintained), structures, signage, and other sight distance obstructions. NCHRP Report 672 recommends *limiting* sight distance in other areas (using high-growth landscaping, berms, etc.) to focus approaching drivers' attention on critical areas such as conflicting movements. Note that traversable paved areas, including the truck apron and narrow channelizing islands, are all assumed to be free of sight distance obstructions and are not included in the sight triangles.

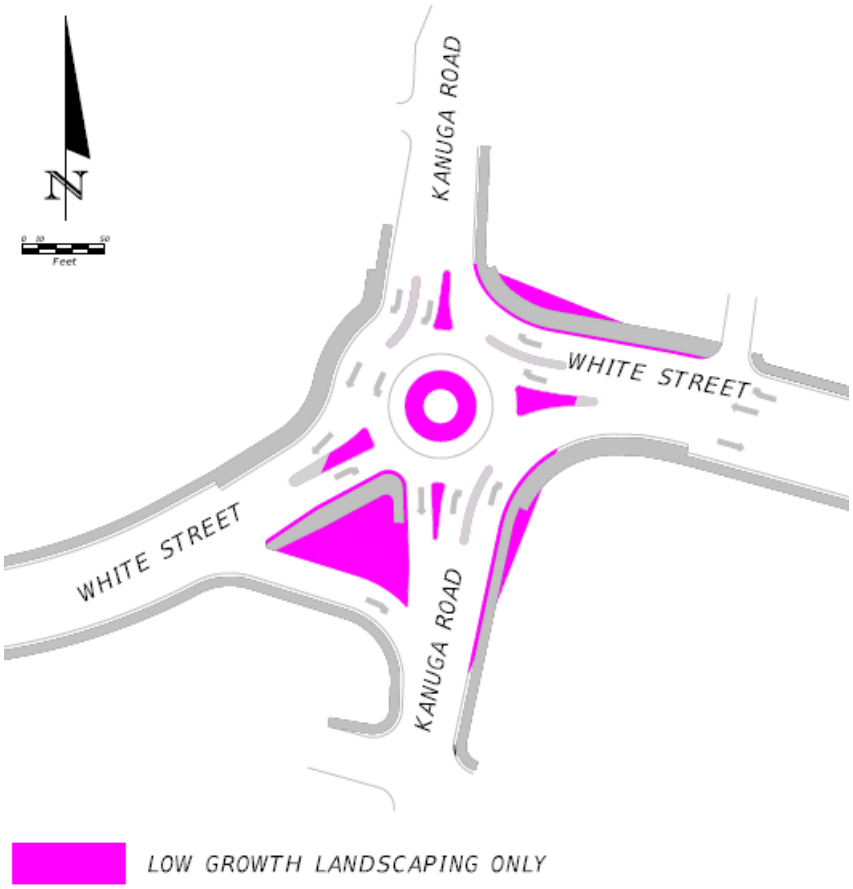


Figure 16. Roundabout 2 Sight Triangles

We recommend keeping the sight triangles free of high-growth landscaping, structures, signage, and other obstructions, as well as strategically using high-growth landscaping outside the sight triangles to focus driver attention on critical areas.

Vertical Design

The grades entering and exiting the roundabout are all approximately three percent or less, which is within the range recommended by NCHRP Report 672. A profile for the circulatory roadway should be included with the design.

No changes are recommended, but we recommend providing a profile for the circulatory roadway.

Recommended Design Changes

- Remove the right-turn bypass lanes from the design.
- Provide an inscribed circle diameter of 130 feet to accommodate design vehicle (WB-67 and school bus) movements.

- Increase the circulatory roadway width to be at least as wide as the westbound White Street entry width (16 feet).
- Provide sufficient deflection on the southbound and westbound approaches to limit fastest path speeds to a maximum of 25 mph.
- Provide 1-2 feet of shy distance between the face of curb and edge of tire for design vehicle movements.
- Lengthen the splitter islands to a minimum of 50 feet, preferably 100 feet.
- Provide a pedestrian refuge with of at least six feet within the splitter islands at all crosswalk locations (20 to 30 feet upstream of the yield line on all approaches).
- Modify the splitter island noses to comply with NCHRP Report 672, Exhibit 6-13.
- Provide a 2-foot minimum landscaped buffer (5-foot preferred) between the sidewalk and roadway on all approaches.
- Provide ramps and paths for bicyclists along the exterior of the roundabout if space permits. If bicycle lanes are provided on the approach roadways, they should be terminated at least 100 feet in advance of the roundabout.
- Keep sight triangles free of high-growth landscaping, structures, signage, and other obstructions, and use high-growth landscaping and earthwork outside the sight triangles to focus driver attention on critical areas.
- Provide a profile for the roundabout circulatory roadway.

ROUNDABOUT 3: WILLOW ROAD / HEBRON ROAD

The Willow Road / Hebron Road intersection is currently all-way stop controlled and is proposed to be replaced by a mini-roundabout, as shown in Figure 17. Hebron Road will be realigned to the east of the intersection to form an extension of White Street.

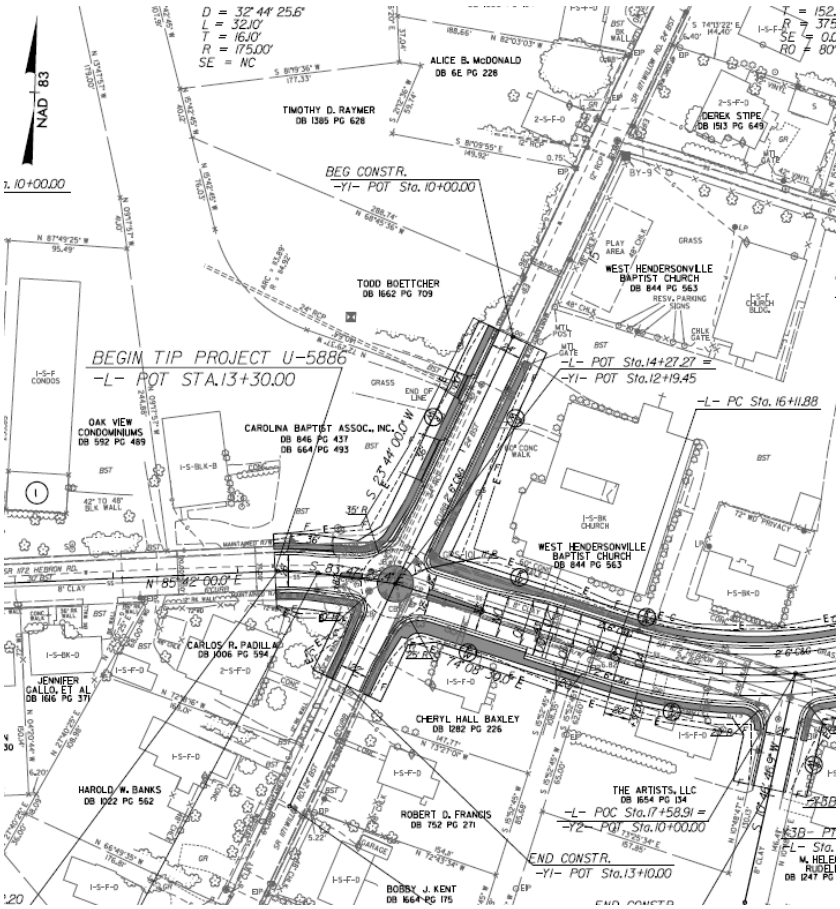


Figure 17. Roundabout 3 Overview

Operational Analysis

Table 8 displays traffic operations at the roundabout, including the LOS, control delay, v/c, and 95th-percentile queue length for each lane group. As shown, the mini-roundabout is expected to operate at LOS A during the 2040 AM and PM peak hours.

Table 8. Roundabout 3 Traffic Operations

Roundabout	Movement	2040 AM Peak Hour				2040 PM Peak Hour			
		Delay (s)	LOS	v/c	Q95 (ft)	Delay (s)	LOS	v/c	Q95 (ft)
Willow Road / Hebron Road	Eastbound	6.1	A	0.25	25	7.2	A	0.22	25
	Westbound	6.9	A	0.34	50	8.0	A	0.46	75
	Northbound	9.5	A	0.50	75	5.8	A	0.25	25
	Southbound	5.2	A	0.16	25	9.0	A	0.36	50
	Average	**6.9**	**A**	**N/A**	**N/A**	**7.5**	**A**	**N/A**	**N/A**

Note that the HCM 6th Edition roundabout capacity models were principally calibrated from single- and multilane roundabouts but not mini-roundabouts. Mini-roundabouts may have lower capacities than the

HCM 6th Edition models due to slower speeds and tighter geometry at the roundabout. Consequently, the results shown in Table 8 may underpredict delays and v/c's—however, due to the low volumes at the roundabout, we anticipate no capacity-related issues.

No changes are recommended.

Roundabout Sizing and Placement

The ICD of the roundabout is 55 feet, which is on the small end of the ranges suggested by NCHRP Report 672. The roundabout may not be able to accommodate buses without traversing the central island—this is discussed in more detail in the Design Vehicle Checks section. The ICD should be increased to approximately 80 feet before buses can circulate within the entirety of the circulatory roadway. Additionally, a small ICD may not provide enough deflection to properly control speeds through the roundabout—this is discussed later in the Fastest Path Checks section.

We recommend increasing the inscribed circle diameter to within the ranges included in NCHRP Report 672, Exhibit 6-9 based on the intended design vehicle, if space allows.

Fastest Path Checks

NCHRP Report 672 recommends a maximum fastest path speed of 20 mph at mini-roundabouts. Table 9 displays the fastest path speeds at the roundabout. The fastest path radii are rounded to the nearest five feet, and cells highlighted in yellow show speeds exceeding the recommended maximum. As shown, the entry speed on eastbound Hebron Road is 21 mph, which is greater than the 20 mph maximum speed recommended by NCHRP Report 672. This can be addressed by increasing the roundabout ICD, which will deflect vehicle movements into and out of the roundabout.

Table 9. Roundabout 3 Fastest Paths

Approach	Path	Radius	Speed	Recommended Maximum Speed
Northbound Willow Road	R1	45	15	20
	R2	35	13	20
	R3	70	16	20
	R4	20	10	20
	R5	50	16	20
Southbound Willow Road	R1	100	20	20
	R2	30	12	20
	R3	60	16	20
	R4	20	10	20
	R5	70	18	20
Eastbound Hebron Road	R1	110	21	20
	R2	65	16	20
	R3	90	18	20
	R4	20	10	20
	R5	20	11	20
Westbound Hebron Road	R1	85	19	20
	R2	40	13	20
	R3	90	18	20
	R4	20	10	20
	R5	30	13	20

We recommend increasing the inscribed circle diameter to increase vehicle deflection and decrease fastest path speeds.

Design Vehicle Checks

Per discussions with NCDOT, we assumed a school bus for the design vehicle at the intersection. As shown in Figure 18, the roundabout is too small to accommodate school bus movements within the circulatory roadway—this would require increasing the ICD to 80 feet, which would likely impact the corner parcels. An alternative would be to keep the central island flush with the circulatory roadway, which would allow buses to make left turns directly over the central island using a similar turning path as what is done within the existing stop-controlled intersection. However, keeping the central island low or flush with the circulatory roadway could lead to increased vehicle speeds within the roundabout and should be weighed cautiously against other project tradeoffs and constraints.

Figure 18. Example Design Vehicle Check at Roundabout 3

We recommend increasing the inscribed circle diameter to 80 feet to accommodate school bus movements within the circulatory roadway. If right-of-way limitations prohibit an 80-foot ICD, then we recommend using a flush central island to allow buses to make left turns directly over the central island while maintaining rider comfort.

Splitter Island Design

Per NCHRP Report 672, splitter islands, even if fully-traversable, should be provided at mini-roundabouts to help deflect vehicle movements and reinforce circulation in the correct direction. No splitter islands are provided on the north and south legs of the roundabout, and the splitter islands on the east and west legs are both shorter than the 50 feet minimum recommended by NCHRP Report 672. Additionally, all of the splitter islands should be at least 6 feet wide to provide a suitable refuge for pedestrians. Finally, the splitter island noses should be designed according to NCHRP Report 672, Exhibit 6-13.

We recommend increasing the splitter island lengths to a minimum of 50 feet on all legs.

We recommend providing a 6-foot minimum splitter island width for pedestrian refuges on all legs.

We recommend modifying the splitter island noses to conform with standard AASHTO island design guidelines and NCHRP Report 672, Exhibit 6-13.

Sidewalk and Crosswalk Design

Per NCHRP Report 672, a 5-foot landscaped buffer or equivalent treatment between the sidewalk and the roadway is preferred wherever possible, with a 2-foot buffer being the minimum width.

We recommend providing a 5-foot buffer between the sidewalk and roadway where possible, with a 2-foot minimum buffer.

Bicycle Design

At mini-roundabouts, speeds are generally slow enough for all cyclists to circulate the roundabout with automobiles. The Hendersonville Bicycle Plan recommends adding bicycle lanes to Willow Road, although this is not a priority project (Reference 5). If bicycle lanes are provided on the approach roadways, NCHRP Report 672 recommends terminating the bike lanes at least 100 feet upstream of the yield line.

Preliminary Sight Distance Checks

The shaded areas in Figure 19 display the areas that should be kept free of high-growth landscaping (i.e. landscaping should be adequately maintained), structures, signage, and other sight distance obstructions. NCHRP Report 672 recommends *limiting* sight distance in other areas (using high-growth landscaping, berms, etc.) to focus approaching drivers' attention on critical areas such as conflicting movements. Note that traversable paved areas, including the central island and splitter islands, are all assumed to be free of sight distance obstructions and are not included in the sight triangles.

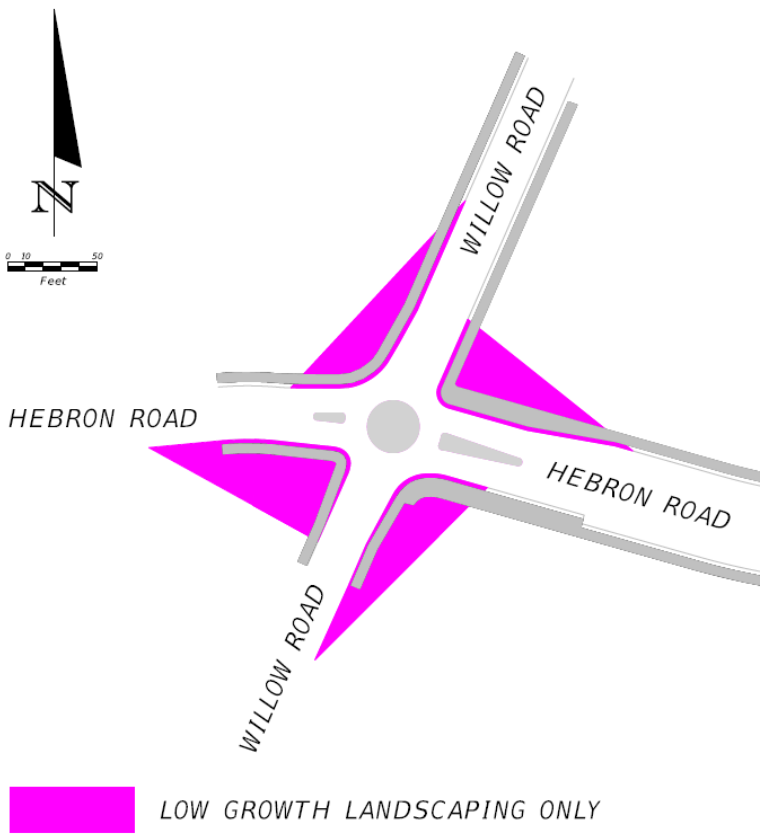


Figure 19. Roundabout 3 Sight Triangles

We recommend keeping the sight triangles free of high-growth landscaping, structures, signage, and other obstructions, as well as strategically using high-growth landscaping outside the sight triangles to focus driver attention on critical areas.

Vertical Design

Figure 20 displays the profile of Hebron Road / White Street through Roundabouts 2 (right-side) and 3 (left-side). As shown on the profiles, the grade of eastbound Hebron Road approaching Roundabout 3 is -5.9 percent, which is steeper than recommended in NCHRP Report 672 and may lead to higher entry speeds.

Alternatively, as shown in Figure 21, the grade on southbound Willow Road approaching Roundabout 3 is +6.7 percent, which may lead to slower-than-desired speeds on the southbound entry, as well as a greater speed differential between southbound circulating vehicles and eastbound entering vehicles. Additionally, these variations in grades around the roundabout could lead to driver discomfort and potentially rollover issues with large vehicles (with the design vehicle being a school bus). These issues can be avoided by softening the approach roadway grades to three percent or less.

Additionally, NCHRP Report 672 recommends providing a profile for the circulatory roadway.

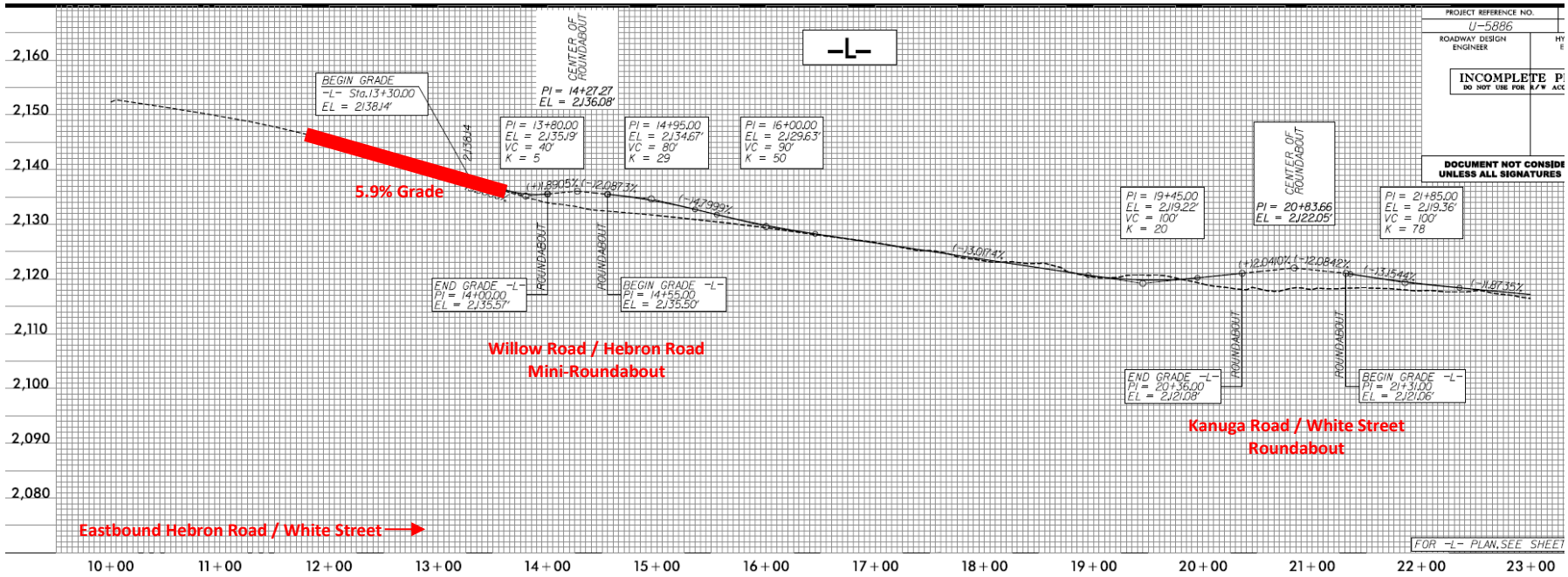


Figure 20. Hebron Road / White Street Profile

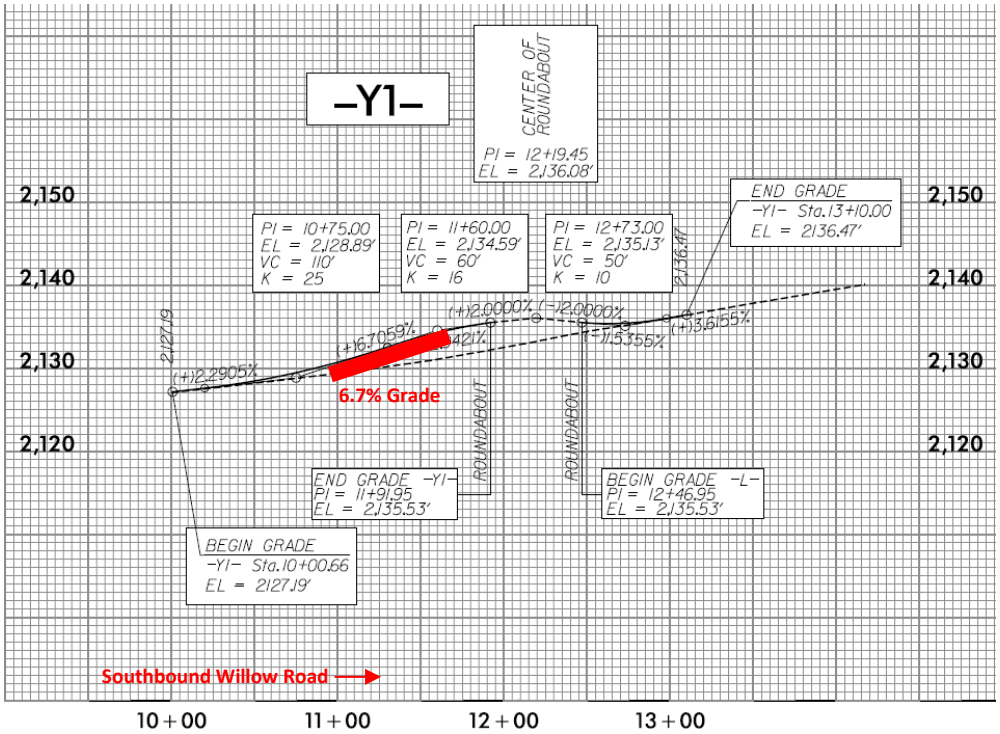


Figure 21. Willow Road Profile at Roundabout 3

We recommend modifying the eastbound and southbound approach grades to be a maximum of three percent within a 50-foot radius of the roundabout circulatory roadway.

We recommend providing a profile for the circulatory roadway.

Recommended Design Changes

- Enlarge the inscribed circle diameter to 80 feet to accommodate design vehicle (school bus) turning movements within the circulatory roadway. Alternatively, utilize a fully-traversable but domed and visible central island.
- Provide sufficient deflection on the eastbound approach to limit fastest path speeds to a maximum of 20 mph.
- Provide fully-traversable splitter islands (50-foot minimum length) on all approaches.
- Modify the splitter island noses to comply with NCHRP Report 672, Exhibit 6-13.
- Provide a 2-foot minimum landscaped buffer (5-foot preferred) between the sidewalk and roadway on all approaches.
- If bicycle lanes are provided on the approach roadways, they should be terminated at least 100 feet in advance of the roundabout.
- Keep sight triangles free of high-growth landscaping, structures, signage, and other obstructions, and use high-growth landscaping and earthwork outside the sight triangles to focus driver attention on critical areas.

- Modify the eastbound and southbound approach grades to be a maximum of three percent within a 50-foot radius of the roundabout circulatory roadway.
- Provide a profile for the roundabout circulatory roadway.

NEXT STEPS

As the design moves forward, we recommend the design team provide the signing and pavement marking plan, central island profiles, landscaping plan, and illumination plan for review, as well as any major updates to the horizontal and vertical design plans.

REFERENCES

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APPENDICES

Appendix A HCS/Synchro Output Sheets

Appendix B Fastest Path Figures

Appendix C Design Vehicle Turning Movement Figures

Appendix A. HCS/Synchro Output Sheets

Agenda

HCS7 Roundabouts Report

General Information

Analyst	Gedaliah Dreyfuss
Agency or Co.	Kittelson and Associates
Date Performed	8/3/2018
Analysis Year	2040
Time Analyzed	AM PH
Project Description	Rdbt 2040 AM Build Analysis

Site Information

Intersection	S Church St, S Main St, Fresh Market Driveway
E/W Street Name	S Main St, Fresh Market Driveway
N/S Street Name	S Church St
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	1	0	0	0	0	2	0
Lane Assignment			T				LT				L		LT		TR	
Volume (V), veh/h	0		4	4	0	36	4		0	6		1095	0	4	903	35
Percent Heavy Vehicles, %	3		3	3	3	3	3		3	3		3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0		5	5	0	41	5		0	7		1253	0	5	1033	40
Right-Turn Bypass	Yielding				None				Non-Yielding				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.3276	4.3276		4.9763			4.9763		4.5436	4.5436	
Follow-Up Headway (s)		2.5352	2.5352		2.6087			2.6087		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		5	5		46			7	1253	507	571	
Entry Volume veh/h		5	5		45			7	1217	492	555	
Circulating Flow (v_c), pc/h	1079			7			10			53		
Exiting Flow (v_{ex}), pc/h	10			52			0			1074		
Capacity (c_{pce}), pc/h		568	570		1370			1366		1353	1353	
Capacity (c), veh/h		551	553		1330			1326		1314	1314	
v/c Ratio (x)		0.01	0.01		0.03			0.01		0.37	0.42	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.6	6.6		3.0			2.8	-1.0	6.2	6.8	
Lane LOS		A	A		A			A	A	A	A	
95% Queue, veh		0.0	0.0		0.1			0.0		1.8	2.1	
Approach Delay, s/veh	6.6			3.0			0.0			6.6		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	3.0						A					

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HCS7 Roundabouts Report

General Information

Analyst	Gedaliah Dreyfuss
Agency or Co.	Kittelson and Associates
Date Performed	8/3/2018
Analysis Year	2040
Time Analyzed	PM PH
Project Description	Rdbt 2040 PM Build Analysis

Site Information

Intersection	S Church St, S Main St, Fresh Market Driveway
E/W Street Name	S Main St, Fresh Market Driveway
N/S Street Name	S Church St
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	1	0	0	0	0	2	0
Lane Assignment			T				LT				L		LT		TR	
Volume (V), veh/h	0		4	7	0	61	10		0	10		935	0	4	1050	111
Percent Heavy Vehicles, %	3		3	3	3	3	3		3	3		3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0		5	8	0	70	11		0	11		1070	0	5	1202	127
Right-Turn Bypass	Yielding				None				Non-Yielding				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.3276	4.3276		4.9763			4.9763		4.5436	4.5436	
Follow-Up Headway (s)		2.5352	2.5352		2.6087			2.6087		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		5	8		81			11	1070	627	707	
Entry Volume veh/h		5	8		79			11	1039	609	686	
Circulating Flow (v_c), pc/h	1277			11			10			92		
Exiting Flow (v_{ex}), pc/h	10			149			0			1272		
Capacity (c_{pce}), pc/h		480	482		1365			1366		1306	1306	
Capacity (c), veh/h		466	468		1325			1326		1268	1268	
v/c Ratio (x)		0.01	0.02		0.06			0.01		0.48	0.54	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		7.9	7.9		3.2			2.8	-1.0	7.8	8.8	
Lane LOS		A	A		A			A	A	A	A	
95% Queue, veh		0.0	0.1		0.2			0.0		2.7	3.4	
Approach Delay, s/veh	7.9			3.2			0.0			8.4		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	4.6						A					

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HCS7 Roundabouts Report

General Information

Analyst	Gedaliah Dreyfuss
Agency or Co.	Kittelson and Associates
Date Performed	8/3/2018
Analysis Year	2040
Time Analyzed	AM PH - Single Lane
Project Description	Rdbt 2040 AM Build Analysis

Site Information

Intersection	S Church St, S Main St, Fresh Market Driveway
E/W Street Name	S Main St, Fresh Market Driveway
N/S Street Name	S Church St
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			TR				LT				LR				LTR	
Volume (V), veh/h	0		4	4	0	36	4		0	6		1095	0	4	903	35
Percent Heavy Vehicles, %	3		3	3	3	3	3		3	3		3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0		5	5	0	41	5		0	7		1253	0	5	1033	40
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		10			46			1260			1078	
Entry Volume veh/h		10			45			1223			1047	
Circulating Flow (v_c), pc/h	1079			7			10			53		
Exiting Flow (v_{ex}), pc/h	1263			52			0			1079		
Capacity (c_{pce}), pc/h		459			1370			1366			1307	
Capacity (c), veh/h		446			1330			1326			1269	
v/c Ratio (x)		0.02			0.03			0.92			0.82	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.4			3.0			27.7			18.6	
Lane LOS		A			A			D			C	
95% Queue, veh		0.1			0.1			15.9			10.3	
Approach Delay, s/veh	8.4			3.0			27.7			18.6		
Approach LOS	A			A			D			C		
Intersection Delay, s/veh | LOS	23.0						C					

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HCS7 Roundabouts Report

General Information / Site Information

General Information		Site Information	
Analyst	Gedaliah Dreyfuss	Intersection	S Church St, S Main St, Fresh Market Driveway
Agency or Co.	Kittelson and Associates	E/W Street Name	S Main St, Fresh Market Driveway
Date Performed	8/3/2018	N/S Street Name	S Church St
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	PM PH - Single Lane	Peak Hour Factor	0.90
Project Description	Rdbt 2040 PM Build Analysis	Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			TR				LT				LR				LTR	
Volume (V), veh/h	0		4	7	0	61	10		0	10		935	0	4	1050	111
Percent Heavy Vehicles, %	3		3	3	3	3	3		3	3		3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0		5	8	0	70	11		0	11		1070	0	5	1202	127
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		13			81			1081			1334	
Entry Volume veh/h		13			79			1050			1295	
Circulating Flow (v_c), pc/h	1277			11			10			92		
Exiting Flow (v_{ex}), pc/h	1080			149			0			1280		
Capacity (c_{pce}), pc/h		375			1365			1366			1256	
Capacity (c), veh/h		364			1325			1326			1220	
v/c Ratio (x)		0.03			0.06			0.79			1.06	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		10.4			3.2			16.0			61.9	
Lane LOS		B			A			C			F	
95% Queue, veh		0.1			0.2			9.0			27.2	
Approach Delay, s/veh	10.4			3.2			16.0			61.9		
Approach LOS	B			A			C			F		
Intersection Delay, s/veh | LOS	40.0						E					

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HCS7 Roundabouts Report

General Information

Analyst	Gedaliah Dreyfuss
Agency or Co.	Kittelson and Associates
Date Performed	8/3/2018
Analysis Year	2017
Time Analyzed	AM PH - Single Lane
Project Description	Rdbt 2017 AM Build Analysis

Site Information

Intersection	S Church St, S Main St, Fresh Market Driveway
E/W Street Name	S Main St, Fresh Market Driveway
N/S Street Name	S Church St
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			TR				LT				LR				LTR	
Volume (V), veh/h	0		4	4	0	31	4		0	4		899	0	4	729	30
Percent Heavy Vehicles, %	3		3	3	3	3	3		3	3		3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0		5	5	0	35	5		0	5		1029	0	5	834	34
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		10			40			1034			873	
Entry Volume veh/h		10			39			1004			848	
Circulating Flow (v_c), pc/h	874			5			10			45		
Exiting Flow (v_{ex}), pc/h	1039			44			0			874		
Capacity (c_{pce}), pc/h		566			1373			1366			1318	
Capacity (c), veh/h		549			1333			1326			1280	
v/c Ratio (x)		0.02			0.03			0.76			0.66	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.8			2.9			14.4			11.5	
Lane LOS		A			A			B			B	
95% Queue, veh		0.1			0.1			7.8			5.4	
Approach Delay, s/veh	6.8			2.9			14.4			11.5		
Approach LOS	A			A			B			B		
Intersection Delay, s/veh | LOS	12.8						B					

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HCS7 Roundabouts Report

General Information

Analyst	Gedaliah Dreyfuss
Agency or Co.	Kittelson and Associates
Date Performed	8/3/2018
Analysis Year	2017
Time Analyzed	PM PH - Single Lane
Project Description	Rdbt 2017 PM Build Analysis

Site Information

Intersection	S Church St, S Main St, Fresh Market Driveway
E/W Street Name	S Main St, Fresh Market Driveway
N/S Street Name	S Church St
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			TR				LT				LR				LTR	
Volume (V), veh/h	0		4	6	0	52	4		0	4		762	0	4	830	90
Percent Heavy Vehicles, %	3		3	3	3	3	3		3	3		3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0		5	7	0	60	5		0	5		872	0	5	950	103
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		12			65			877			1058	
Entry Volume veh/h		12			63			851			1027	
Circulating Flow (v_c), pc/h	1015			5			10			70		
Exiting Flow (v_{ex}), pc/h	882			113			0			1017		
Capacity (c_{pce}), pc/h		490			1373			1366			1285	
Capacity (c), veh/h		476			1333			1326			1247	
v/c Ratio (x)		0.02			0.05			0.64			0.82	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		7.9			3.1			10.7			18.7	
Lane LOS		A			A			B			C	
95% Queue, veh		0.1			0.1			5.0			10.2	
Approach Delay, s/veh	7.9			3.1			10.7			18.7		
Approach LOS	A			A			B			C		
Intersection Delay, s/veh | LOS	14.6						B					

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HCM Unsignalized Intersection Capacity Analysis
1: Fresh Market Driveway/South Main St & South Church St

08/03/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	4	36	4	0	0	0	0	0	903	35
Future Volume (Veh/h)	0	0	4	36	4	0	0	0	0	0	903	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	4	40	4	0	0	0	0	0	1003	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1005	1003	502	506	1042	0	1042			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1005	1003	502	506	1042	0	1042			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	91	98	100	100			100		
cM capacity (veh/h)	192	239	512	444	227	1081	657			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3
Volume Total	4	44	502	502	39
Volume Left	0	40	0	0	0
Volume Right	4	0	0	0	39
cSH	512	408	1700	1700	1700
Volume to Capacity	0.01	0.11	0.29	0.29	0.02
Queue Length 95th (ft)	1	9	0	0	0
Control Delay (s)	12.1	14.9	0.0	0.0	0.0
Lane LOS	B	B			
Approach Delay (s)	12.1	14.9	0.0		
Approach LOS	B	B			

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	41.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
1: Fresh Market Driveway/South Main St & South Church St

08/03/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	61	10	0	0	0	0	0	1050	111
Future Volume (Veh/h)	0	0	7	61	10	0	0	0	0	0	1050	111
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	8	68	11	0	0	0	0	0	1167	123
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1172	1167	584	592	1290	0	1290			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1172	1167	584	592	1290	0	1290			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	82	93	100	100			100		
cM capacity (veh/h)	139	191	453	381	161	1081	528			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3
Volume Total	8	79	584	584	123
Volume Left	0	68	0	0	0
Volume Right	8	0	0	0	123
cSH	453	320	1700	1700	1700
Volume to Capacity	0.02	0.25	0.34	0.34	0.07
Queue Length 95th (ft)	1	24	0	0	0
Control Delay (s)	13.1	19.9	0.0	0.0	0.0
Lane LOS	B	C			
Approach Delay (s)	13.1	19.9	0.0		
Approach LOS	B	C			

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCS7 Roundabouts Report

General Information

Analyst	Gedaliah Dreyfuss
Agency or Co.	Kittelson and Associates
Date Performed	8/2/2018
Analysis Year	2040
Time Analyzed	AM PH
Project Description	Rdbt 2040 Build AM analysis

Site Information

Intersection	SR 1127 (Kanuga Rd) and SR 1170 (White St)
E/W Street Name	SR 1170 (White St)
N/S Street Name	SR 1127 (Kanuga Rd)
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	191	124	166	0	96	64	123	0	158	312	178	0	129	178	104
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	219	142	190	0	110	73	141	0	181	357	204	0	148	204	119
Right-Turn Bypass	Yielding				Yielding				Yielding				Yielding			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763	4.9763		4.9763	4.9763		4.9763	4.9763		4.9763	4.9763
Follow-Up Headway (s)		2.6087	2.6087		2.6087	2.6087		2.6087	2.6087		2.6087	2.6087

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		361	190		183	141		538	204		352	119
Entry Volume veh/h		350	184		178	137		522	198		342	116
Circulating Flow (v_c), pc/h	462			757			509			364		
Exiting Flow (v_{ex}), pc/h	290			254			576			314		
Capacity (c_{pce}), pc/h		861	1002		638	767		821	1027		952	1065
Capacity (c), veh/h		836	973		619	745		797	997		924	1034
v/c Ratio (x)		0.42	0.19		0.29	0.18		0.66	0.20		0.37	0.11

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.5	5.5		9.6	6.8		15.9	5.5		8.0	4.5
Lane LOS		A	A		A	A		C	A		A	A
95% Queue, veh		2.1	0.7		1.2	0.7		5.0	0.7		1.7	0.4
Approach Delay, s/veh	8.1			8.4			13.1			7.1		
Approach LOS	A			A			B			A		
Intersection Delay, s/veh | LOS	9.7						A					

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Agenda

HCS7 Roundabouts Report

General Information

Analyst	Gedaliah Dreyfuss
Agency or Co.	Kittelson and Associates
Date Performed	8/2/2018
Analysis Year	2040
Time Analyzed	PM PH
Project Description	Rdbt 2040 Build PM analysis

Site Information

Intersection	SR 1127 (Kanuga Rd) and SR 1170 (White St)
E/W Street Name	SR 1170 (White St)
N/S Street Name	SR 1127 (Kanuga Rd)
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	104	64	158	0	178	124	129	0	166	178	96	0	123	312	191
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	119	73	181	0	204	142	148	0	190	204	110	0	141	357	219
Right-Turn Bypass	Yielding				Yielding				Yielding				Yielding			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763	4.9763		4.9763	4.9763		4.9763	4.9763		4.9763	4.9763
Follow-Up Headway (s)		2.6087	2.6087		2.6087	2.6087		2.6087	2.6087		2.6087	2.6087

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		192	181		346	148		394	110		498	219
Entry Volume veh/h		186	176		336	144		383	107		483	213
Circulating Flow (v_c), pc/h	702			513			333			536		
Exiting Flow (v_{ex}), pc/h	214			332			323			561		
Capacity (c_{pce}), pc/h		674	779		818	993		983	1109		799	984
Capacity (c), veh/h		655	756		794	964		954	1077		776	955
v/c Ratio (x)		0.28	0.23		0.42	0.15		0.40	0.10		0.62	0.22

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.1	7.4		9.9	5.1		8.3	4.2		15.1	6.0
Lane LOS		A	A		A	A		A	A		C	A
95% Queue, veh		1.2	0.9		2.1	0.5		2.0	0.3		4.4	0.9
Approach Delay, s/veh	8.3			8.5			7.4			12.3		
Approach LOS	A			A			A			B		
Intersection Delay, s/veh | LOS	9.5						A					

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HCS7 Roundabouts Report

General Information

Analyst	Gedaliah Dreyfuss
Agency or Co.	Kittelson and Associates
Date Performed	8/1/2018
Analysis Year	2040
Time Analyzed	AM PH - single lane
Project Description	Rdbt 2040 Build AM analysis

Site Information

Intersection	SR 1127 (Kanuga Rd) and SR 1170 (White St)
E/W Street Name	SR 1170 (White St)
N/S Street Name	SR 1127 (Kanuga Rd)
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	191	124	166	0	96	64	123	0	158	312	178	0	129	178	104
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	219	142	190	0	110	73	141	0	181	357	204	0	148	204	119
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		551			324			742			471	
Entry Volume veh/h		535			315			720			457	
Circulating Flow (v_c), pc/h	462			757			509			364		
Exiting Flow (v_{ex}), pc/h	494			373			717			504		
Capacity (c_{pce}), pc/h		861			638			821			952	
Capacity (c), veh/h		836			619			797			924	
v/c Ratio (x)		0.64			0.51			0.90			0.49	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		14.8			14.2			35.4			10.1	
Lane LOS		B			B			E			B	
95% Queue, veh		4.7			2.9			12.3			2.8	
Approach Delay, s/veh	14.8			14.2			35.4			10.1		
Approach LOS	B			B			E			B		
Intersection Delay, s/veh | LOS	21.0						C					

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HCS7 Roundabouts Report

General Information

Analyst	Gedaliah Dreyfuss
Agency or Co.	Kittelson and Associates
Date Performed	8/1/2018
Analysis Year	2040
Time Analyzed	PM PH - single lane
Project Description	Rdbt 2040 Build PM analysis

Site Information

Intersection	SR 1127 (Kanuga Rd) and SR 1170 (White St)
E/W Street Name	SR 1170 (White St)
N/S Street Name	SR 1127 (Kanuga Rd)
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	104	64	158	0	178	124	129	0	166	178	96	0	123	312	191
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	119	73	181	0	204	142	148	0	190	204	110	0	141	357	219
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		373			494			504			717	
Entry Volume veh/h		362			480			489			696	
Circulating Flow (v_c), pc/h	702			513			333			536		
Exiting Flow (v_{ex}), pc/h	324			551			471			742		
Capacity (c_{pce}), pc/h		674			818			983			799	
Capacity (c), veh/h		655			794			954			776	
v/c Ratio (x)		0.55			0.60			0.51			0.90	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		14.9			14.2			10.2			35.1	
Lane LOS		B			B			B			E	
95% Queue, veh		3.4			4.1			3.0			11.9	
Approach Delay, s/veh	14.9			14.2			10.2			35.1		
Approach LOS	B			B			B			E		
Intersection Delay, s/veh | LOS	20.6						C					

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HCS7 Roundabouts Report

General Information

Analyst	Andrew Drda
Agency or Co.	NCDOT
Date Performed	7/10/2018
Analysis Year	2040
Time Analyzed	AM PH
Project Description	2040 Build AM

Site Information

Intersection	SR 1171 (Willow Rd) and SR 1172 (Hebron Rd)/ (White St)
E/W Street Name	Hebron Rd/White St
N/S Street Name	Willow Rd
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	65	95	62	0	155	53	115	0	69	73	308	0	83	26	26
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	74	109	71	0	177	61	132	0	79	84	352	0	95	30	30
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		254			370			515			155	
Entry Volume veh/h		247			359			500			150	
Circulating Flow (v_c), pc/h	302			237			278			317		
Exiting Flow (v_{ex}), pc/h	556			170			290			278		
Capacity (c_{pce}), pc/h		1014			1084			1039			999	
Capacity (c), veh/h		985			1052			1009			970	
v/c Ratio (x)		0.25			0.34			0.50			0.16	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.1			6.9			9.5			5.2	
Lane LOS		A			A			A			A	
95% Queue, veh		1.0			1.5			2.8			0.5	
Approach Delay, s/veh	6.1			6.9			9.5			5.2		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	7.6						A					

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Agenda

HCS7 Roundabouts Report

General Information

Analyst	Andrew Drda
Agency or Co.	NCDOT
Date Performed	7/10/2018
Analysis Year	2040
Time Analyzed	PM PH
Project Description	2040 Build PM

Site Information

Intersection	SR 1171 (Willow Rd) and SR 1172 (Hebron Rd)/ (White St)
E/W Street Name	Hebron Rd/White St
N/S Street Name	Willow Rd
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	Henderson County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	26	53	69	0	308	95	83	0	62	26	155	0	115	73	65
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	30	61	79	0	352	109	95	0	71	30	177	0	132	84	74
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		170			556			278			290	
Entry Volume veh/h		165			540			270			282	
Circulating Flow (v_c), pc/h	568			131			223			532		
Exiting Flow (v_{ex}), pc/h	370			254			155			515		
Capacity (c_{pce}), pc/h		773			1207			1099			802	
Capacity (c), veh/h		751			1172			1067			779	
v/c Ratio (x)		0.22			0.46			0.25			0.36	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		7.2			8.0			5.8			9.0	
Lane LOS		A			A			A			A	
95% Queue, veh		0.8			2.5			1.0			1.7	
Approach Delay, s/veh	7.2			8.0			5.8			9.0		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	7.6						A					

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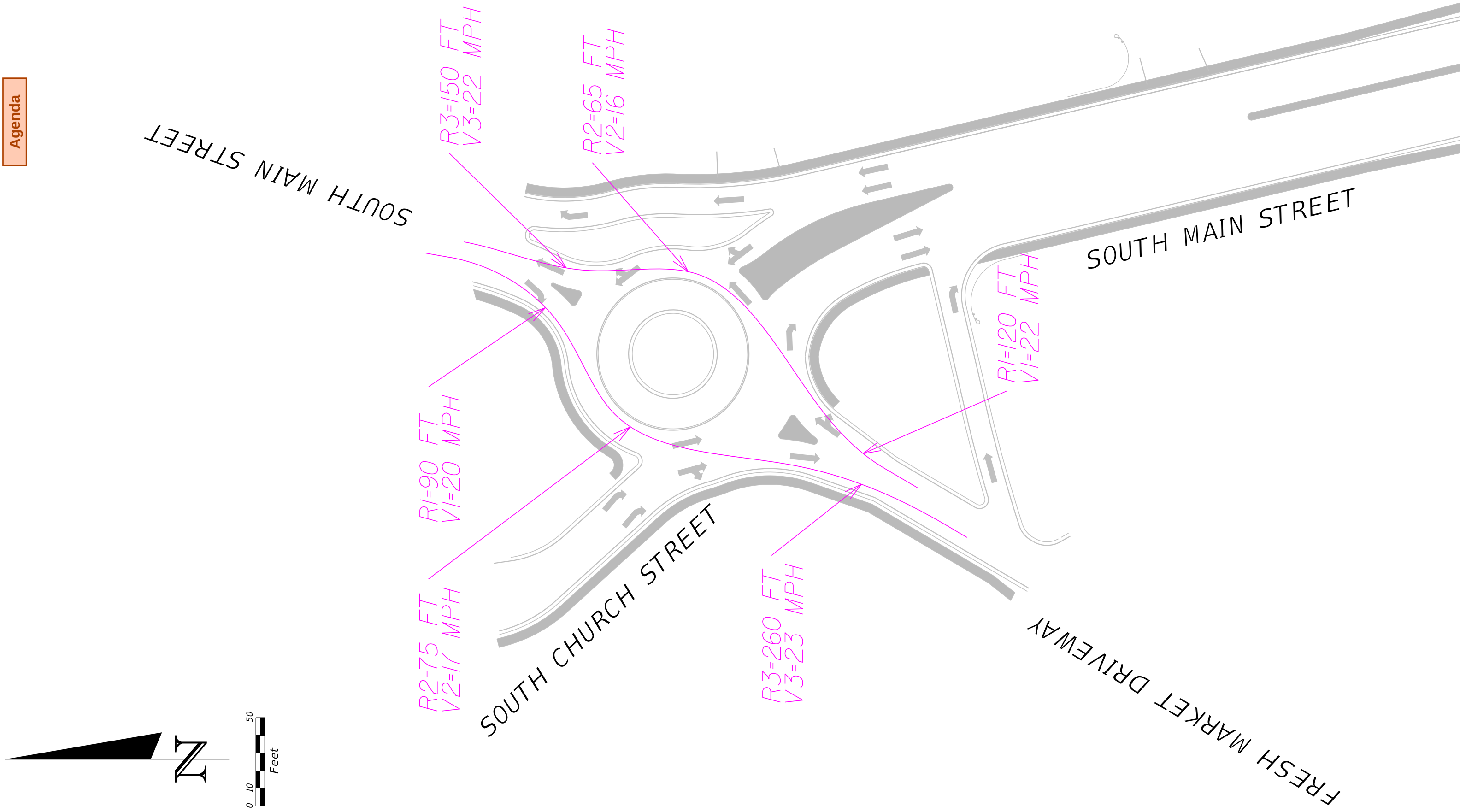
Appendix B. Fastest Path Figures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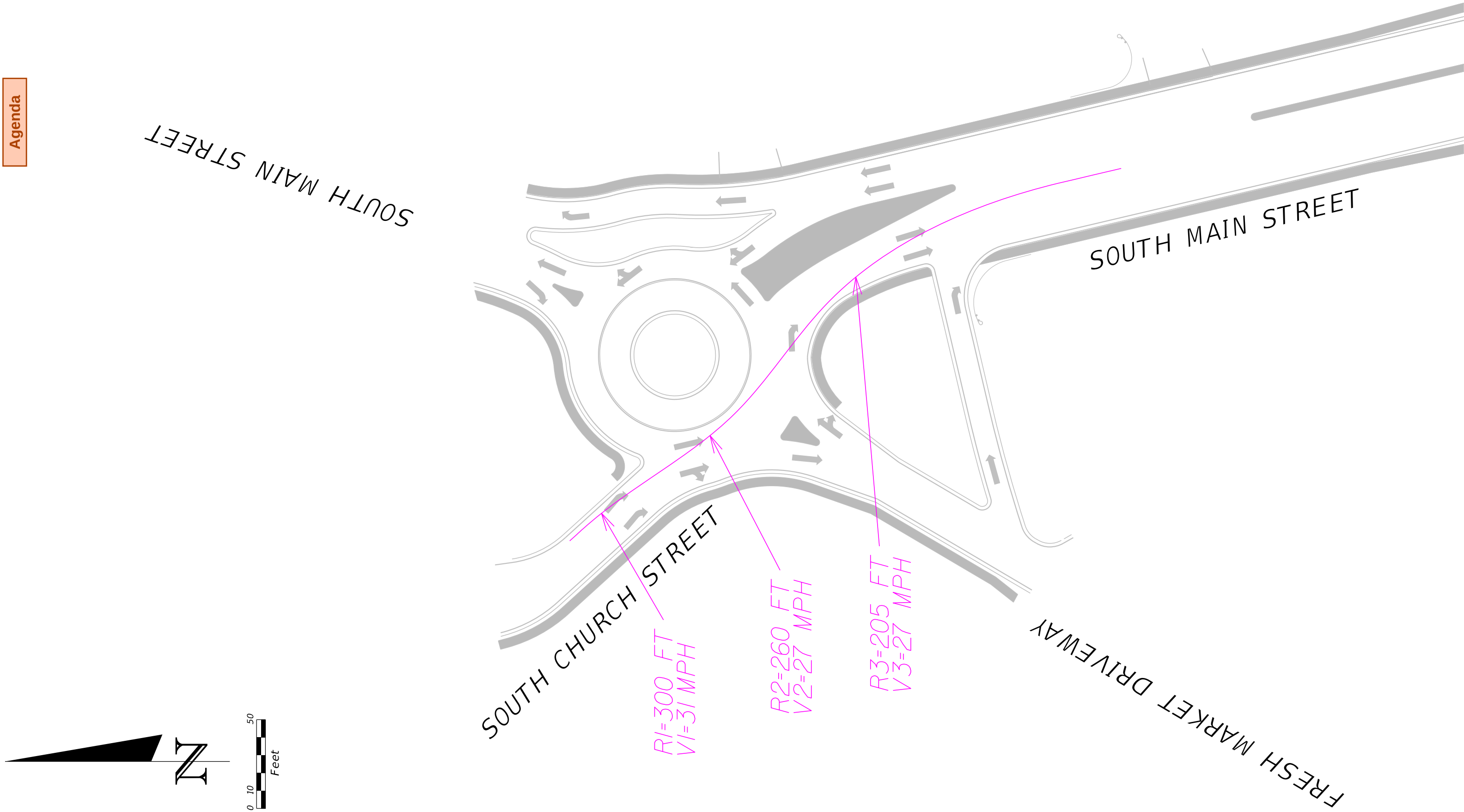
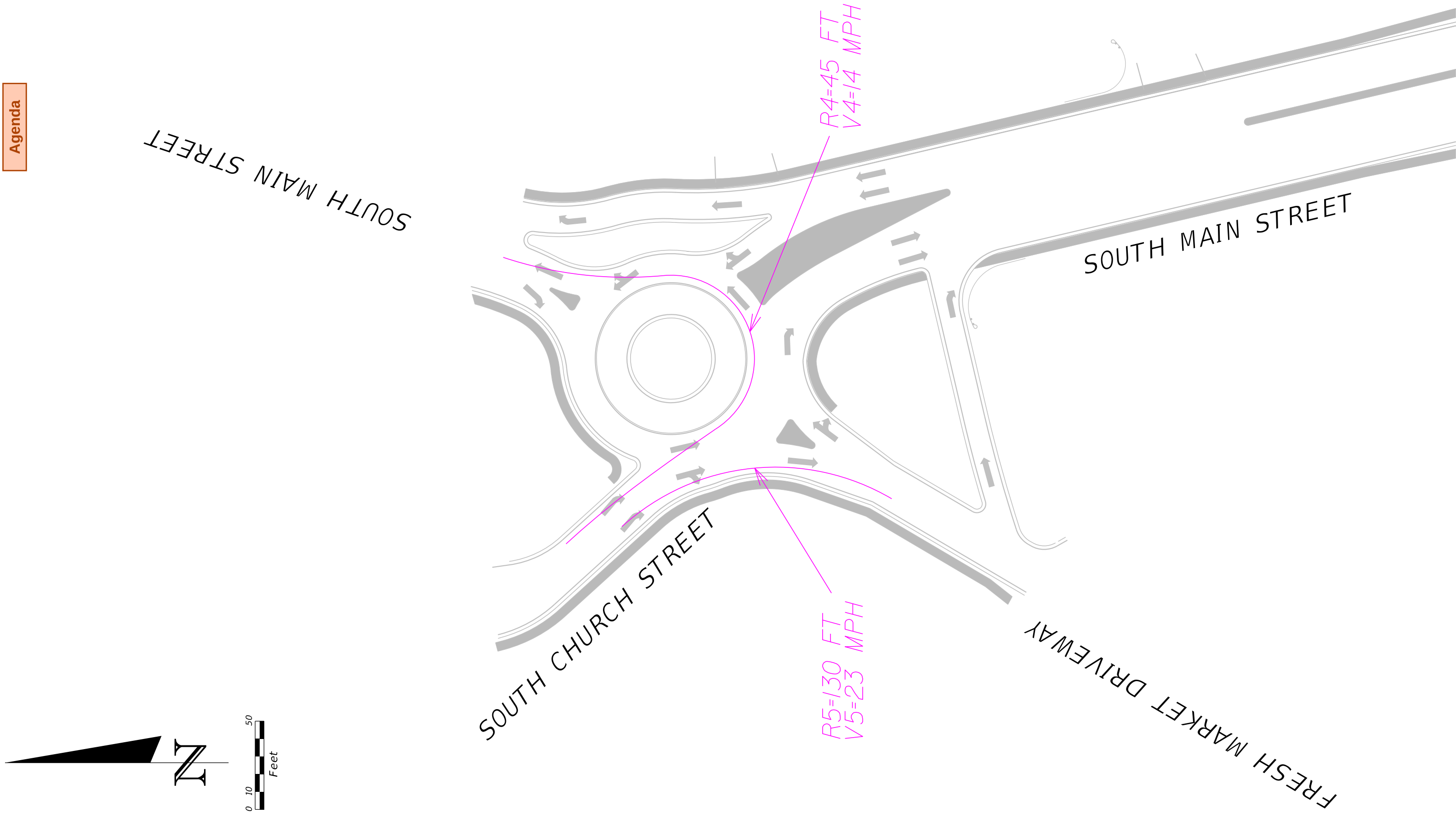
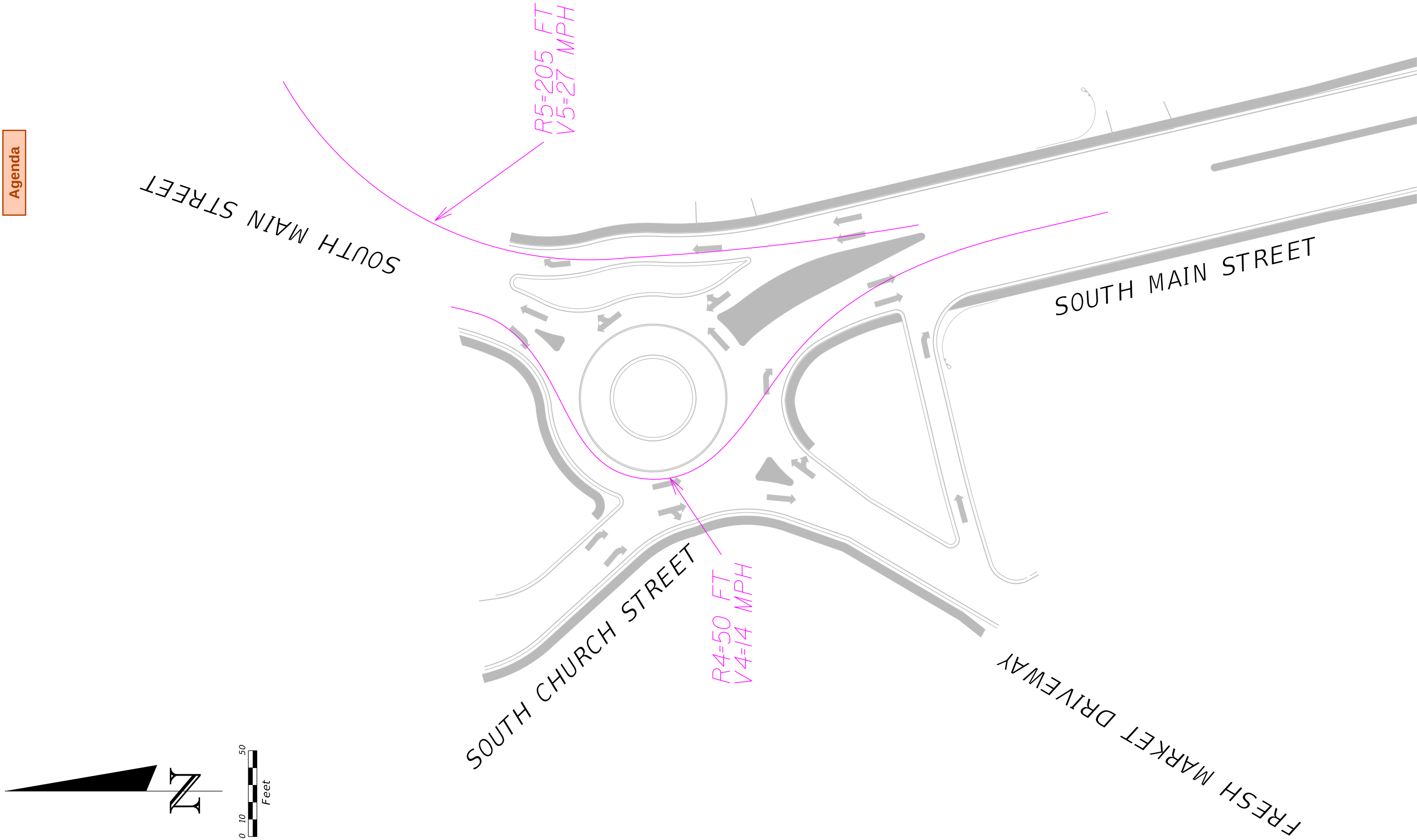
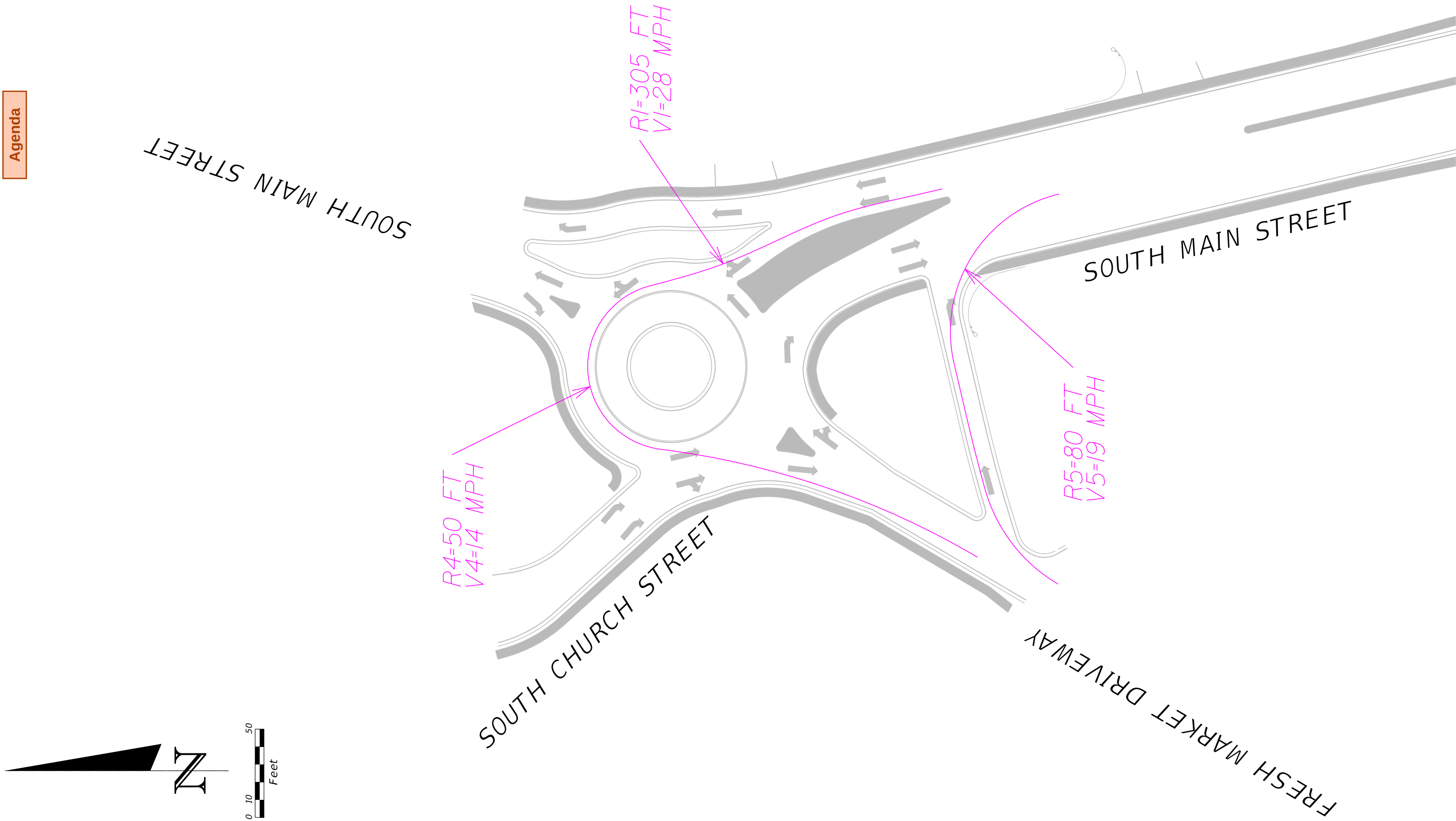
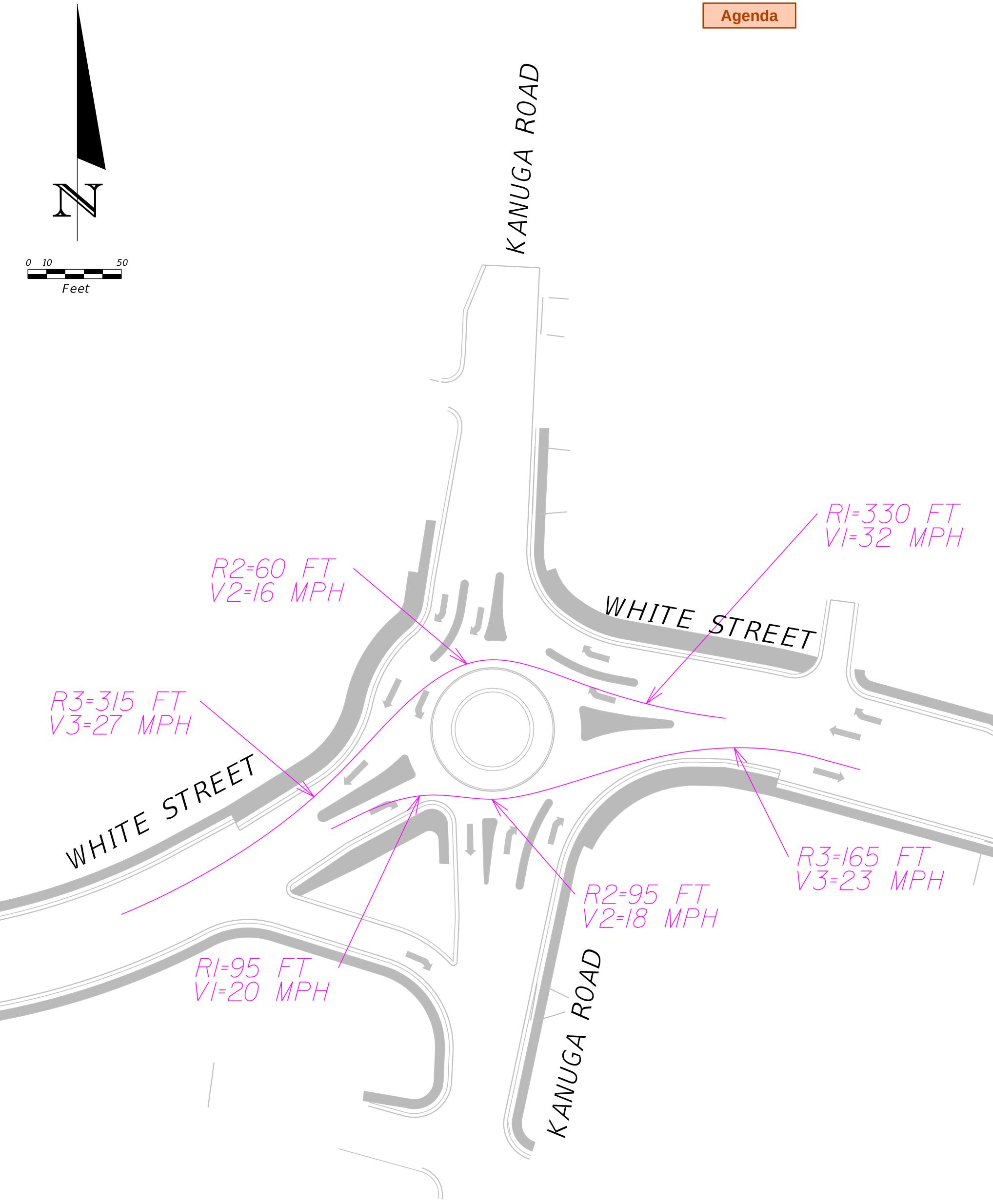
R3=150 FT
V3=22 MPH
R2=65 FT
V2=16 MPH
SOUTH MAIN STREET
R1=120 FT
V1=22 MPH
R1=90 FT
V1=20 MPH
R2=75 FT
V2=17 MPH
SOUTH CHURCH STREET
R3=260 FT
V3=23 MPH
FRESH MARKET DRIVEWAY
N
0 10 50
Feet

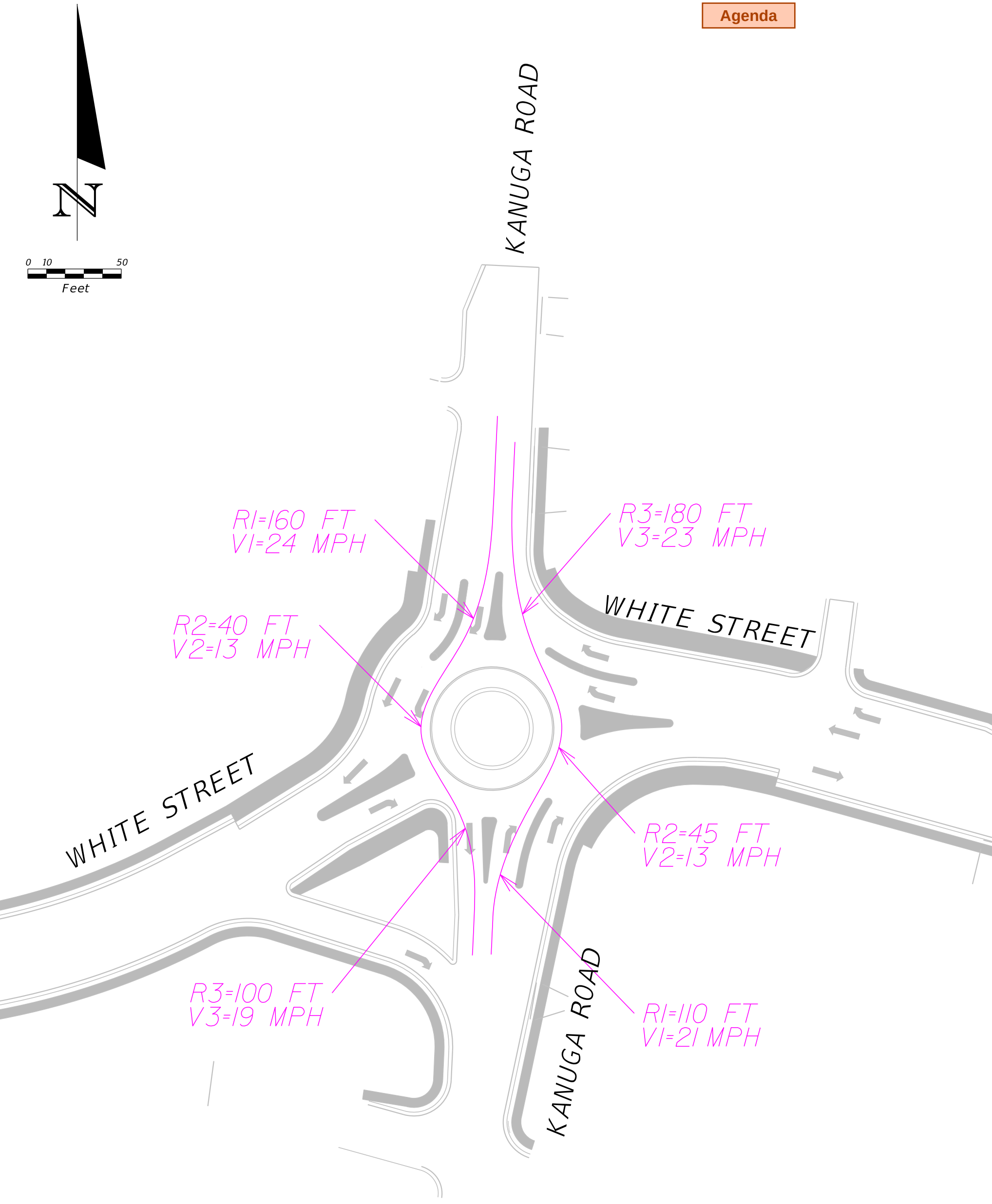

SOUTH MAIN STREET
SOUTH MAIN STREET
SOUTH CHURCH STREET
FRESH MARKET DRIVEWAY
R1=300 FT
V1=31 MPH
R2=260 FT
V2=27 MPH
R3=205 FT
V3=27 MPH
N
0 10 50
Feet

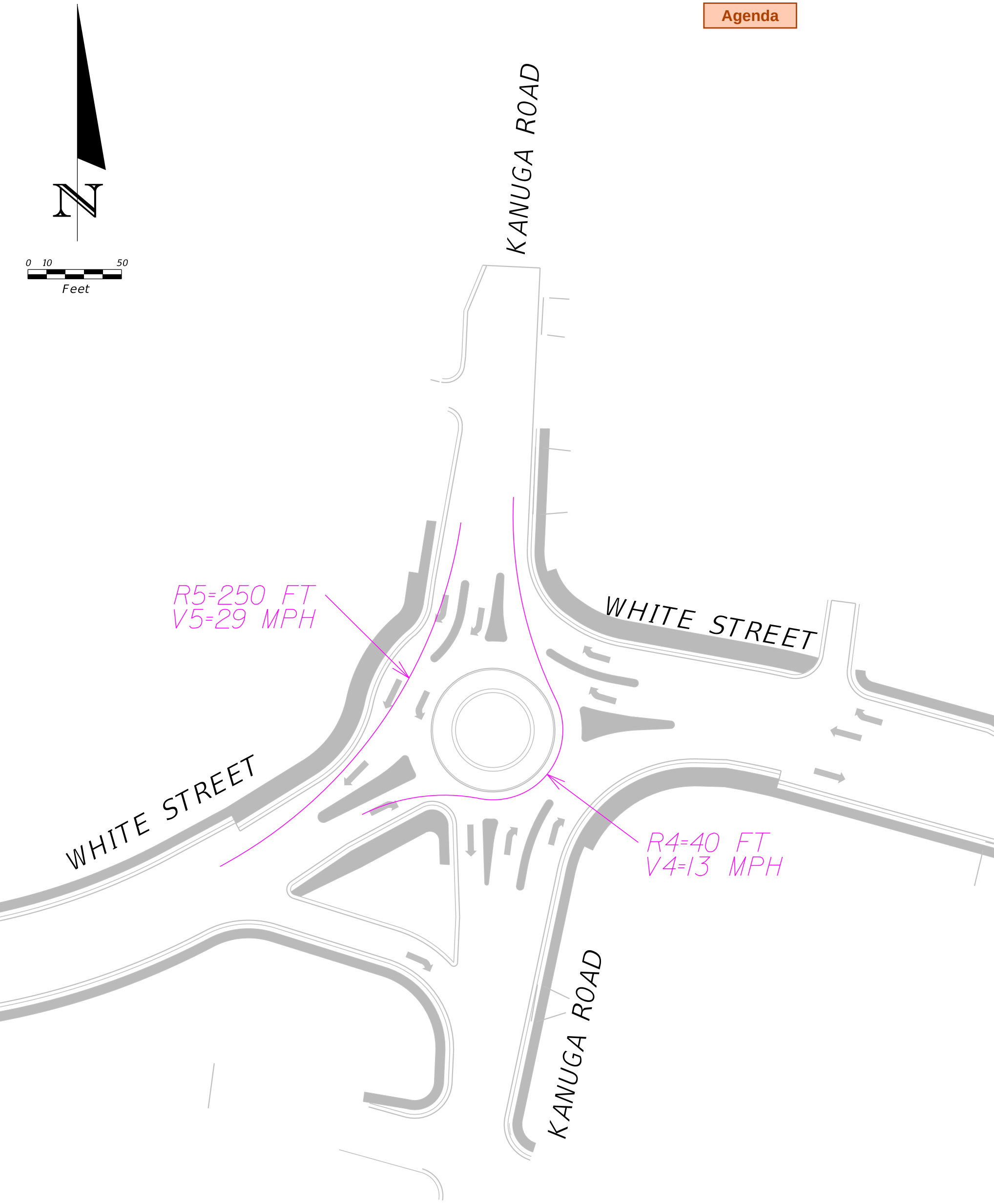

SOUTH MAIN STREET
R4=45 FT
V4=14 MPH
SOUTH MAIN STREET
SOUTH CHURCH STREET
R5=130 FT
V5=23 MPH
FRESH MARKET DRIVEWAY
N
0 10 50
Feet


R5=205 FT
V5=27 MPH
SOUTH MAIN STREET
SOUTH MAIN STREET
R4=50 FT
V4=14 MPH
SOUTH CHURCH STREET
FRESH MARKET DRIVEWAY
N
0 10 50
Feet

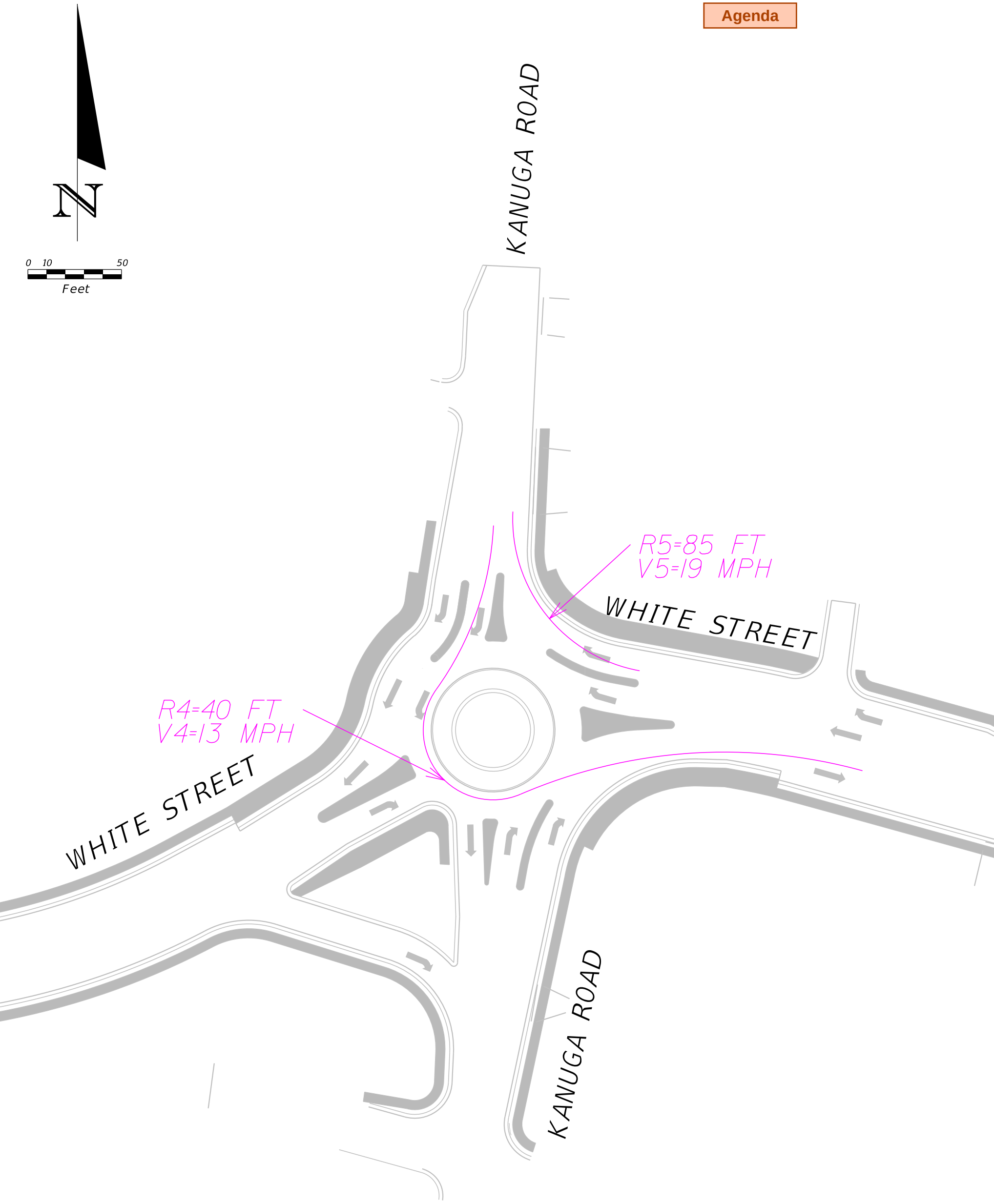

SOUTH MAIN STREET
R1=305 FT
V1=28 MPH
SOUTH MAIN STREET
R5=80 FT
V5=19 MPH
R4=50 FT
V4=14 MPH
SOUTH CHURCH STREET
FRESH MARKET DRIVEWAY
N
0 10 50
Feet


N
0 10 50
Feet
KANUGA ROAD
WHITE STREET
WHITE STREET
KANUGA ROAD
R1=330 FT
V1=32 MPH
R2=60 FT
V2=16 MPH
R3=315 FT
V3=27 MPH
R3=165 FT
V3=23 MPH
R2=95 FT
V2=18 MPH
R1=95 FT
V1=20 MPH


N
0 10 50
Feet
KANUGA ROAD
R1=160 FT
V1=24 MPH
R3=180 FT
V3=23 MPH
WHITE STREET
R2=40 FT
V2=13 MPH
WHITE STREET
R2=45 FT
V2=13 MPH
R3=100 FT
V3=19 MPH
R1=110 FT
V1=21 MPH
KANUGA ROAD


N
0 10 50
Feet
KANUGA ROAD
WHITE STREET
WHITE STREET
KANUGA ROAD
R5=250 FT
V5=29 MPH
R4=40 FT
V4=13 MPH

Agenda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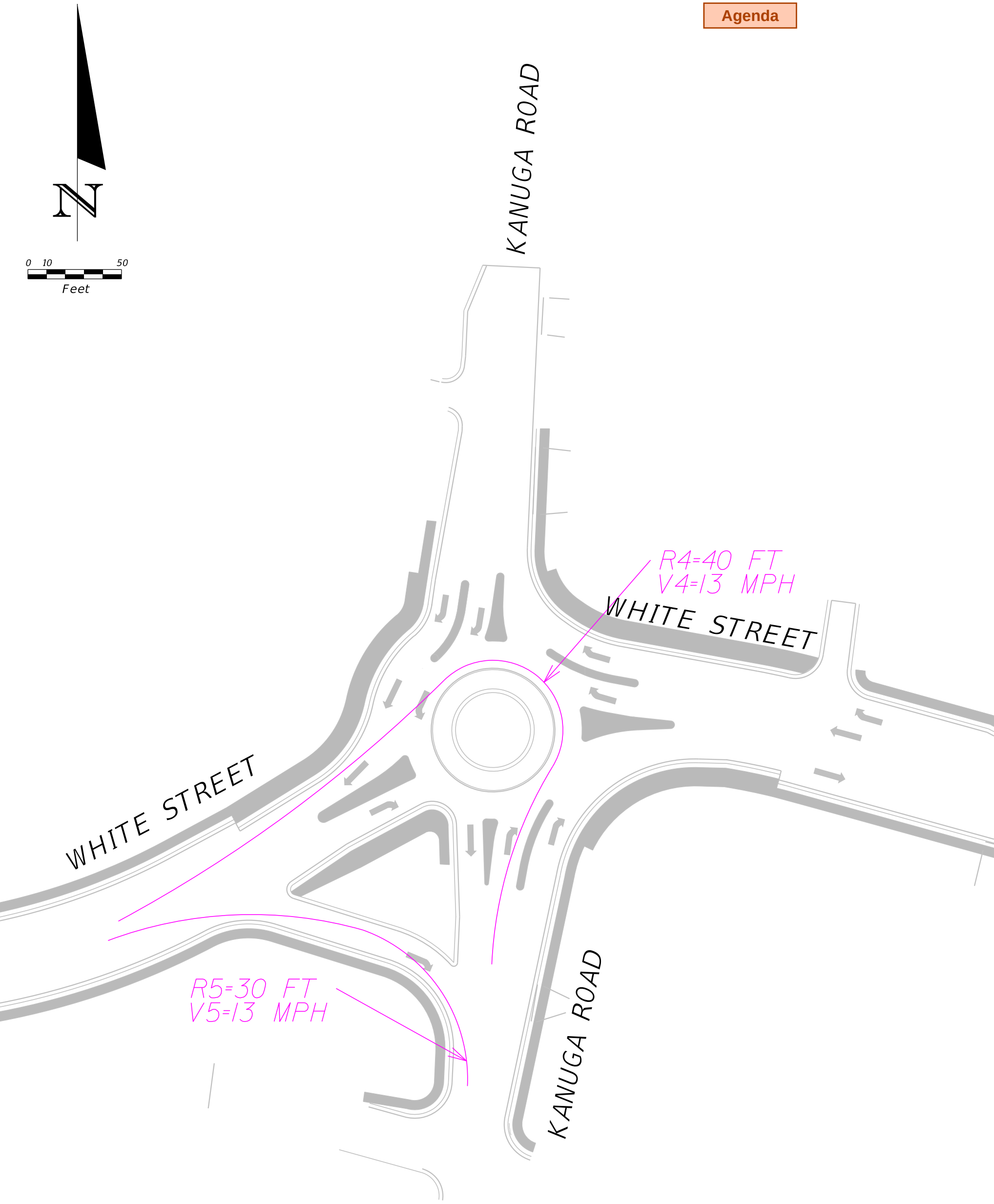
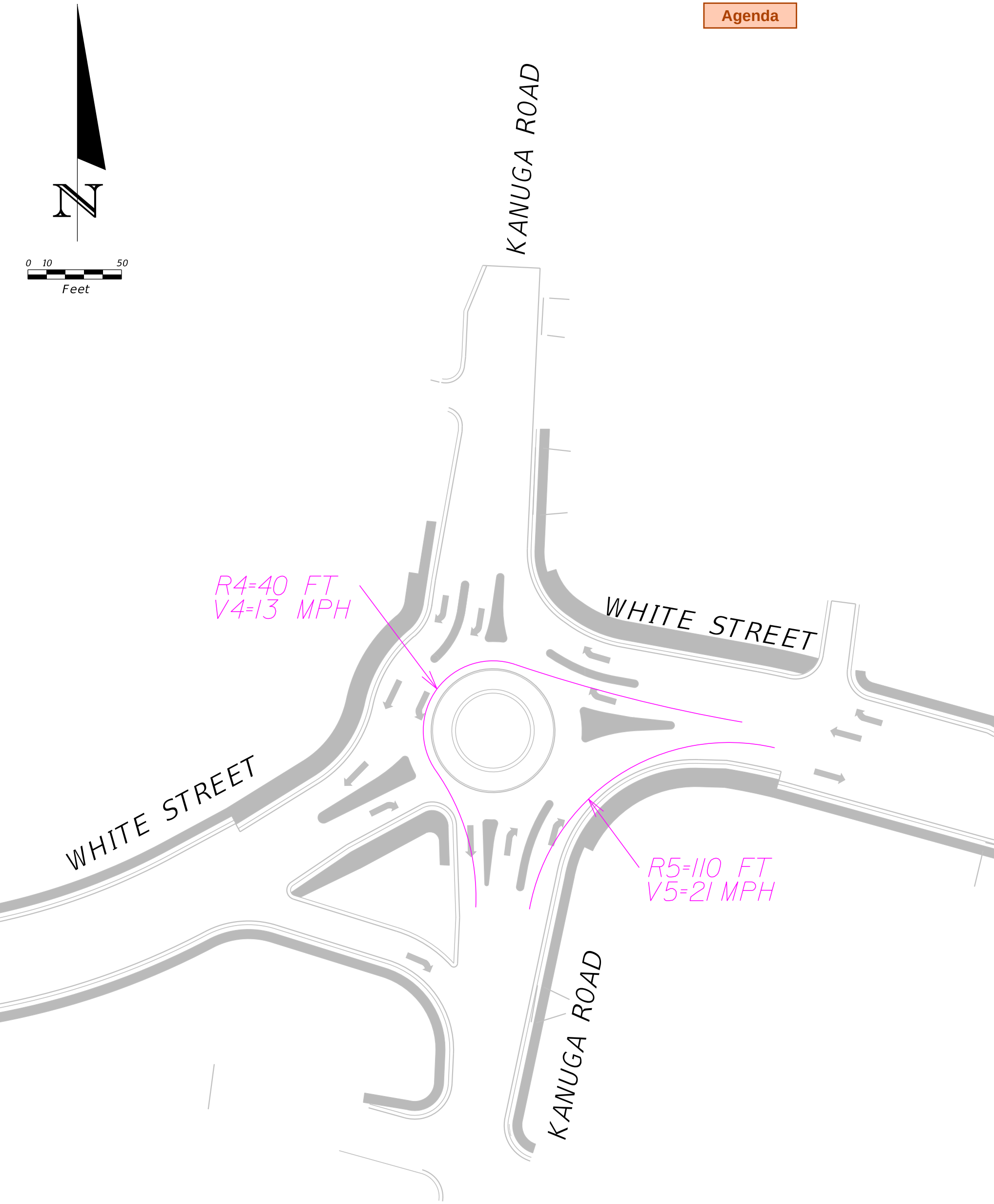
0 10 50
Feet
KANUGA ROAD
R5=85 FT
V5=19 MPH
WHITE STREET
R4=40 FT
V4=13 MPH
WHITE STREET
KANUGA ROAD


N
0 10 50
Feet
KANUGA ROAD
R4=40 FT
V4=13 MPH
WHITE STREET
WHITE STREET
R5=30 FT
V5=13 MPH
KANUGA ROAD

Agenda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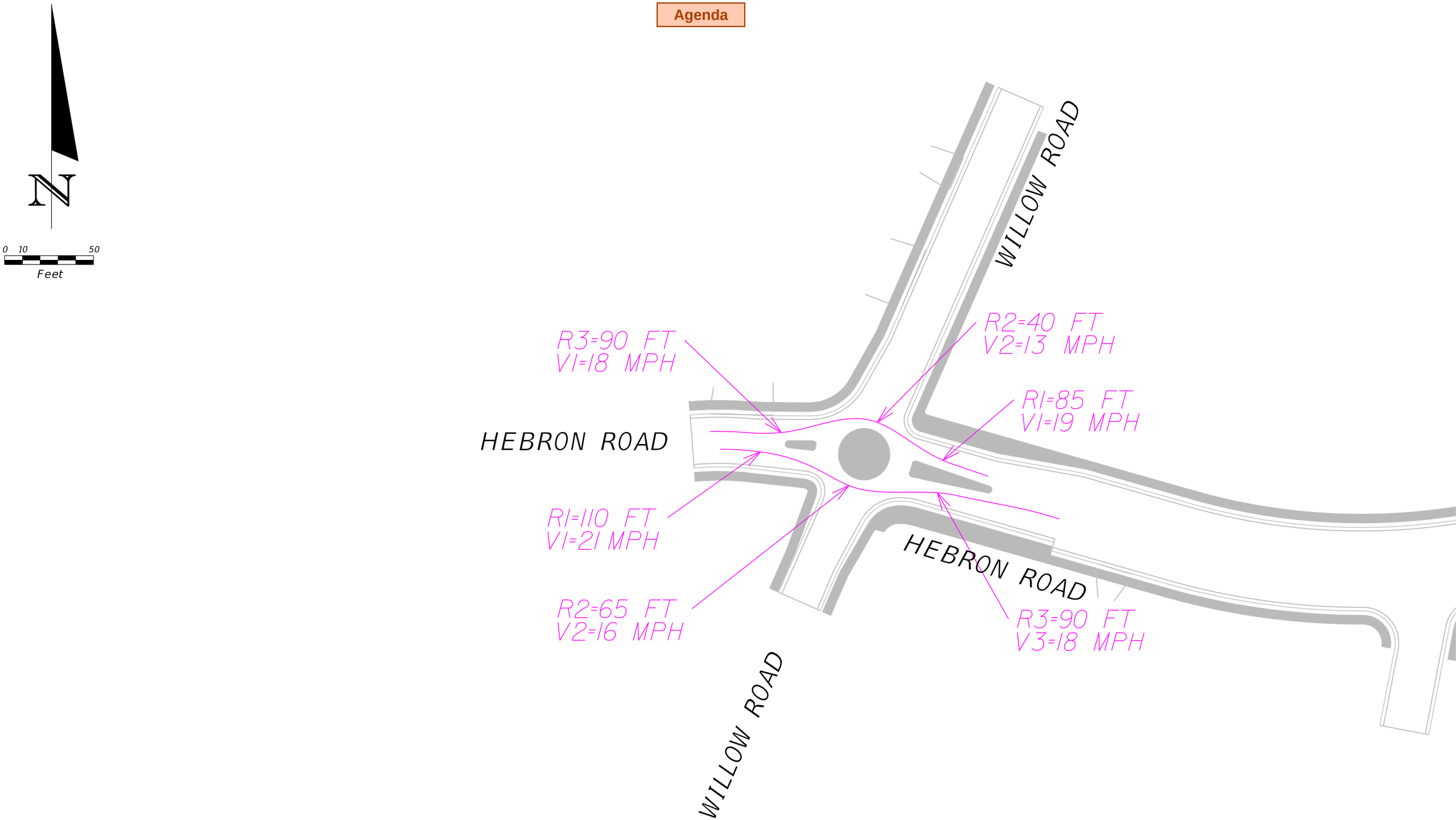
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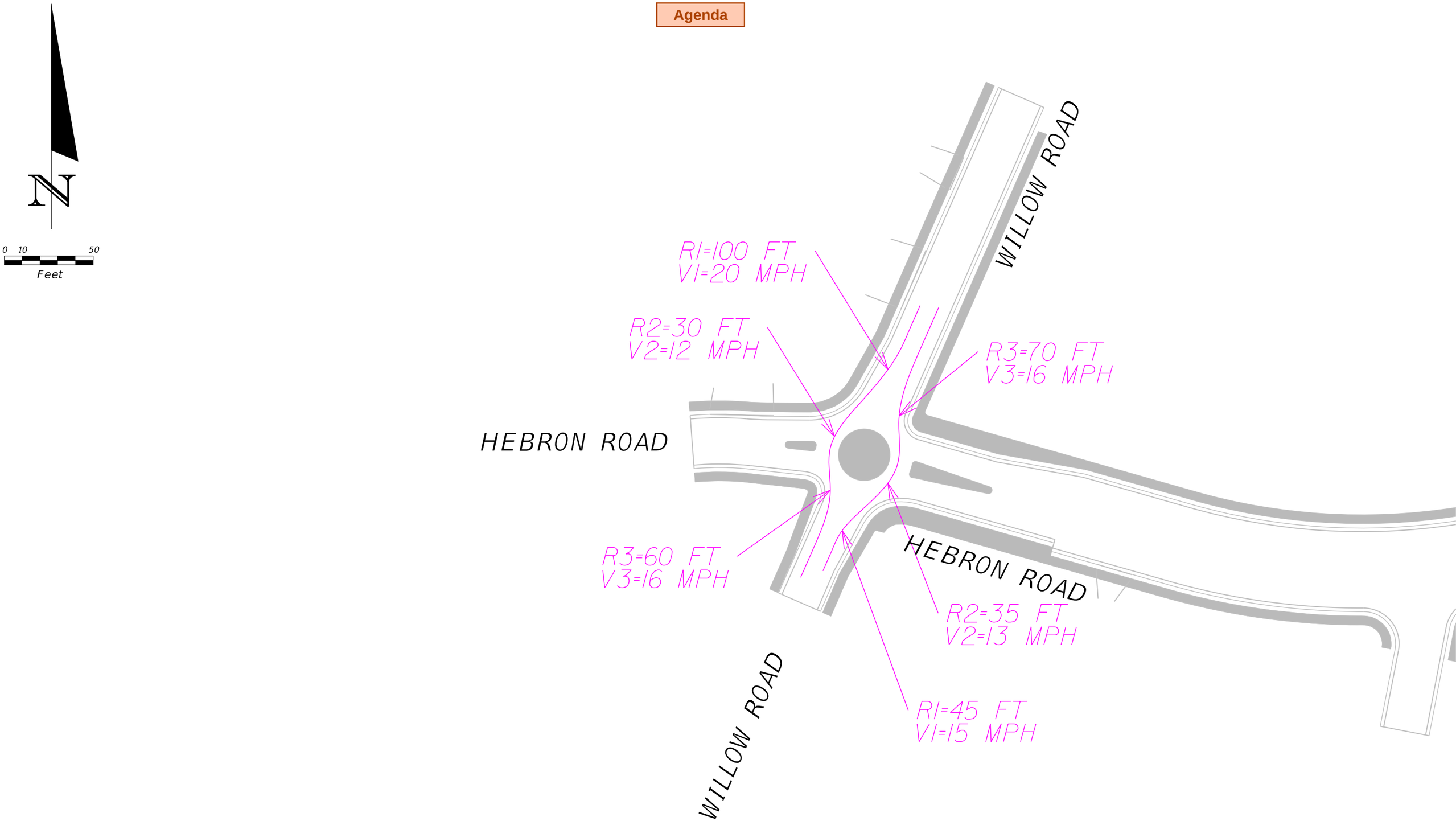
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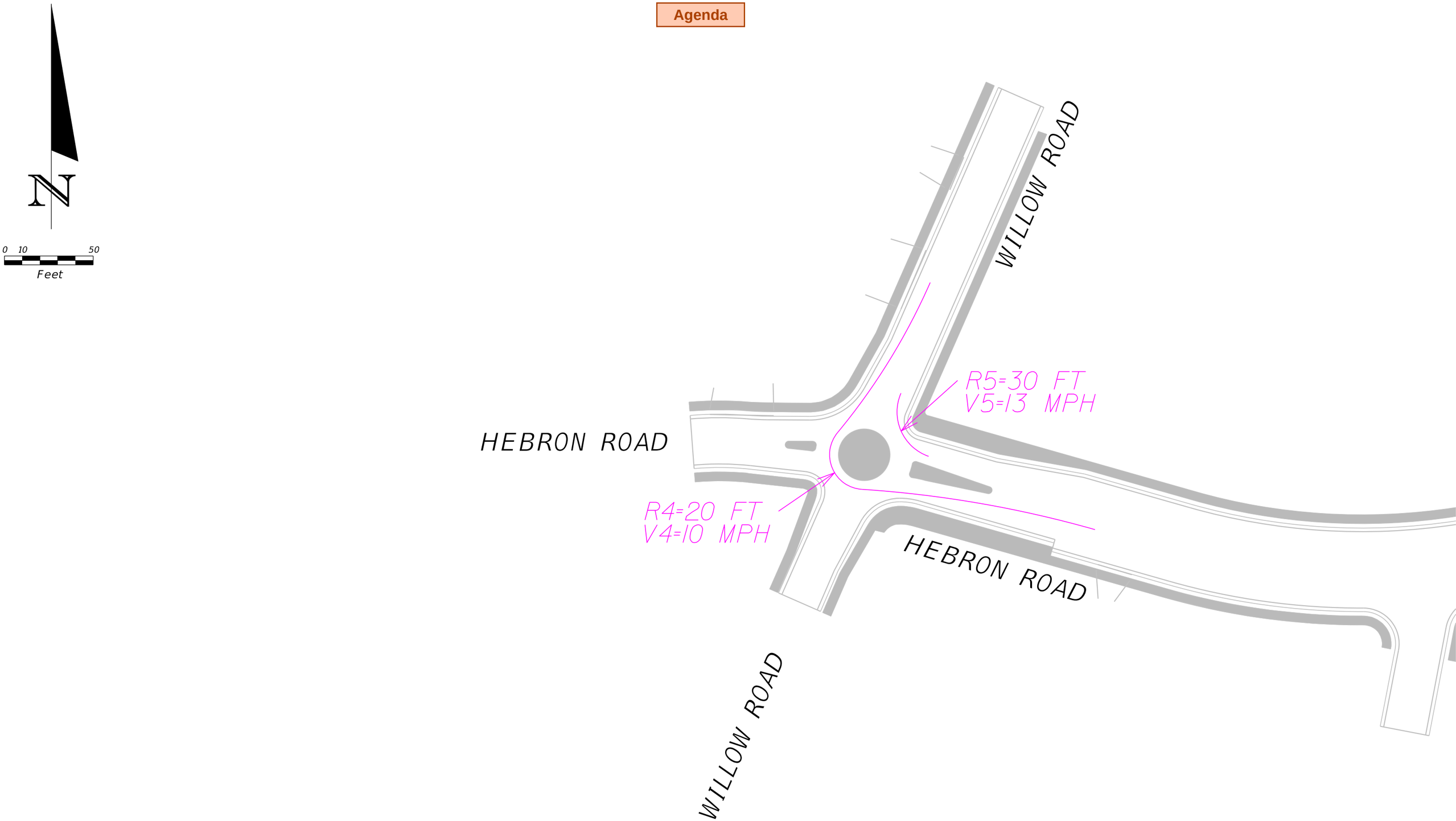
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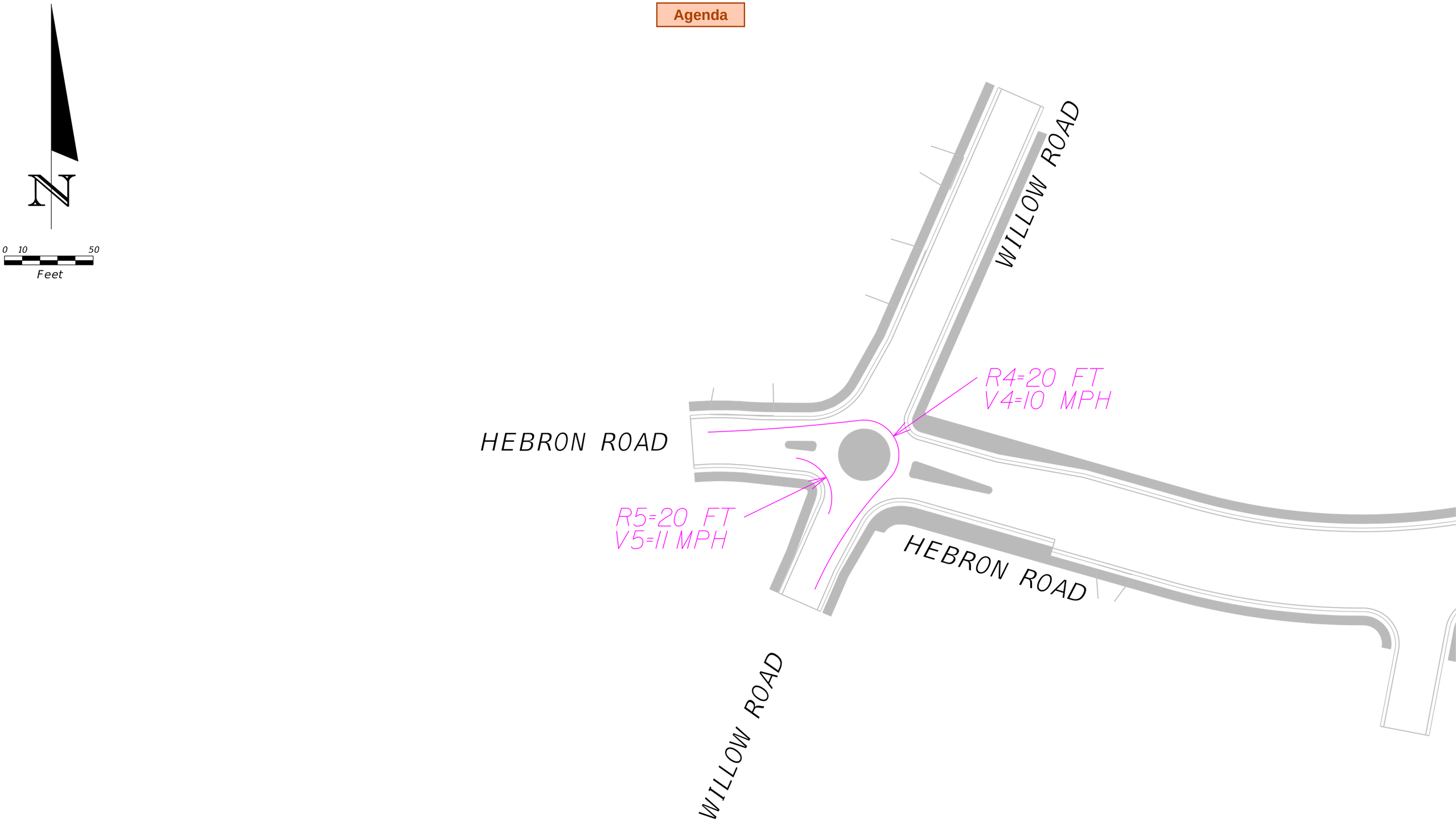
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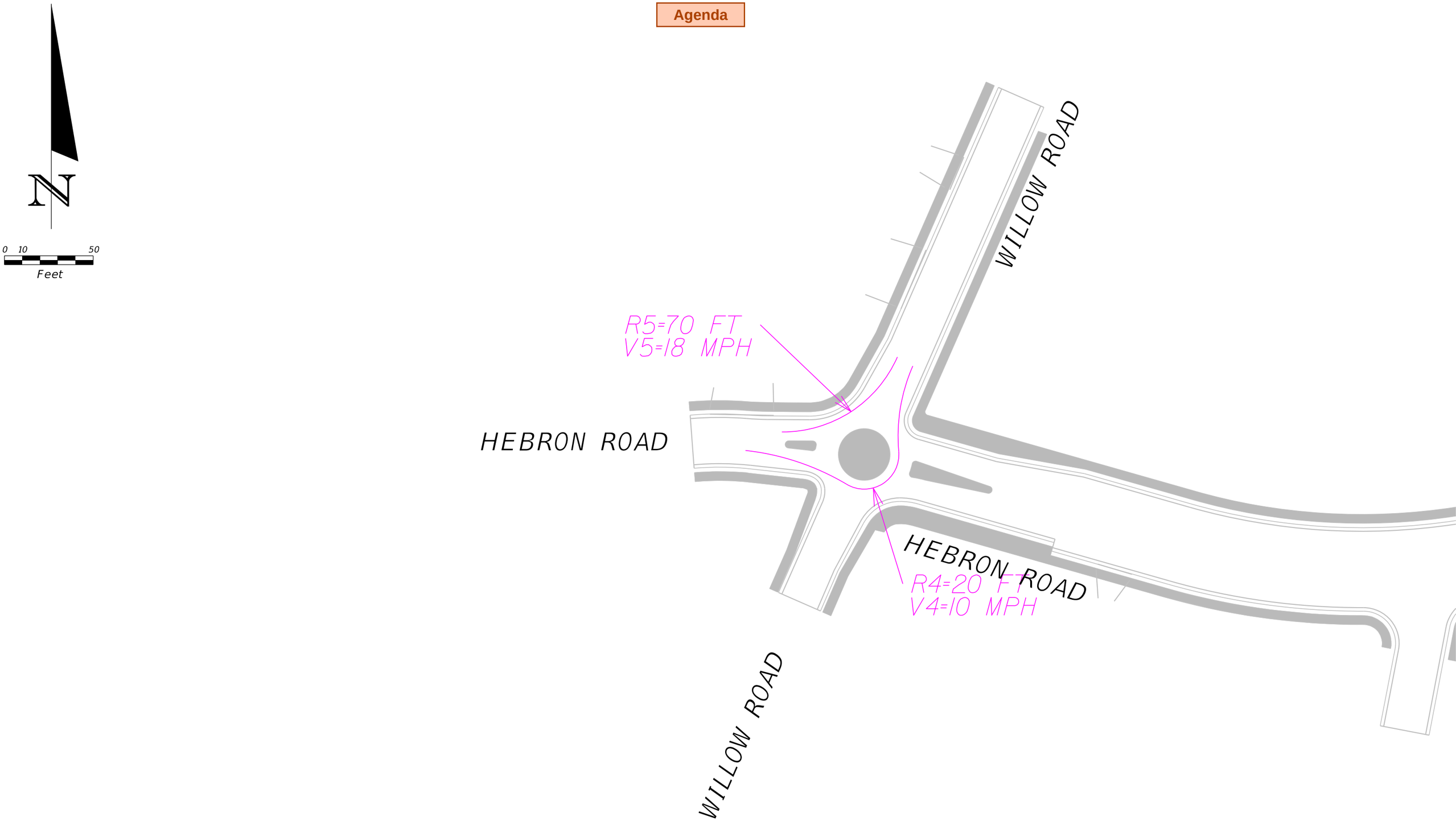
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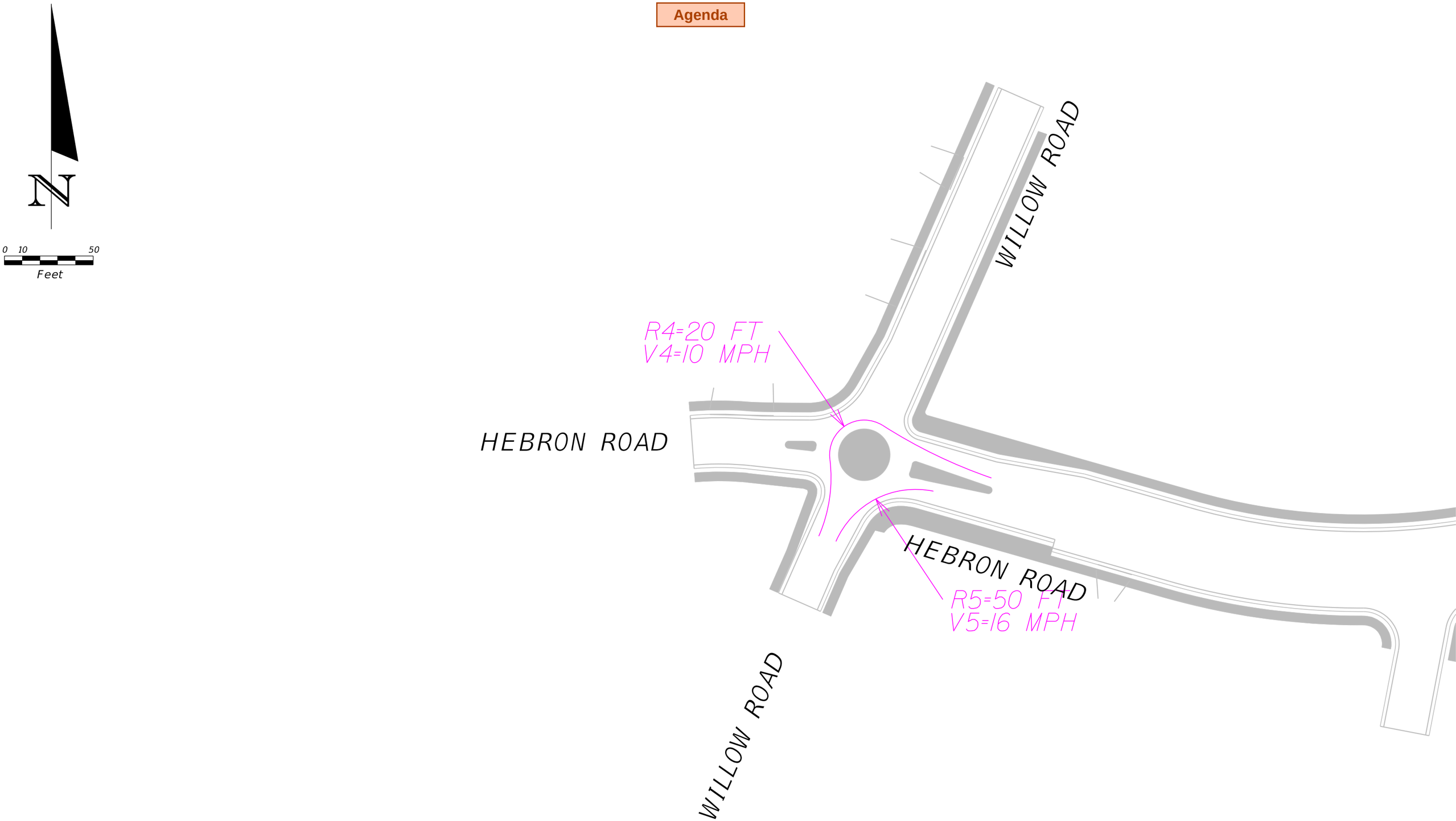
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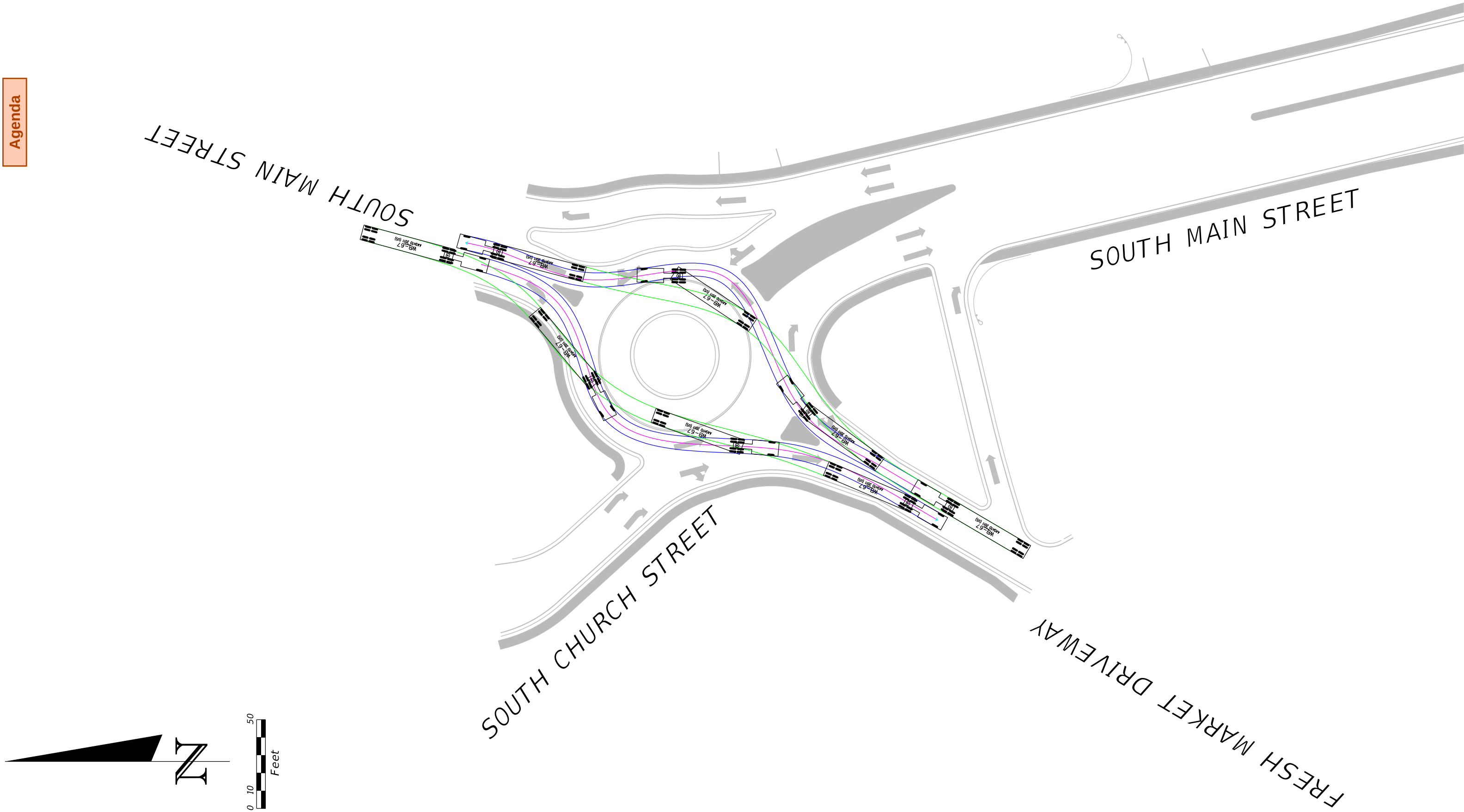
Appendix C. Design Vehicle Turning Movement Figures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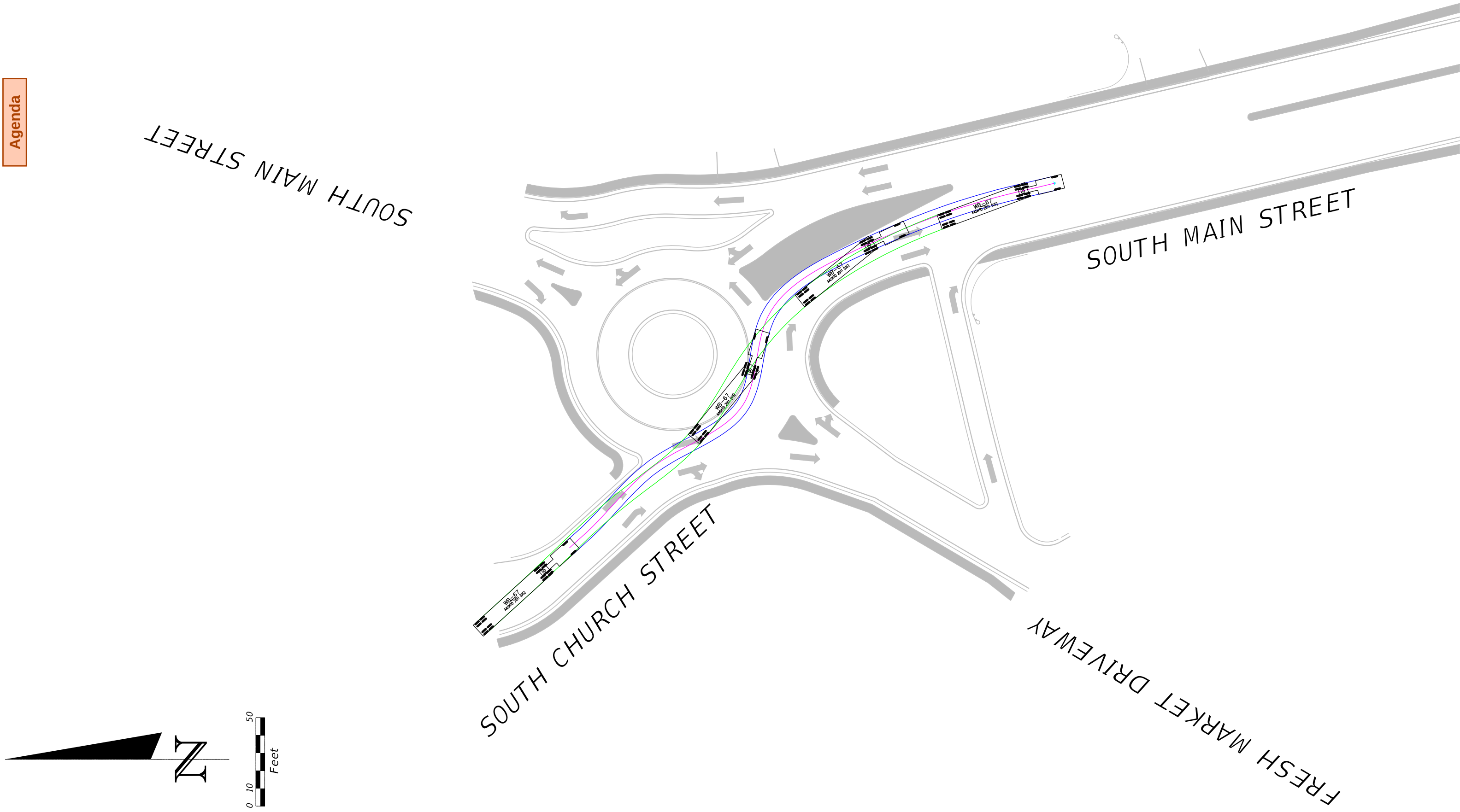
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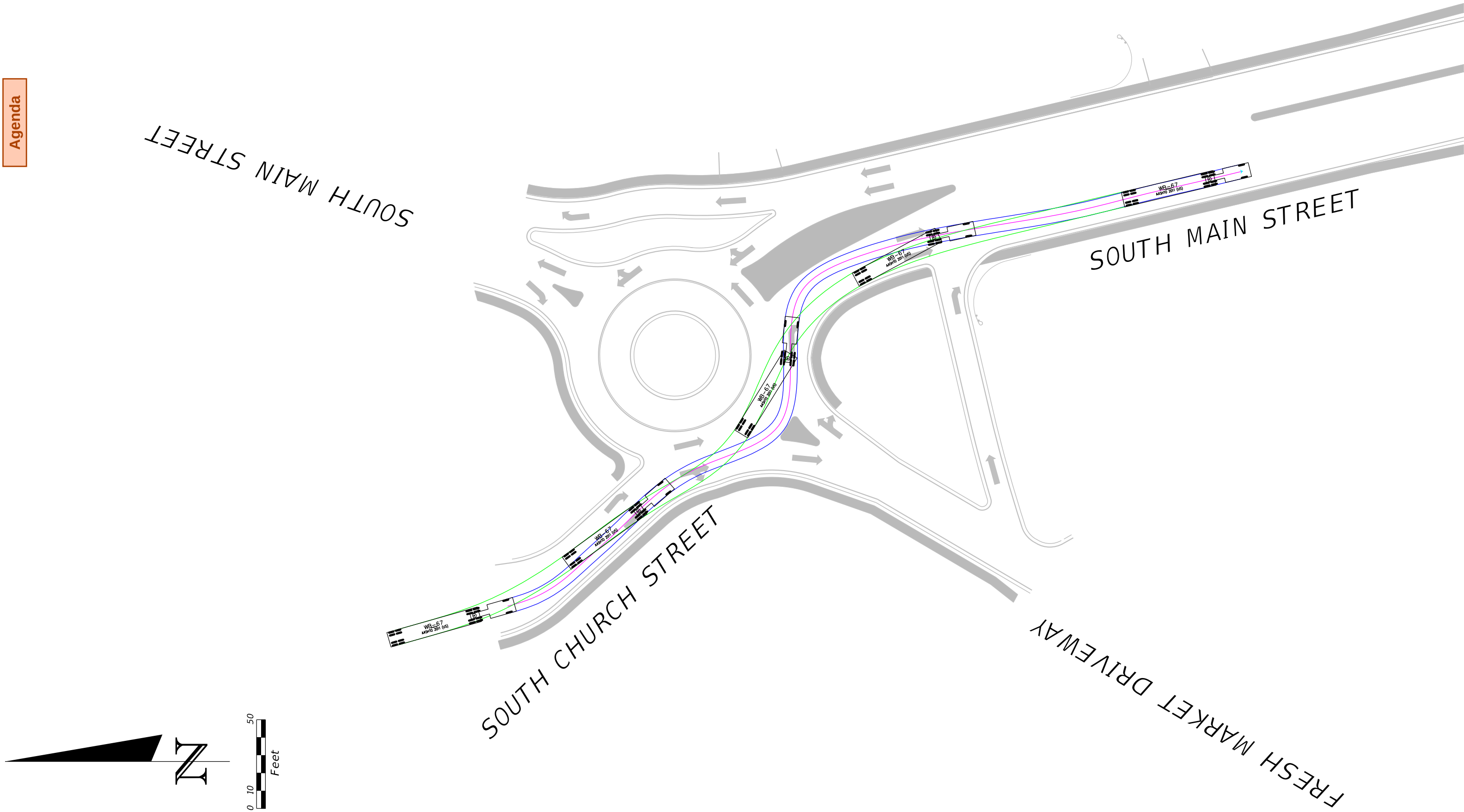
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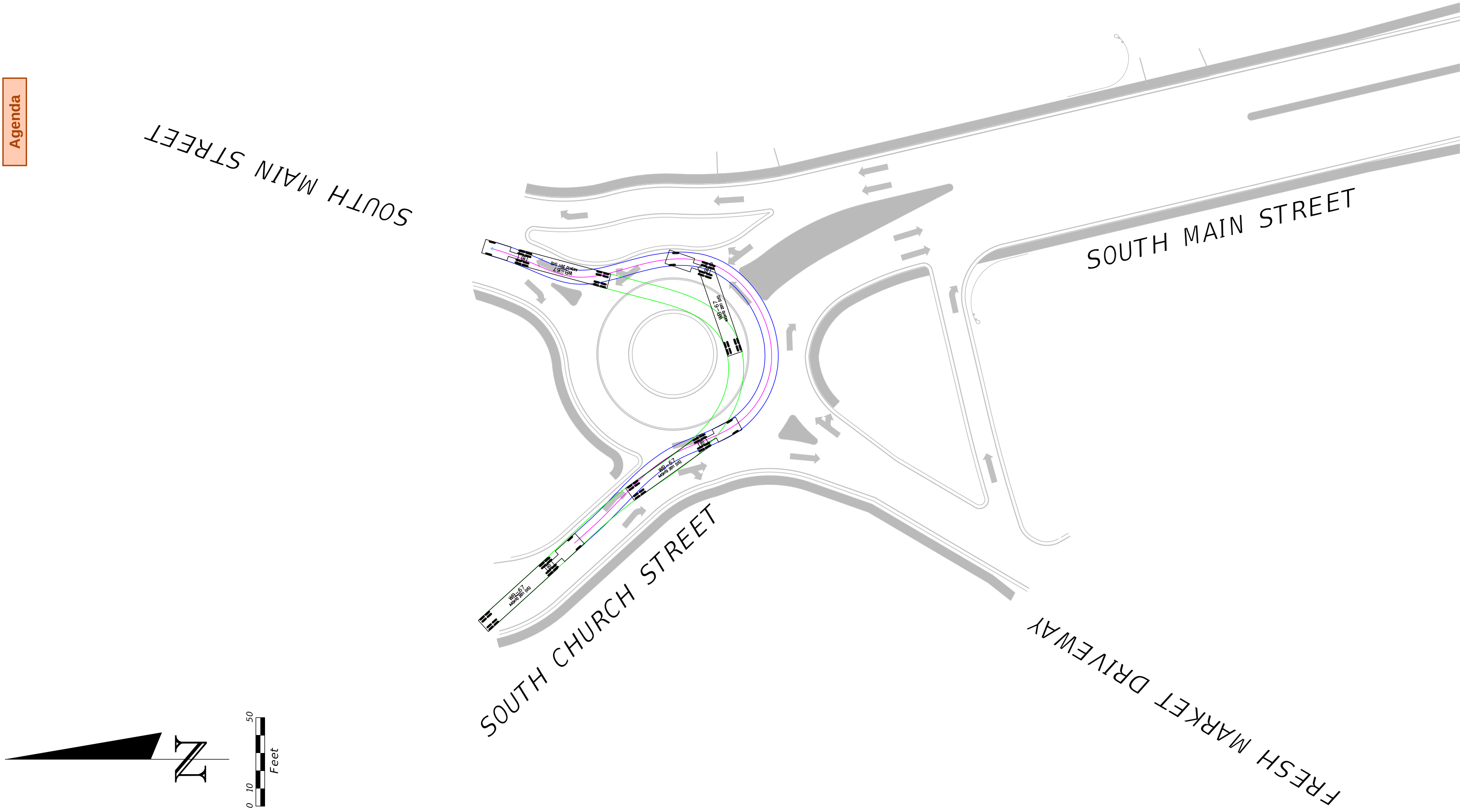
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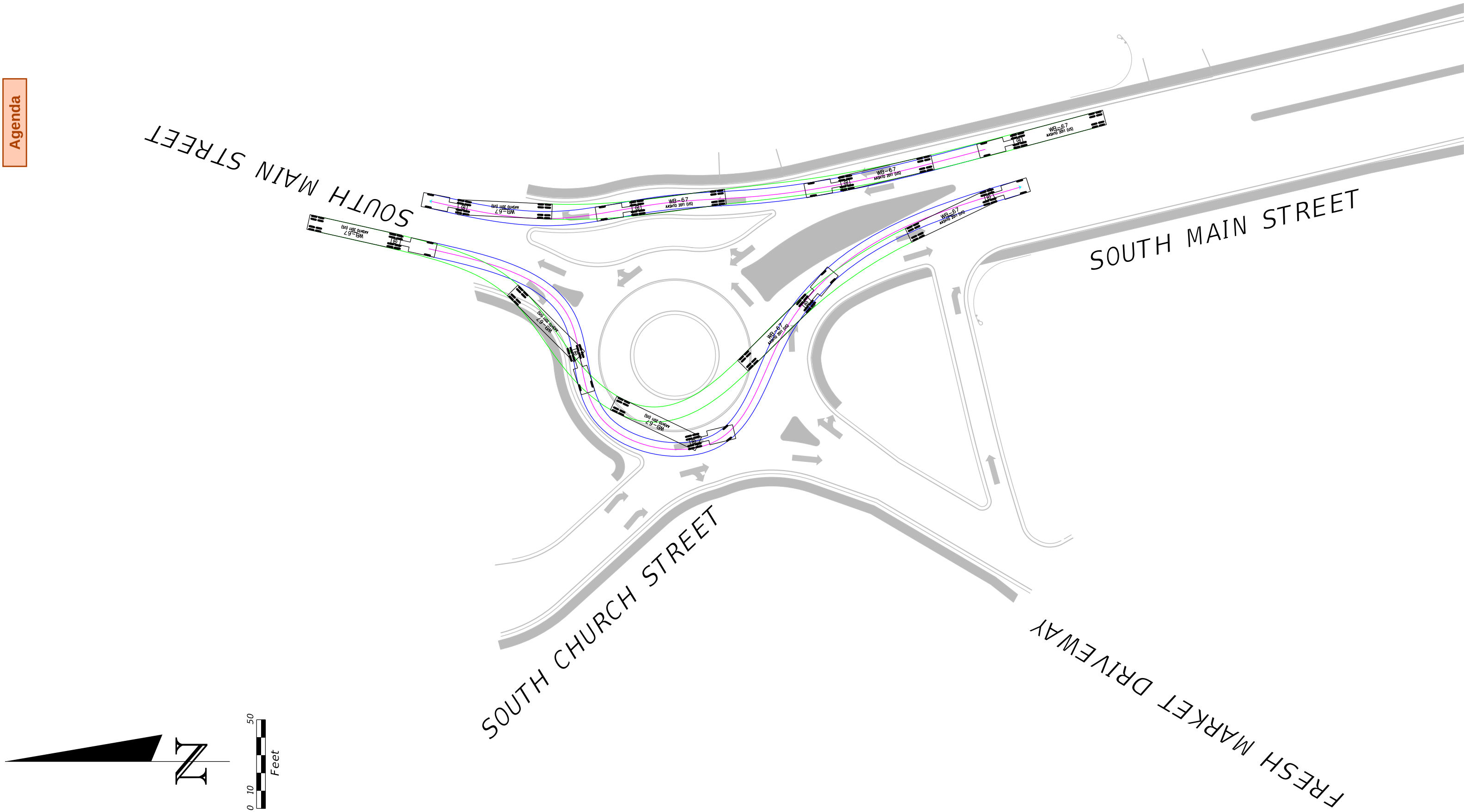
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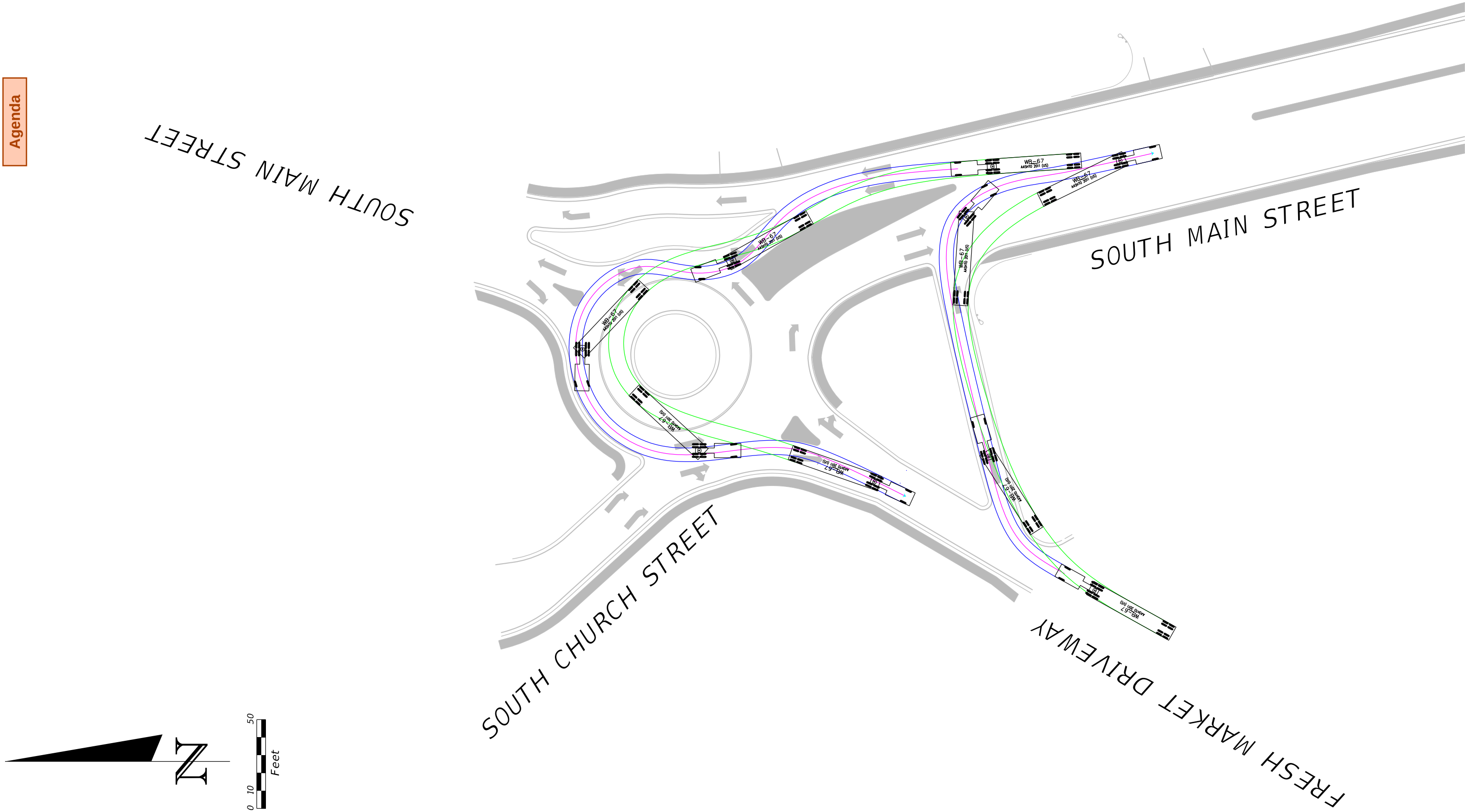
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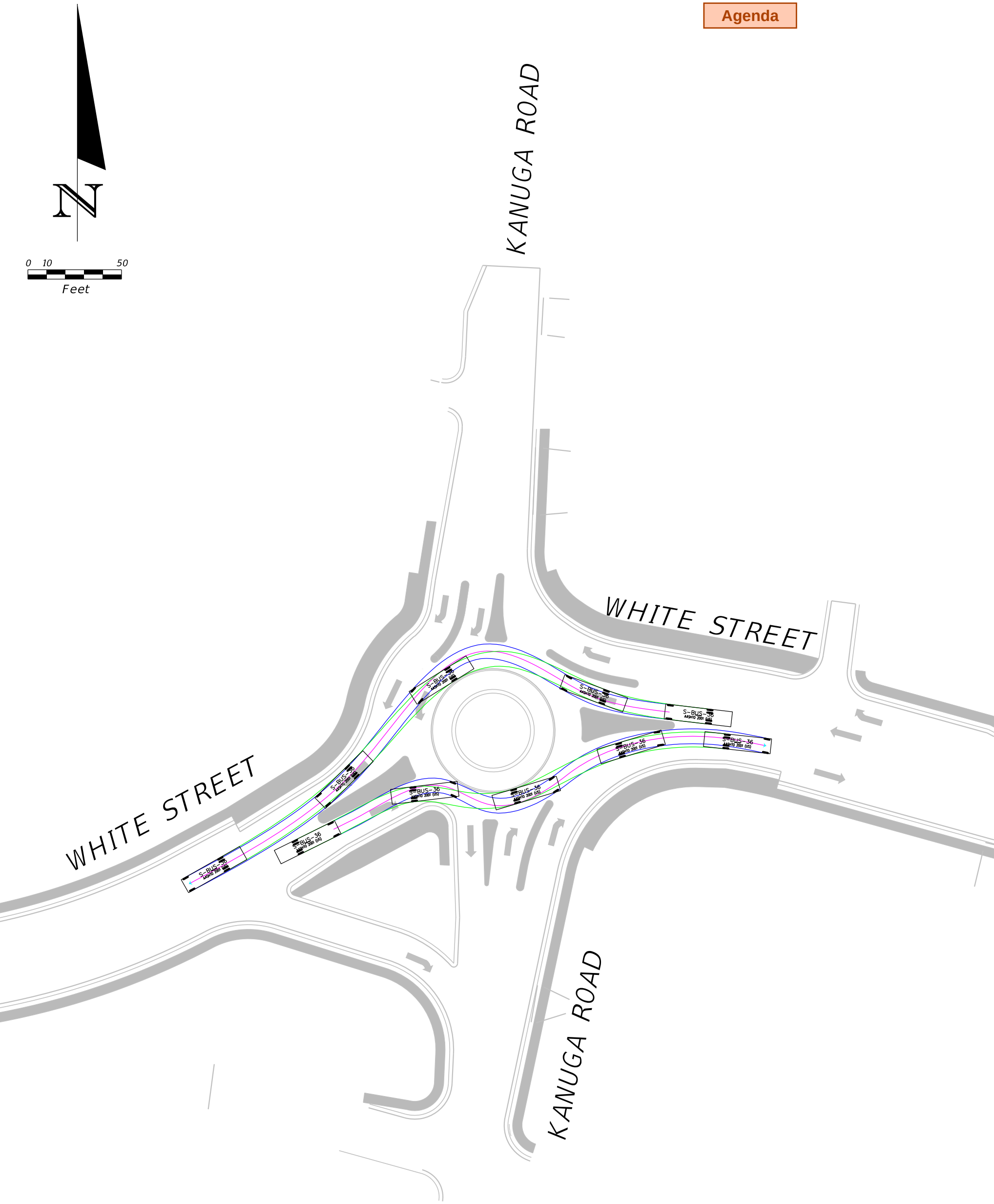
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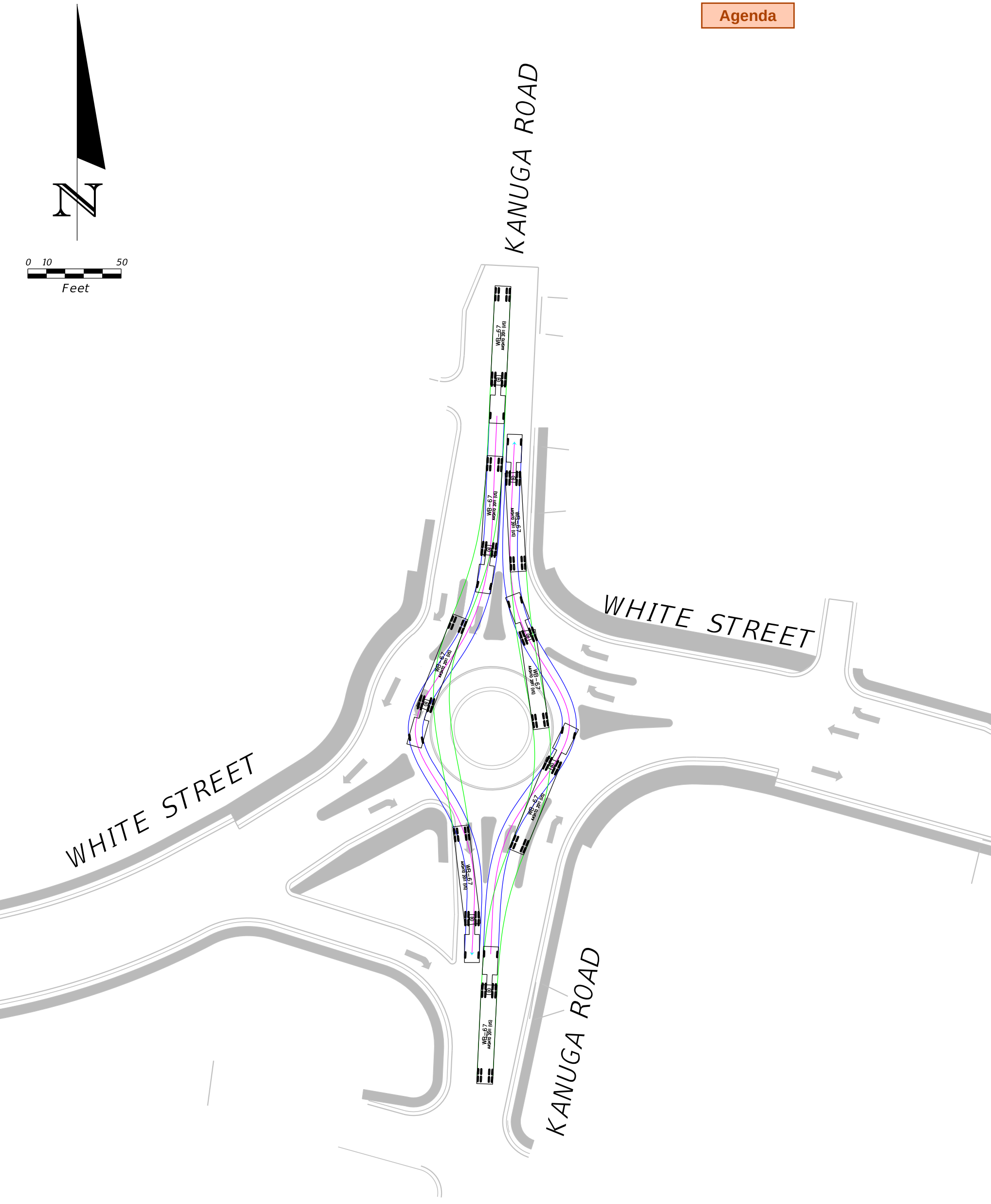
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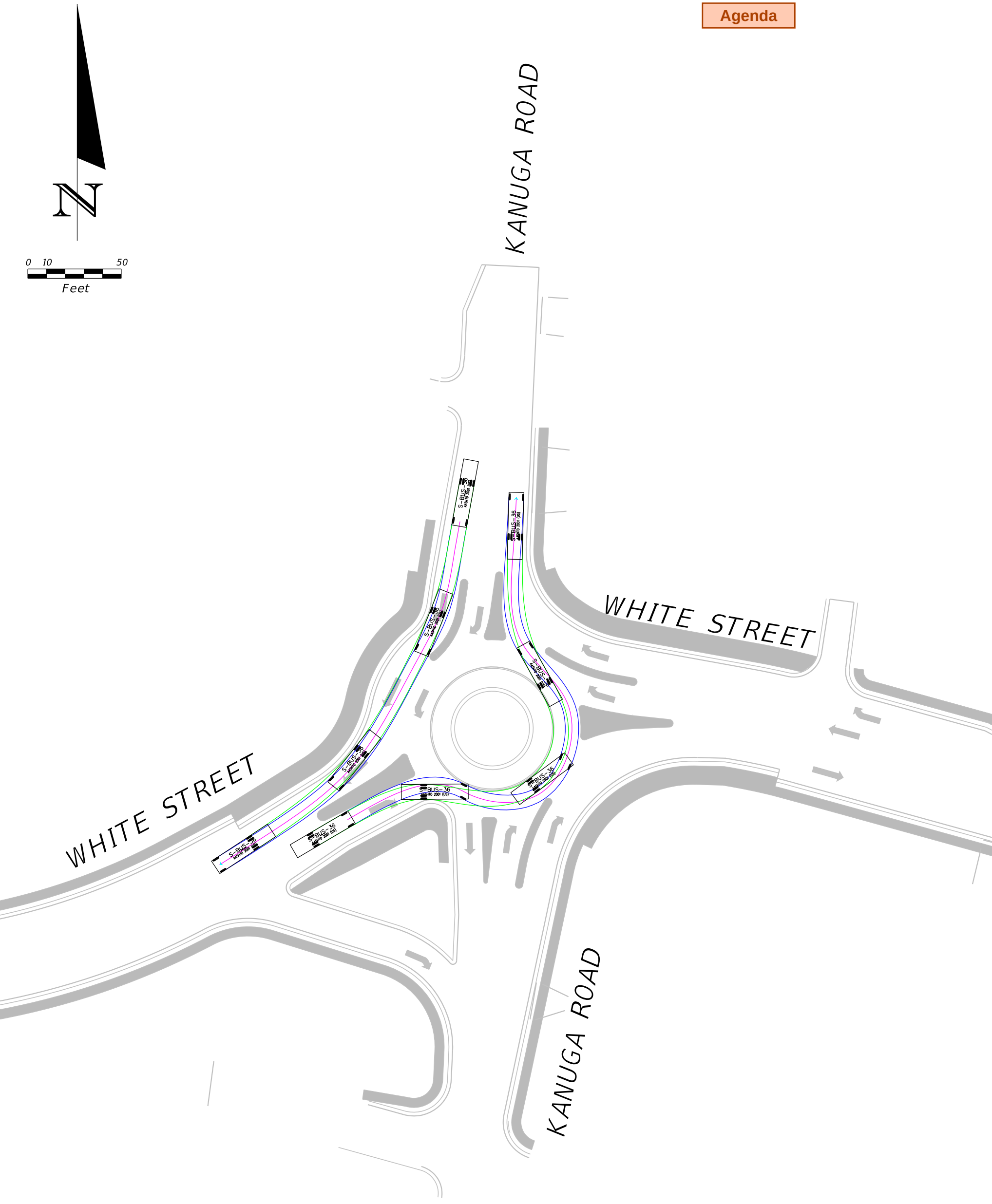
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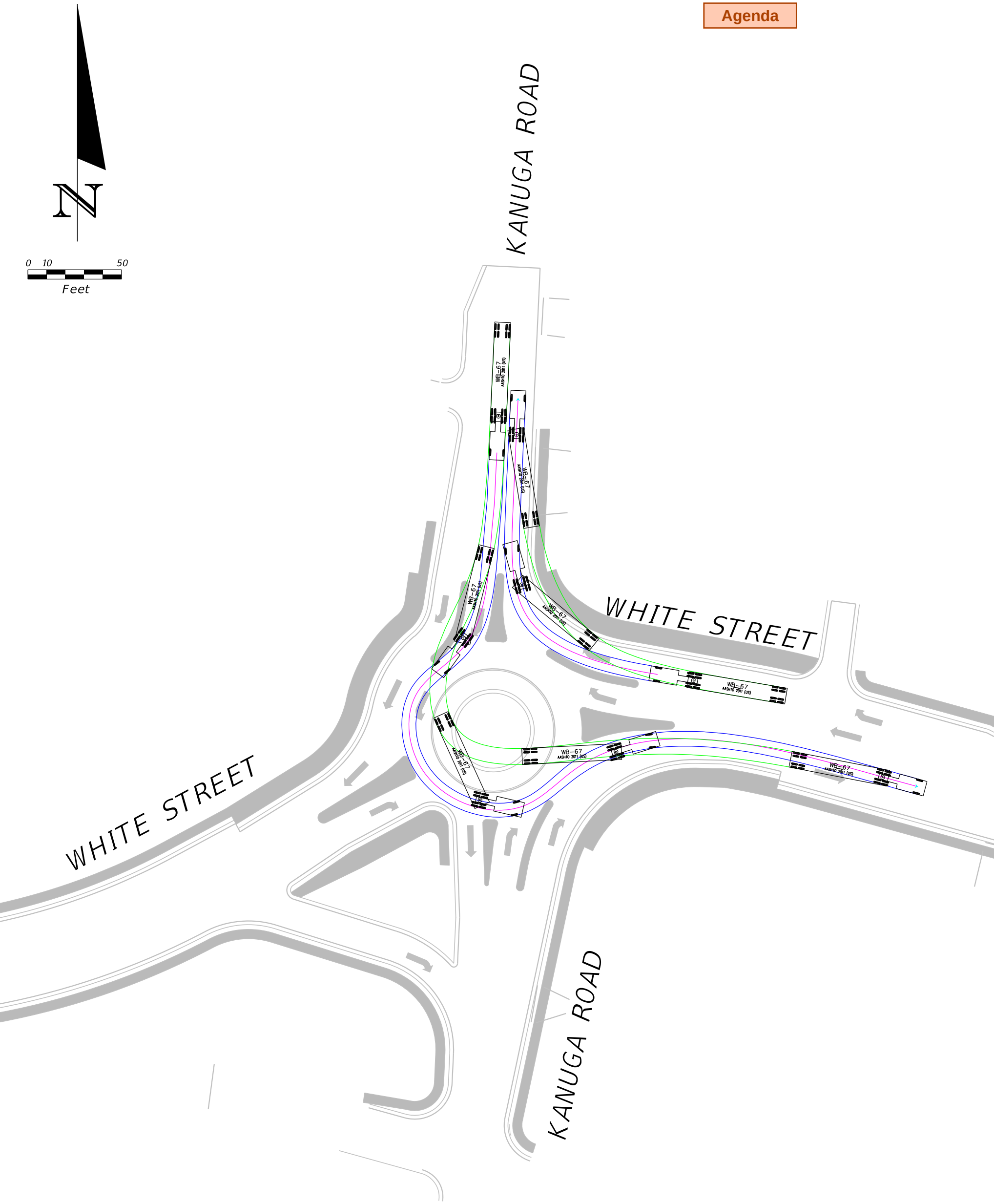
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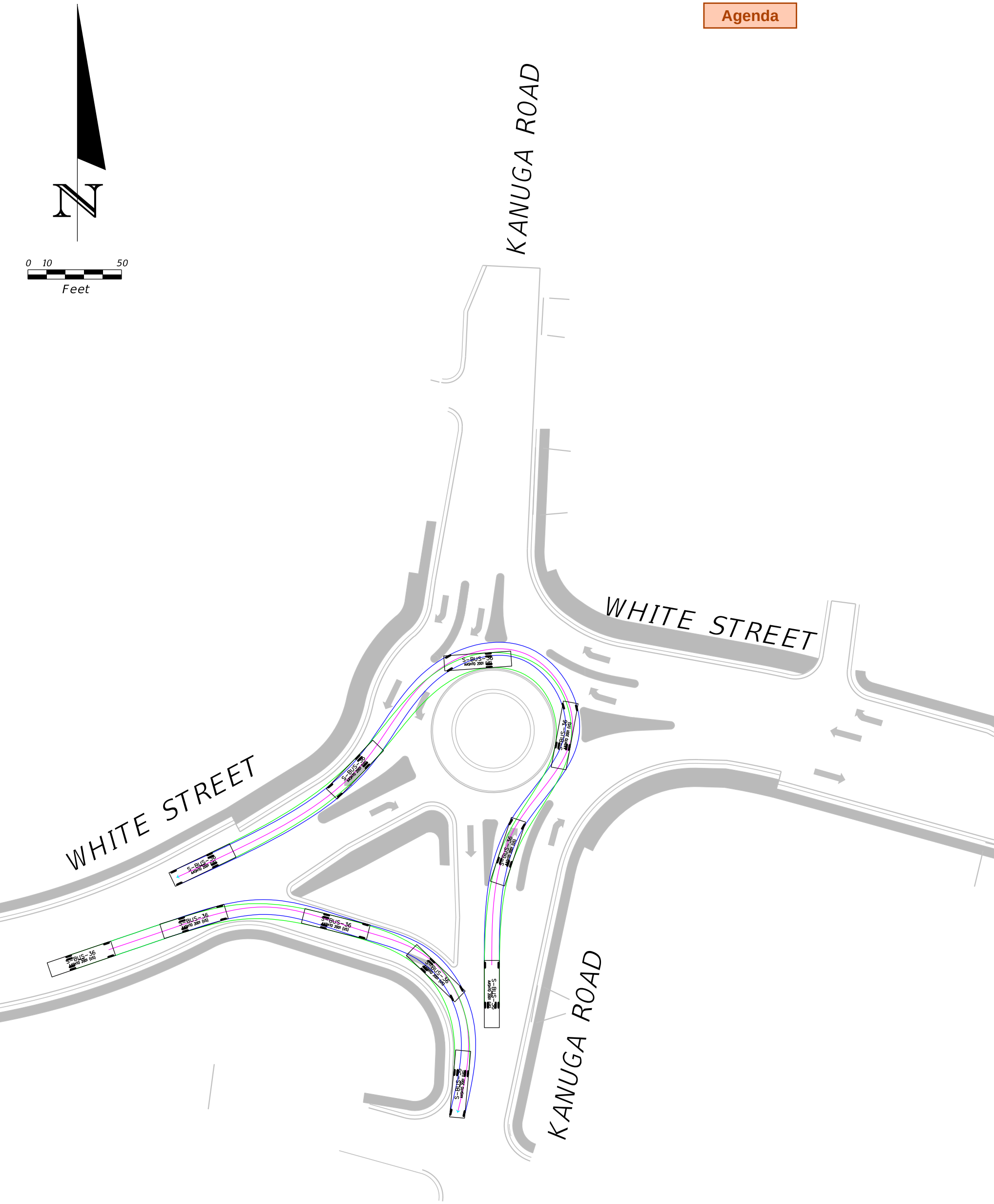
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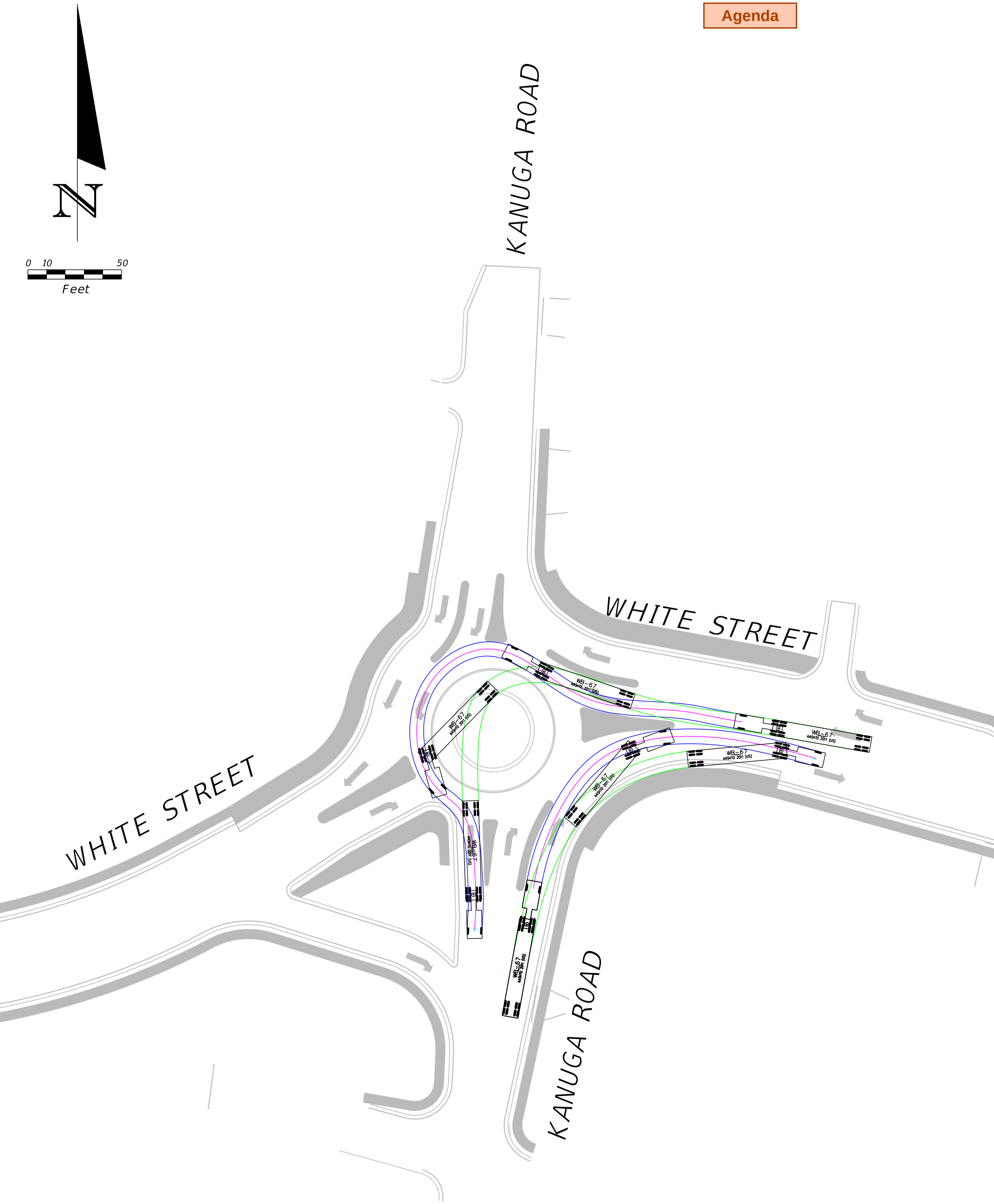
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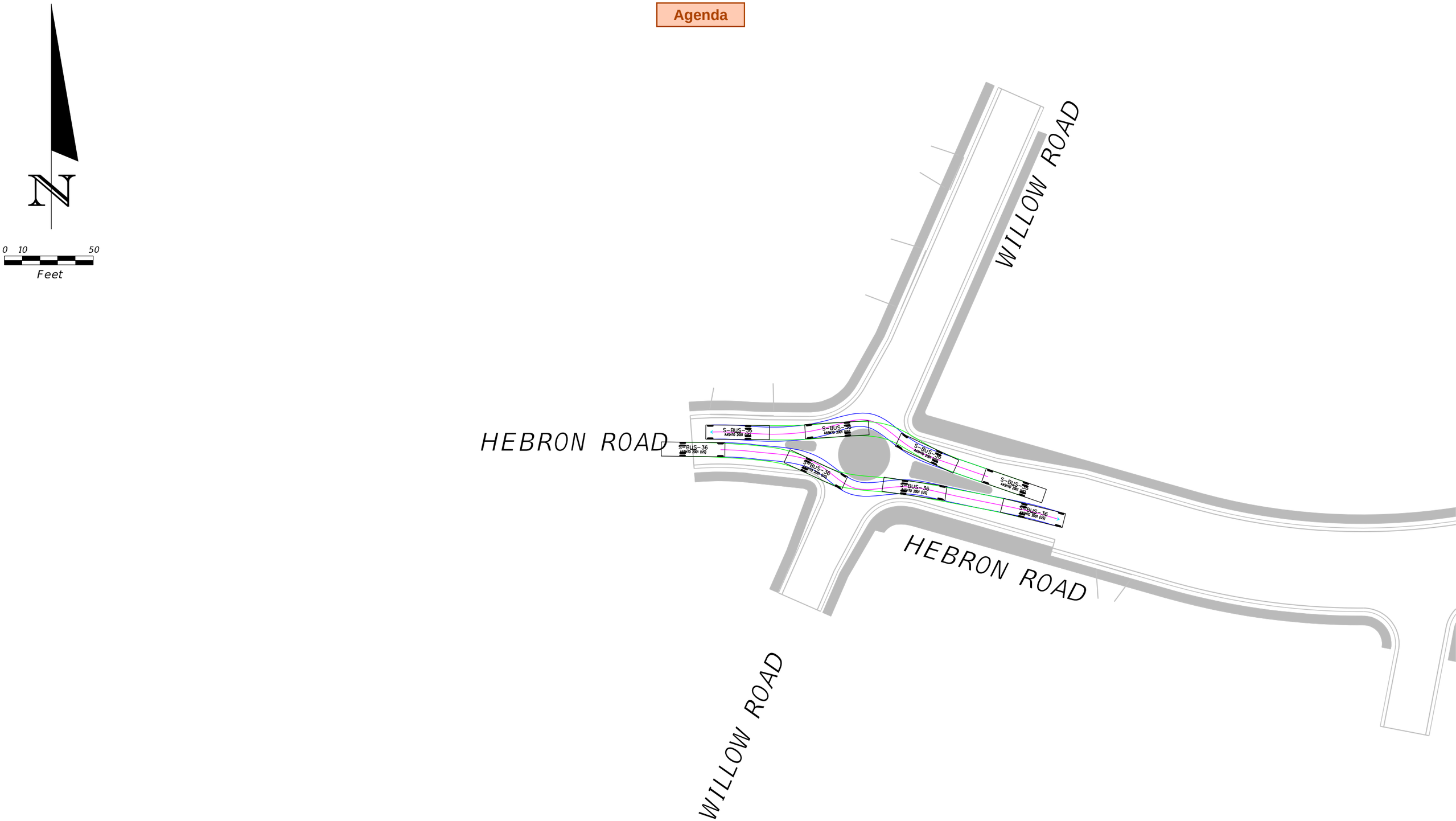
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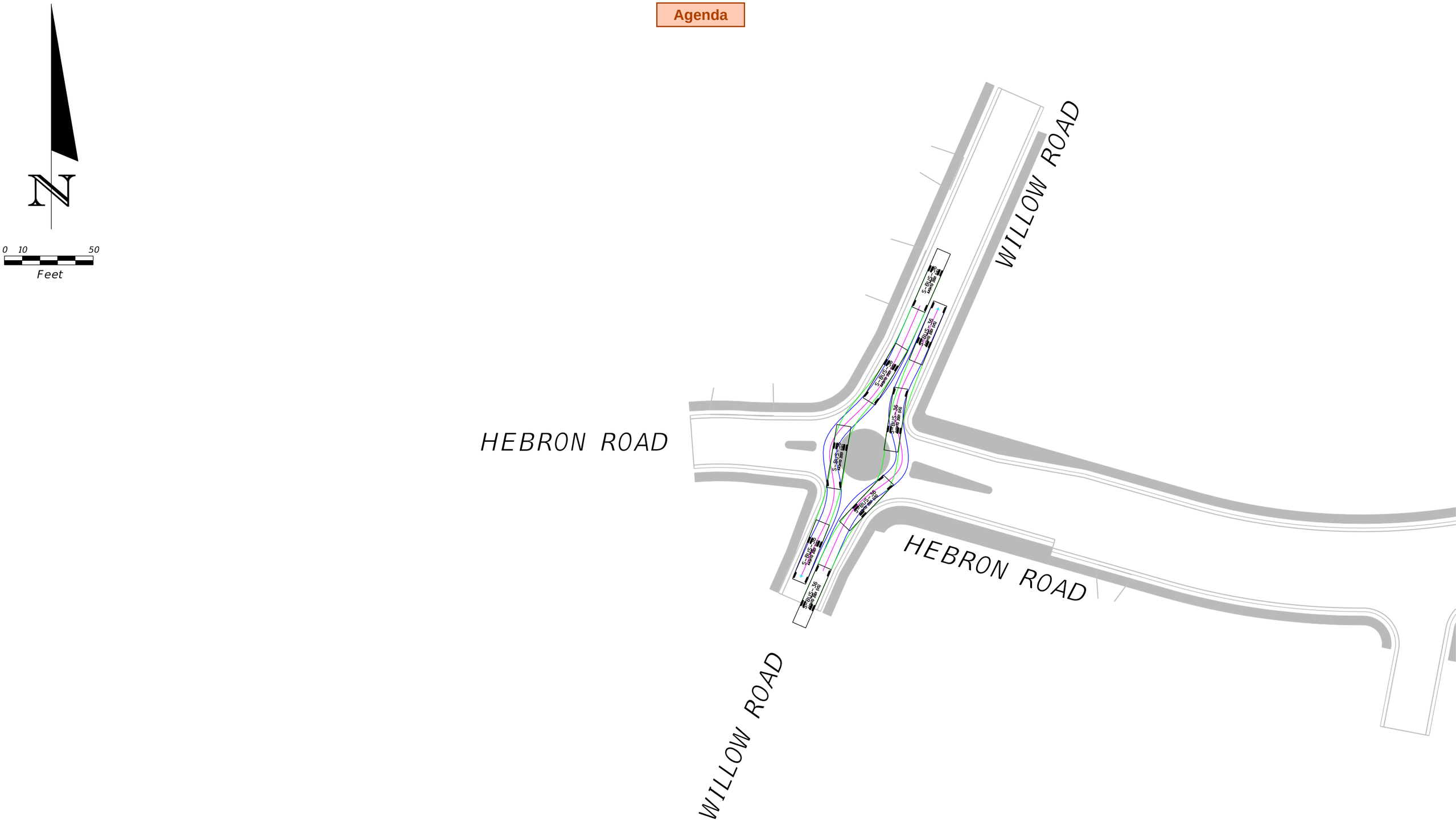
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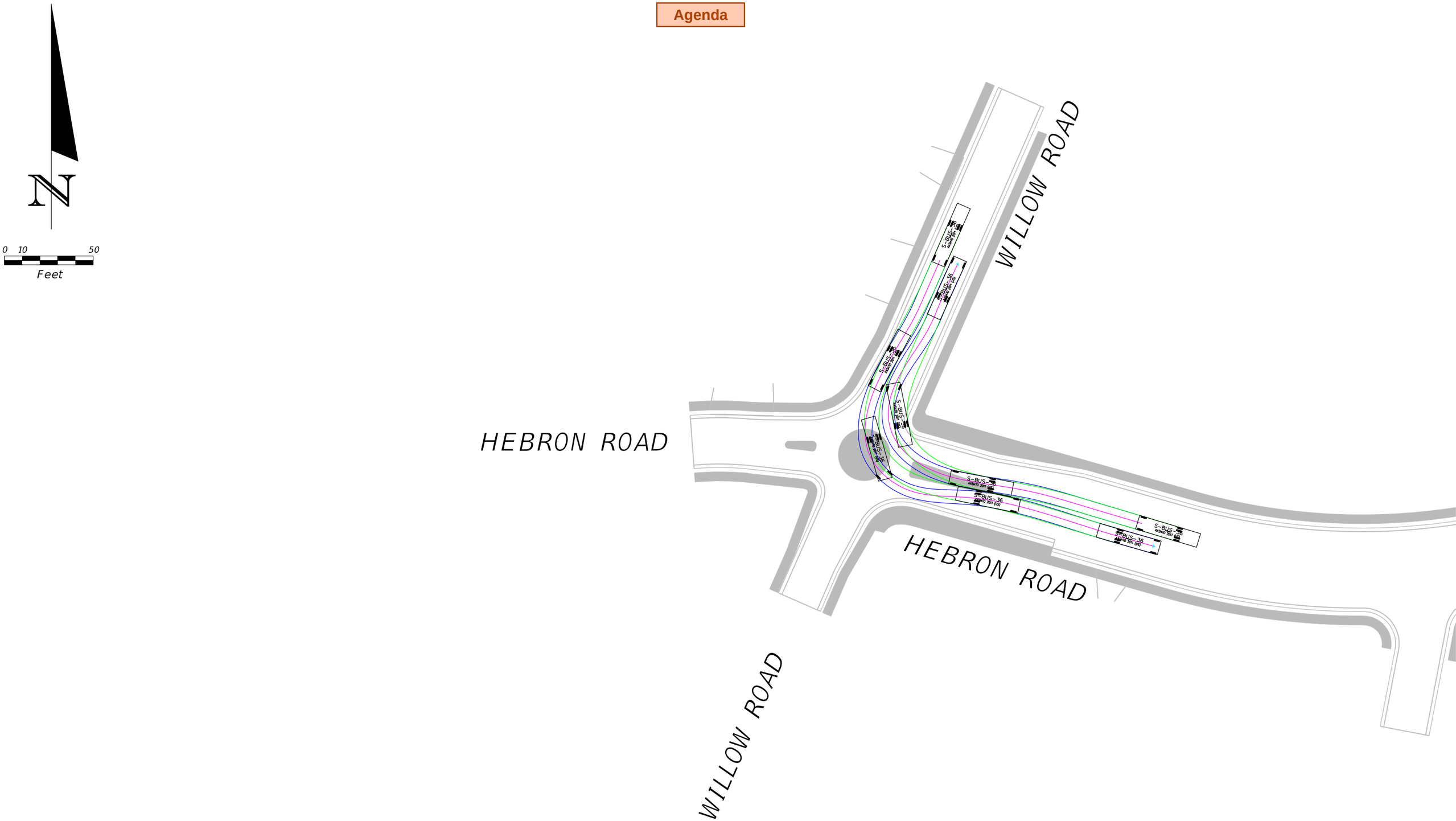
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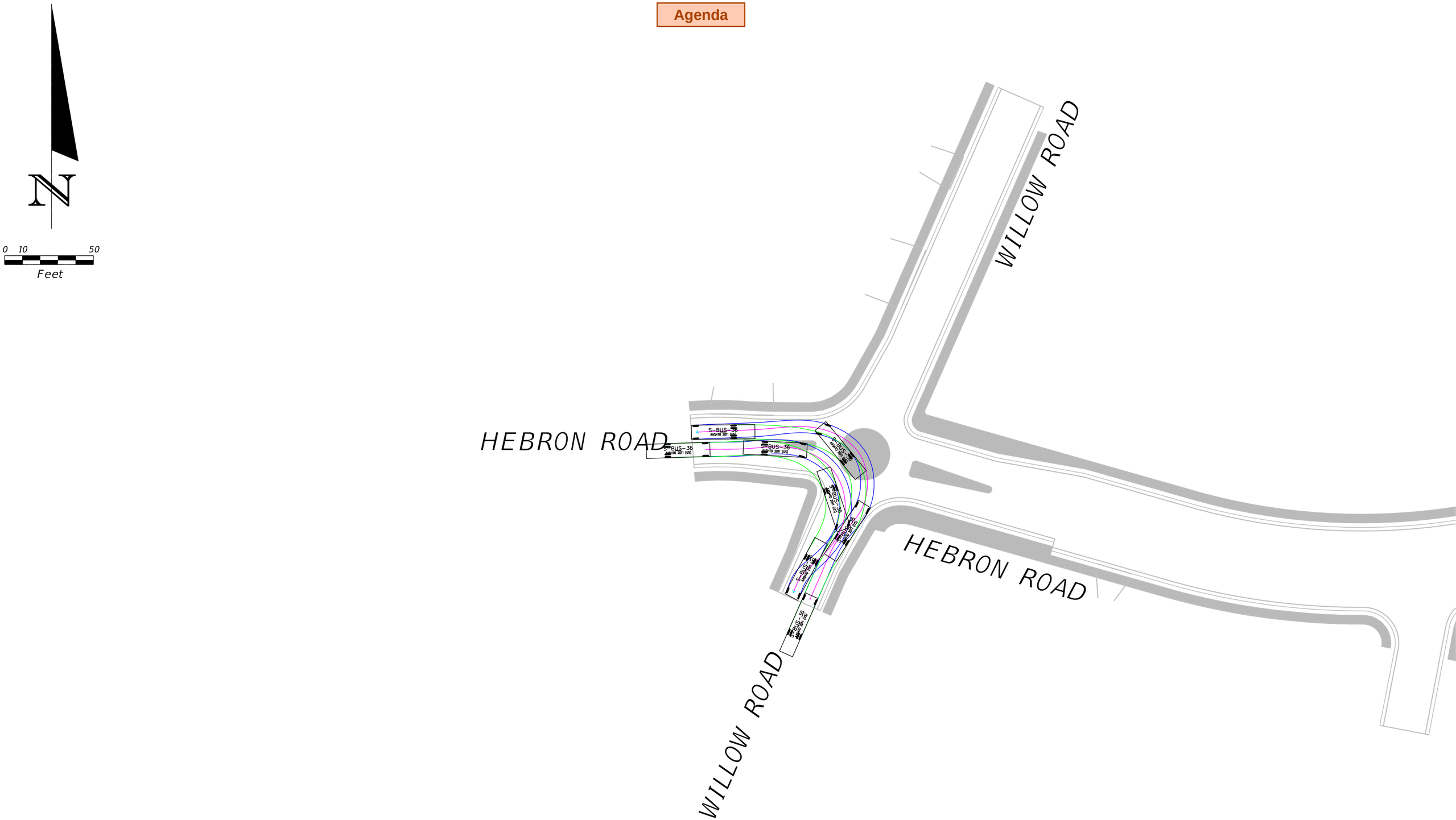
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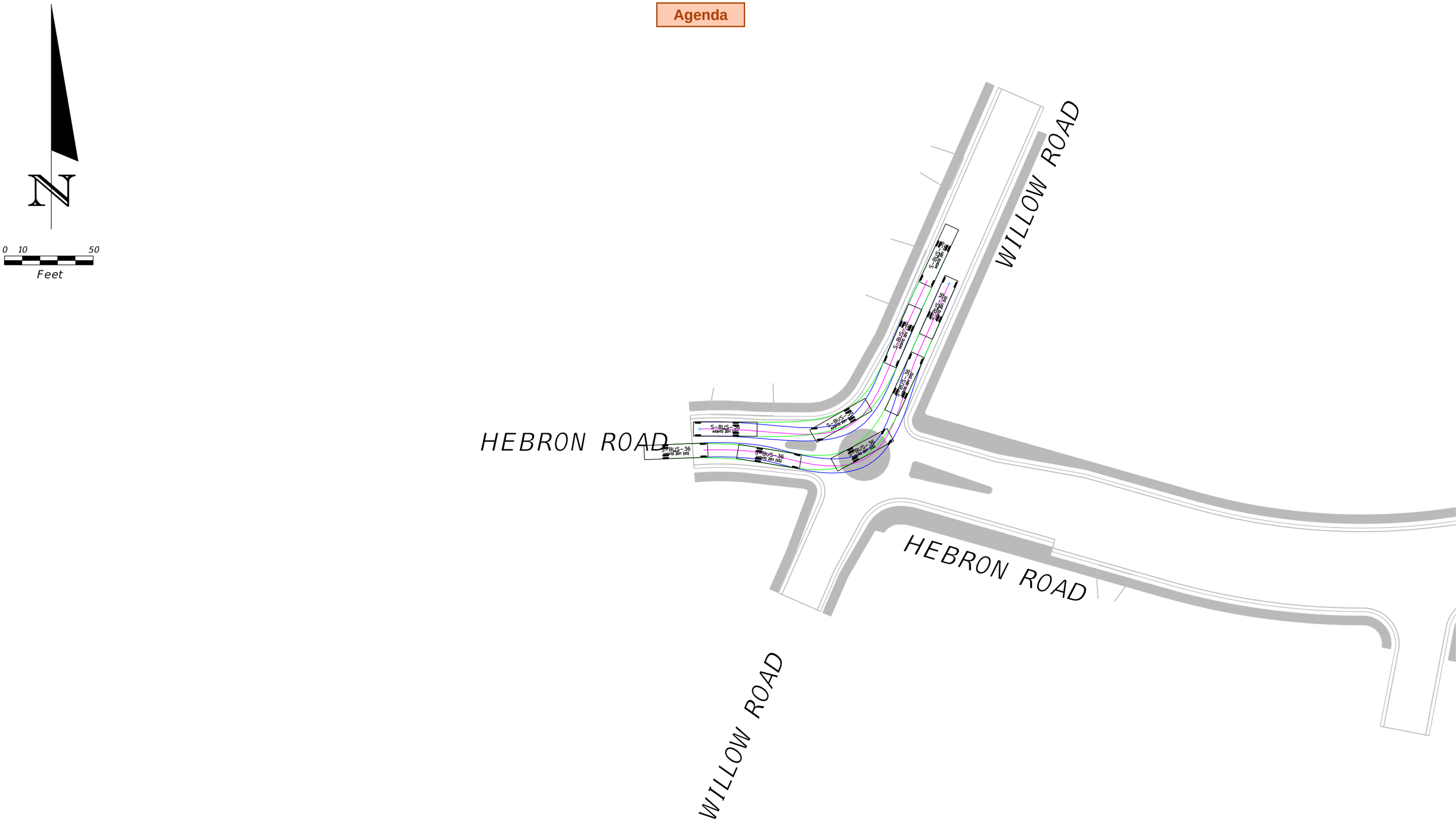
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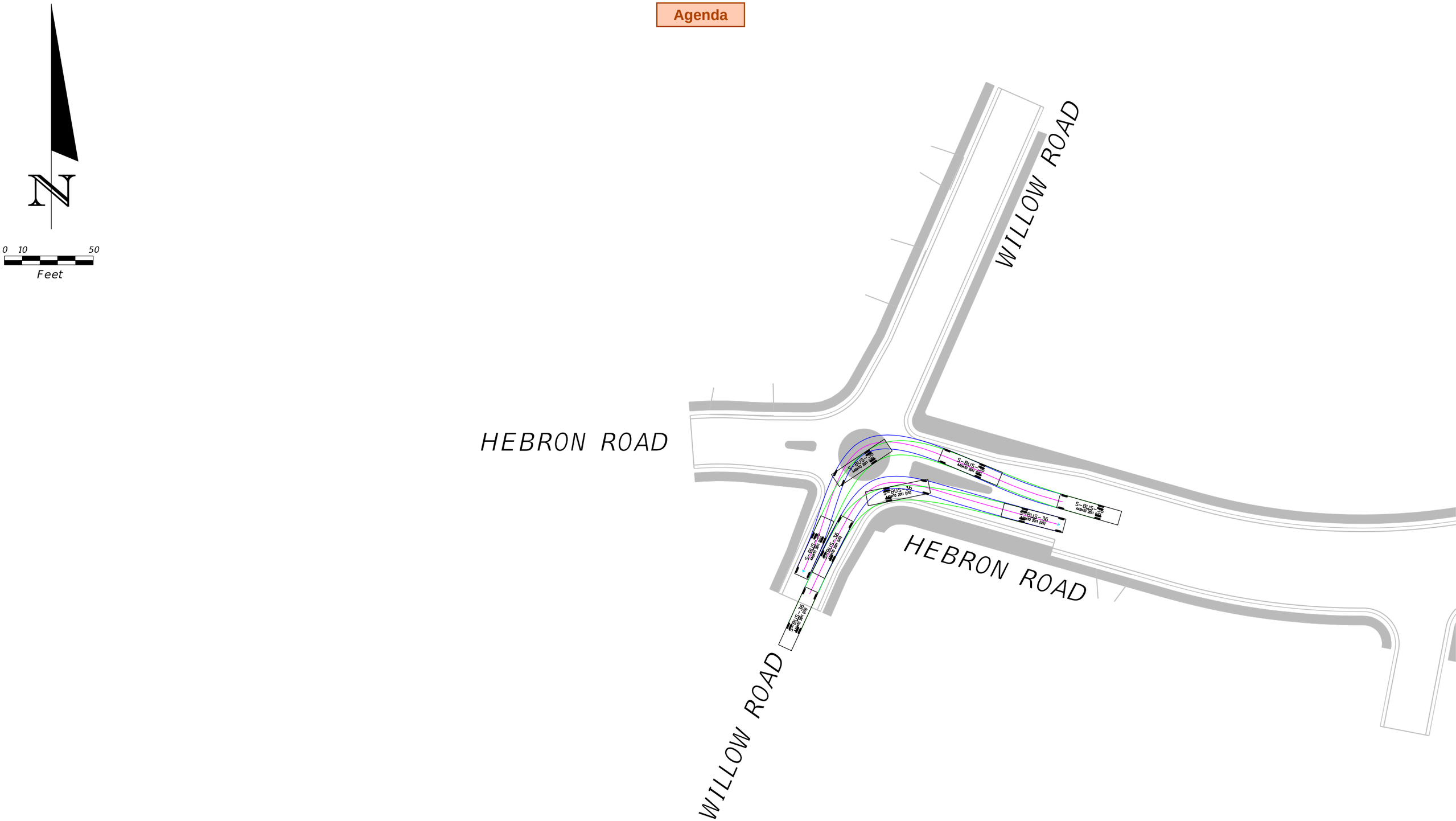
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Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: John Connet

Department: Admin

Date Submitted: 9/27/2018

Presenter: John Connet

Date of Council Meeting to consider this item: 10/04/2018

Nature of Item: Council Action

Summary of Information/Request: **Item #** 09

The Hendersonville Housing Authority (HHA) has been given preliminary approval to participate in U.S. Department of Housing and Urban Development's Rental Assistance Demonstration program. As I understand it, this program will provide capital financing to HHA for renovations to their properties in exchange for converting their units to the Section 8 project based model. HHA has asked for a letter of support from the City of Hendersonville. Staff believes that this is a significant change to the HHA model and City Council needs to approve any letter of support from the City. Diana Brow, HHA Executive Director will present the request at the meeting.

Budget Impact: $ None Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

I move that the City of Hendersonville write a letter of support for the Hendersonville Housing Authority to participate in the Rental Assistance Demonstration (RAD) program.

Attachments:

Description of the RAD program
Sample letter of support

Agenda

RAD

Rental Assistance Demonstration

Office of Multifamily Housing Programs

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

100,000

HOMES PRESERVED

RAD HAS REACHED ANOTHER MILESTONE

Public Housing Agencies (PHAs) have effectively used RAD to stabilize, rehabilitate, or replace public housing properties from the ground up through new construction, all without additional expense to HUD's budget. This month, just five years since the first public housing property converted under RAD, PHAs and their partners have cleared another major milestone—converting 100,000 public housing homes through RAD and securing approximately $5.75 billion for construction investment. This document offers a glimpse of what this milestone means for these homes, their residents, and RAD's ongoing success.

RAD IS MORE THAN BRICKS AND STICKS

Not only are homes getting an average of **$57,000 per unit in improvements,** through RAD, PHAs have:

- Made homes and common areas more accessible, **increasing the number of homes designed for residents with disabilities**
- Addressed lead and other environmental hazards to ensure residents live in **healthy homes**
- Generated over 108,000 jobs, often **employing low-income residents** through Section 3 hiring initiatives
- Installed **energy efficient systems and appliances** to reduce costs

To make sure residents benefit from conversion in RAD, HUD has established the strictest set of resident rights, including:

- Required resident notices, **consultation**, and discussion in the PHA plan
- A **right-to-return** to the property following any temporary relocation and prohibition against any rescreening
- **Relocation assistance** and benefits in accordance with the Uniform Relocation Act (URA)
- **Grievance** and termination procedures
- Resident **organizing rights** and resident organization funding
- A right to request a tenant-based voucher after a period of residency at the converted property ("**choice-mobility**")

HEAR WHAT THE RESIDENTS HAVE TO SAY

"We hear things from residents like, 'Oh, I didn't know my child could live like this!' And that is wonderful."

Ella Broadway
Baltimore, Maryland

"When it was all done; when I walked into the space with everything, I just thought: this is incredible; this is amazing; and this is my home."

Tracy Botsio-Boakye
Cleveland, Ohio

"It changed me—my life—dramatically, because you come into a brand-new unit."

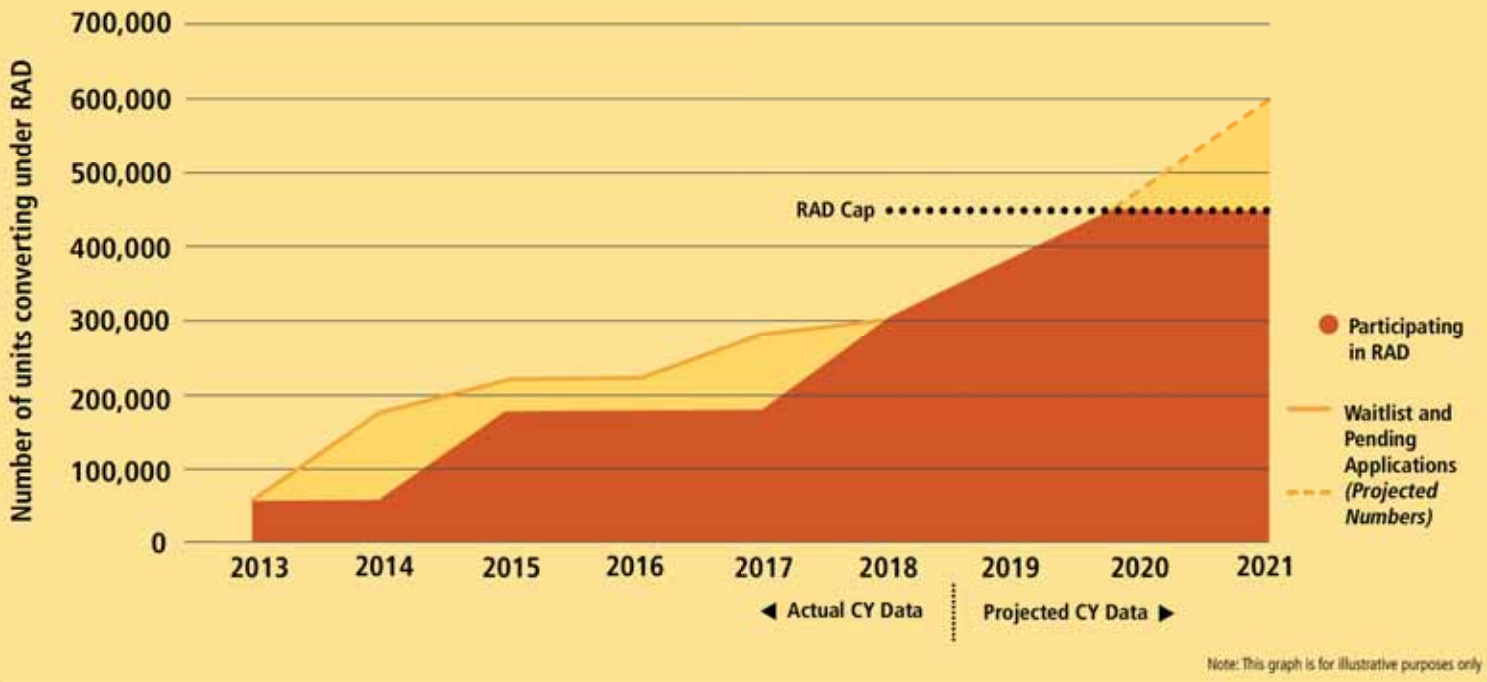
Raul Torres
El Paso, Texas

To see more photo essays documenting the resident experience in RAD, please visit https://www.hud.gov/RAD/news/photoessays.

RAD ACROSS AMERICA

PHAs have preserved 100,000 homes through RAD and are actively developing plans to preserve or redevelop another 250,000 homes across the country, securing 30% of the nation's public housing portfolio for the long term. See above what percent of your state's 2012 Public Housing portfolio has to this date planned to convert under RAD.

RAD TRENDS 2013 – 2021



To address growing demand, Congress has increased the cap on the public housing units that can convert three times, most recently to 455,000 units in March 2018. Between completed conversions and those anticipating conversion, over 350,000 units are already reserved. Meanwhile, HUD continues to see very active interest from new PHAs wishing to participate. At the rate of interest over the past five years, we expect to reach the RAD cap within the next 10-18 months.

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: Brian Pahle

Department: Admin

Date Submitted: 09/25/18

Presenter: Brian Pahle

Date of Council Meeting to consider this item: 10/04/18

Nature of Item: Council Action

Summary of Information/Request: **Item #** 10

On August 7th, 2018 the City of Hendersonville posted a request for qualifications (RFQ) for construction manager at risk services for the Police Department Headquarters project. By September 7th, 2018 at 5:00pm nine (9) potential construction firms had submitted statements of qualifications. A selection committee made up of six (6) reviewers scored the statements for specific evaluation criteria spelled out in the RFQ. Ultimately, the firm Edifice General Contractors scored the highest and stood out as the most qualified to perform the stated work. The selection committee is presenting the scoring, the RFQ, and the SOQ from Edifice General Contractors as a recommendation to be selected as the City's construction manager at risk on this project.

Upon approval of the City Council, staff will negotiate a contract and scope of work with Edifice General Contractors.

Budget Impact: $ N/a Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

I move to the City select Edifice General Contractors to serve as the City's construction manager at risk on the Police Department Headquarters project. I further move to authorize the City Manager to engage in negotiations and execute a contract and scope of work with Edifice General Contractors.

Attachments:

RFQ
Scoring
Edifice SOQ

Agenda

Request for Qualifications (RFQ)

Construction Manager at Risk (CMaR) Services for:

Police Department Headquarters Project

August 7, 2018

Request for Qualifications Table of Contents

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CMaR Project Description & Scope——Page 4

Statements of Qualifications——Page 6

Qualifications Package Evaluation Criteria——Page 8

Submittal Requirements——Page 9

Selection Process Timeline——Page 11

Introduction & Project Details

The City of Hendersonville, NC ("City") is seeking qualifications statements from firms offering Construction Manager at Risk (CMaR) services which may include: review of structural, mechanical, plumbing, electrical, environmental and architectural drawings being prepared by the Project Architect, ADW ("Architect"), together with site/civil plans, coordination of project bidding with Project Architect; selection of subcontractors; oversight of construction, coordination with Architect and City project manager.

The City is currently in the schematic design phase for an approximately 26,000 square foot Police Department Headquarters on approximately 1.5 acres located at the intersections of Jonas Street, Ashe Street, and East Pace Street in Hendersonville, NC. The physical location of the project is outlined in red below:

The area was previously used for residential housing. The facility will be entirely new construction which may include sustainable design features similar to LEED.

CMaR Project Description & Scope

The City intends to use the CMaR construction delivery method for the Project. The City's objectives in using the CMaR delivery method for this Project are to:

- Provide optimum coordination of subcontractors under the operational constraints of constructing in a residential neighborhood area between three public roads.
- Allow prequalification of subcontractors. The CMaR shall prequalify and accept all bids from first-tier subcontractors for all construction work under the second phase. The CMaR shall use the prequalification process determined by the City in accordance with NCGS 143-135.8, provided that the City and the CMaR shall jointly develop the assessment tool and criteria for the specific project, which must include the prequalification scoring and minimum required score for prequalification on the project.
- Provide a team approach between the City, Architect and CMaR in controlling risks, costs, and schedule.
- Have transparency of costs.

The City has retained an architectural consulting firm to develop a program document to be used as the basis of design. The design phase for this Project is estimated to begin August of 2018 and continue over an eight (8) month time period, followed by an expected twelve (12) month construction period.

The project will be conducted in phases, beginning with pre-construction which is the design process including schematics, design development and construction drawings. The initial pre-construction phase services are anticipated to include, but are not limited to:

- Collaboration with the City and Architect to develop the Project.
- Identification and mitigation of risk through analysis and assessment.
- Developing and updating Project schedules.
- Attend meetings with the City and Architect and provide guidance on the selection of building materials, systems and equipment.
- Developing detailed construction budget estimates and guaranteed maximum price, derived from the conceptual plans and information regarding interior space needs, exterior design, and a constructability review.
- Develop value-engineering options.

At the sole option of the City and pending funding, the project may proceed to bidding and construction. The City reserves the right to utilize the CMaR selected for the pre-construction in future phases, or the City may choose to move to another construction team at its sole option pending performance during pre-construction.

Construction phase services are anticipated to include, but are not limited to:

- Construction management services for the project throughout construction.
- Collaborate with the City and Architect to execute the Project.
- Preparation and coordination of bid packages with the architect.
- Prequalify subcontract bidders in compliance with NCGS 143-135.8.
- Advertise bidding documents, conduct pre-bid conferences and monitor bidding to assure sufficient qualified submittals for all bid packages.
- Develop and maintain a detailed project schedule including delivery, approvals, construction, inspections, testing, and occupancy.
- Conduct and record job meetings and submit regularly scheduled reports to Architect and City.
- Maintain a system of review and approval for shop drawings, samples and product data.
- Develop a system and provide cost control through process payment review consistent with completed work verification and project schedule and contract amounts.
- As needed utilize previously established value engineering options to reconcile with budget and project schedule.
- Develop and maintain as-built drawings for the project duration.
- Coordinate post-construction activities including systems training and the assembly of guarantees, manuals, and other close-out documents.

Statements of Qualifications

The format of the SOQs shall be submitted per the responding firm's judgment. In general, SOQs shall be organized in a manner that will facilitate the evaluation of the responding firm and should specifically address each evaluation criteria. Additional information beyond what is listed for each criterion in the preceding section that is deemed relevant may also be submitted. **The SOQ shall be no more than 30 pages in total length**.

Firm Profile Information:

- A signed cover letter from a principal in the firm expressing interest in the project and certifying that sufficient resources in personnel, equipment, and time are available and can be committed to this project.
- A statement of the firm's philosophy, goals, vision statements and/or guiding principles.
- Firm name. Identify legal entity that would enter into contract with the City.
- Address of principal office where work will be performed.
- Phone number, website and e-mail information.
- Name and information of the individual who will be the City's primary contact.
- General statement of firm's history and financial stability.
- Identify any conflicts of interest the firm or key personnel may have with the project, if applicable.
- Number of years the firm has been in business in its current capacity.
- The firm's North Carolina General Contractor License
- Insurance information.

Personnel Information:

- A resume of each team member should detail relevant experience, length of service with the firm, job duties, educational and professional background.
- Provide an organization chart of all key team members who will be directly involved in providing services to be assigned specifically to this project. Identify the Project Manager who will be empowered to make decisions for and act on behalf of the firm.

Experience:

- **List at least five (5) most recent and relevant projects, either currently in progress or complete. Relevant projects should have been completed in the last ten (10) years**. The information provided shall be as follows:
    - List only projects involving the key team members proposed for this Project.
    - List projects in date order with newest projects listed first and include the following:
    - Brief project description;

- Owner's representative having knowledge of the firm's work. Include the contact name, organization, phone, and email;
- Contract dollar amount and total time period involved;
- GMP vs. actual cost history;
- Established small, women, or minority business enterprise (S/W/MBE) goals vs. final utilization;
- Discuss the methods, approach and controls used on the project in order to complete it in an effective, timely, economical and professional manner;
- Specifically reference what the firm has learned about constructing these types of public safety facilities in relatable experiences;
- Describe any awards or recognitions received, participatory results, anecdotal statements or other information that may prove useful in evaluating the described project.
- Describe any lessons learned from constructing these types of facilities.
- Describe the firm's and the key team members' past success in meeting established schedules and budgets for major projects as construction manager. Describe the methods, procedures, and policies used to maintain schedules and budgets.
- Discuss the availability of your key team members, particularly for the next 12-24 months.

Quality Control:

- Briefly describe the firm's quality control program specifically its technical review process.
- Describe the firm's Project Management and Quality Control procedures, processes for performance, and past involvement of these types of projects.
- Discuss the firm's management and quality control procedures related to subcontractors.
- Discuss your firm's safety program

Qualifications Package Evaluation Criteria

A Selection Committee made up of City personnel, along with the consultation of the Architect, will evaluate the information submitted. Primary evaluation criteria and anticipated weights the City intends to utilize to select the most qualified firms are listed below. The City reserves the right to alter this criteria and weights assigned throughout the selection process. The Selection Committee will read, review and evaluate the qualifications independently based on the evaluation criteria and recommend selected firms to City Council. Selection is subjective in many areas and the decision of the City will be final and not subject to re-evaluation by the firms submitting SOQ.

The following factors will be used in the evaluation process:

a. Reputation, quality, and experience (30 points possible):

- Experience in providing similar services of comparable size and complexity to municipalities or other governmental entities.
- Favorable responses from project references.

b. Experience of proposed team (50 points possible):

- Appropriate experience and technical qualifications of the proposed team to provide services as described herein.
- Recent experience of the project team providing services of similar scope.
- Organizational structure of the firm - defined line of communication and clearly defined roles for personnel.

c. Quality Control (10 points possible):

- Ensure that proper technologies are selected and utilized for the projects.
- Ensure reports/deliverables are accurate, thorough and delivered on time.
- Adequacy of firm's technical review process.

d. Approach (10 points)

- Proposed approach is innovative and effective.

Submittal Requirements

Statements of Qualification (SOQs) shall be submitted in PDF format via e-mail. Submissions must be emailed to Brian Pahle, Assistant City Manager, City of Hendersonville, NC at bpahle@hvlnc.gov by **5:00pm local time on Friday, September 7, 2018. SOQs received after this deadline will not be considered.** PDF files must contain the signatures of company representatives who are authorized to execute documents on behalf of the firm.

Questions regarding this request should be directed to Brian Pahle and will be accepted until **4:00pm local time on Friday, August 31, 2018**. Questions must be submitted in writing and delivered via e-mail. All responses to questions will be posted by **4:00pm local time on Wednesday September 5, 2018** on the City's website as an addendum to the RFQ.

The City reserves the right to call for interviews with submitting firms following an initial review of the SOQs submitted. Interviews are not guaranteed as part of this process and discretion to call an interview is the sole authority of the City.

Maintaining the integrity of the RFQ process is of paramount importance for the City. Please do not contact members of the City or their staff regarding this contract until the award is presented for approval, other than the City's designated contact person.

Upon receipt by the City, your Qualification Package is considered a public record, except for material that qualifies as "Trade Secret" information under the North Carolina Statute 66-152 et seq. Your Qualifications Package will be reviewed by the City's selection committee, as well as other City staff and members of the general public who submit public records requests. To properly designate material as a trade secret under these circumstances, each firm must take the following precautions: (a) any trade secrets submitted by a firm should be submitted in a separate, sealed envelope marked "Trade Secret — Confidential and Proprietary Information — Do Not Disclose for the Purpose of Evaluating this Qualifications Package," and (b) the same trade secret/confidentiality designation should be stamped on each page of the trade secret materials contained in the envelope.

In submitting a Qualifications Package, each firm agrees that the City may reveal any trade secret materials contained in such response to all City staff and City officials involved in the selection process and to any outside consultant or other third parties who serve on the selection committee or who are hired by the City to assist in the selection process. Furthermore, each firm agrees to indemnify and hold harmless the City and each of its officers, employees, and agents from all costs, damages, and expenses incurred in connection with refusing to disclose any material that the firm has designated as a trade

secret. Any firm that designates its entire Qualifications package as a trade secret may be disqualified from the selection process.

The City accepts no responsibility for expenses incurred during the preparation or delivery of SOQs. The City reserves the right to: reject any and all statements of qualification, select the most qualified firm for the referenced work, waive technical errors and informalities, and to accept the statement of qualifications, which, in its sole judgment, best serves the public interest. In the event of limited response, the City also reserves the right to extend the submittal deadline as appropriate in order to assure a competitive procurement process.
It is the practice of the City to provide minorities an equal opportunity to participate in all aspects of its contracting and procurement programs and to prohibit any and all discrimination against persons or businesses in pursuit of these opportunities. The City of Hendersonville is an Equal Employment Opportunity Employer.

Selection Process Timeline

The timeline for the review of qualification statements and selection of a firm is tentative as follows:

- RFQ release date — August 7, 2018
- Deadline for All Questions — August 31, 2018 @ 4:00 PM
- Response to Questions — September 5, 2018 @ 4:00 PM
- Proposal Submittal Deadline — September 7, 2018 @ 5:00 PM
- Applicant Interviews — September 17-18, 2018 **Tentative**

  City Staff Reserves the Option to Call Interviews with Applicants

- Recommendation and City Council Approval — October 4, 2018

Thank you for your time and consideration in this process.

Brian D. Pahle
Assistant City Manager
828.233.3218
bpahle@hvlnc.gov

EVALUATION CRITERIA	AMERICAN SOUTH	ASPIRE	CAROLINA SPECIALTIES	COOPER	EDIFICE	H&M	HICKORY	HOGAN	VANNOY
a. Reputation, quality, and experience (30 points possible) • Experience in providing similar services of comparable size and complexity to municipalities or other governmental entities. • Favorable responses from project references.	15.2	16.3	14.2	23.5	29.3	19.2	27.7	25.7	21.8
b. Experience of proposed team (30 points possible) • Appropriate experience and technical qualifications of the proposed team to provide services as described herein. • Recent experience of the project team providing services of similar scope. • Organizational structure of the firm - defined line of communication and clearly defined roles for personnel.	35.3	32.3	30.3	41.2	48.5	35.8	46.2	41.8	37.3
c. Quality Control (10 points possible) • Ensure that proper technologies are selected and utilized for the projects. • Ensure reports/deliverables are accurate, thorough and delivered on time. • Adequacy of firm's technical review process.	8.0	8.5	8.3	9.2	9.7	8.2	9.5	8.8	8.8
d. Approach (10 points possible) • Proposed approach is innovative and effective.	7.7	8.2	8.2	9.0	9.5	8.2	9.3	8.8	8.8
SUBT-TOTAL	66.2	65.3	61.0	82.8	97.0	71.3	92.7	85.2	76.8
REVIEWER 1 a.	21	21	20	25	29	22	27	28	24
REVIEWER 1 b.	37	35	37	45	49	40	47	48	44
REVIEWER 1 c.	7	8	8	9	9	8	9	9	8
REVIEWER 1 d.	5	7	7	9	9	8	9	9	8
REVIEWER 2 a.	10	15	10	20	28	10	26	25	22
REVIEWER 2 b.	30	35	30	40	48	30	42	42	40
REVIEWER 2 c.	7	8	8	8	9	8	8	8	8
REVIEWER 2 d.	7	8	8	8	9	8	8	8	8
REVIEWER 3 a.	10	10	10	20	30	30	30	25	20
REVIEWER 3 b.	20	20	20	30	50	50	50	40	30
REVIEWER 3 c.	5	5	5	8	10	10	10	8	8
REVIEWER 3 d.	5	5	5	8	10	10	10	8	8
REVIEWER 4 a.	15	10	15	25	30	20	25	25	20
REVIEWER 4 b.	50	30	25	45	50	30	45	35	40
REVIEWER 4 c.	10	10	10	10	10	5	10	10	10
REVIEWER 4 d.	10	10	10	10	10	5	10	10	10
REVIEWER 5 a.	20	22	15	26	29	18	28	26	25
REVIEWER 5 b.	45	44	40	47	49	35	48	46	40
REVIEWER 5 c.	9	10	9	10	10	8	10	8	9
REVIEWER 5 d.	9	9	9	9	9	8	9	8	9
REVIEWER 6 a.	15	20	15	25	30	15	30	25	20
REVIEWER 6 b.	30	30	30	40	45	30	45	40	30
REVIEWER 6 c.	10	10	10	10	10	10	10	10	10
REVIEWER 6 d.	10	10	10	10	10	10	10	10	10

Agenda

Agenda

Qualifications:

Construction Manager at Risk (CMaR) Services for: Police Department Headquarters Project City of Hendersonville

September 7, 2018

EDIFICE
GENERAL CONTRACTORS
The Art and Science of Construction

Prepared for:

THE CITY OF HENDERSONVILLE N.C.
1847

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For questions contact:

Mr. Michael Carlisto, Vice President
Edifice, Inc.
4111 South Boulevard
Charlotte, NC 28209
704.332.0900
mcarlisto@Edificeinc.com

Agenda

EDIFICE
GENERAL CONTRACTORS
The Art and Science of Construction

September 7, 2018

Brian Pahle
Assistant City Manager
145 Fifth Avenue East
Hendersonville, NC 28792

Re: Police Department Headquarters Project

Brian:

Edifice is a North Carolina owned and operated company that has been in business for over forty years. Across the Carolinas we have found an increased awareness and preference to provide opportunities for local trade contractors, suppliers, and vendors to help local economies. We hope you will take our longstanding roots in Carolinas into consideration when choosing a construction manager on this project. We know how important it is to carry out that City of Hendersonville culture, look, and feel on this project. We experienced that importance while building projects in Indian Trail, Mint Hill, Waxhaw, Laurinburg, Harrisburg, Charlotte, and Lancaster, SC.

We are very excited about the possibility of becoming your Construction Management partner on your new Police Department Headquarters project. Edifice will commit the necessary resources, personnel, and time to make this project a success for all. We feel we have put together a proven, experienced, successful team for the specific purpose of performing pre-construction and construction services on your project.

We thank you for the opportunity and look forward to the possibility of working with City of Hendersonville. Having built many projects for state, county, and municipal entities throughout the Carolinas, we know how important this project is to the people of Hendersonville. It's a "once in a lifetime" project for the City. Upon completion, this building will become a landmark, something the people of Hendersonville will take great pride in. The level of importance for every one of our projects is always high. The commitment to maintain that high level will start in preconstruction and continue through construction and on through the life of your building.

Sincerely,

Michael A. Carlisto
Vice President - Project Executive

4111 South Boulevard, Charlotte, NC 28209 ◆ *Phone* 704.332.0900 ◆ *Fax* 704.332.0901 ◆ www.edificeinc.com

Firm Philosophy

At Edifice, Inc., construction is as much about art as science. It's about a strong vision and the creation of a structure with enduring qualities…it's about creative problem-solving and the willingness to deliver above & beyond the expected…it's about passionate teams and long-standing partnerships built on trust, performance and lasting value.

Our Philosophy

Our passion goes beyond building.

Edifice has built its reputation on a basic set of principles. To attend to the needs of our clients, to express concern for our employee's well-being, to take care of our business partners, and give back to the community by helping those in need.

Community

To celebrate our 40th year in business and to further our commitment to the community, Edifice announced its 40UP program earlier this year. Since 1978, Edifice has built its reputation on giving back and supporting those in needs. We are continuing that tradition by committing to a series of gifts to non-profits and community organizations totaling $400,000. The company hopes this program will inspire other businesses to prioritize philanthropic giving in the same manner.

Our History

Established in 1978, Edifice is one of the top privately-owned companies in North Carolina. A full service commercial contractor located in Charlotte, North Carolina, Edifice has become one of the leading commercial contractors in the Southeast. We have a diverse portfolio in all major markets enabling our teams to excel in projects ranging from the intricacies of interior renovations to complex multi-faceted structures. Over the years, we've developed a reputation for tackling the unique and challenging within these different types of commercial structures.

People drive construction projects and our team is comprised of the top experts in project management and supervision for both pre-construction and construction management services. As a member of the U.S. Green Building Council and a participant in the Green Globes Initiative, our certified and accredited professionals can provide and implement design and construction practices that promote a positive impact on the environment.

Firm Information

Firm Name / Legal Entity that would enter a contract with the City
Edifice, Inc.

Address
4111 South Blvd, Charlotte, NC 28209

Phone / Website / email
704.332.0900 / www.edificeinc.com / mcarlisto@edificeinc.com

Name and information of the individual who will be the City's primary contact.
Mr. Michael Carlisto, Vice President
4111 South Boulevard, Charlotte, NC 28209
704.332.0900
mcarlisto@Edificeinc.com

General statement of firm's history and financial stability.
Established in 1978 and located in Charlotte, North Carolina, Edifice is privately-held commercial general contractor. With an annual revenue of over $250 million and the completion of over $2 billion of construction projects, Edifice has a diverse portfolio in the education, office, civic, faith-based, industrial, medical, entertainment, and multi-family markets. This diversity enables our teams to excel in projects ranging from the intricacies of interior renovations to complex multi-faceted structures.

Conflicts of Interest.
None

Number of years the firm has been in business in its current capacity.
40 years

The firm's North Carolina General Contractor License
Edifice holds a valid North Carolina General Contracting License, #10514. A copy of this license is included following this page.

Insurance information.
Our insurance coverage certificate is included at the end of this section.

License Year

2018

License No.

10514

North Carolina

Licensing Board for General Contractors

This is to Certify That:

Edifice, Inc.
Charlotte, NC

is duly registered and entitled to practice

General Contracting

Limitation: Unlimited
Classification: Unclassified

until

December 31, 2018

when this Certificate expires.

Witness our hands and seal of the Board.

Dated, Raleigh, N.C.

January 1, 2018

This certificate may not be altered.

LICENSING BOARD FOR GENERAL CONTRACTORS
MAY 20, 1775
NORTH CAROLINA

Chairman

C. Frank Wiesner
Secretary-Treasurer

Agenda

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 4/30/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
NFP Corporate Services (SE), Inc.
1901 Roxborough Rd, Ste 300
Charlotte NC 28211

CONTACT NAME: Mitzi Hines
PHONE (A/C, No, Ext): 704-200-9399 FAX (A/C, No): 704-973-9501
E-MAIL ADDRESS: mitzi.hines@nfp.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : National Union Fire Insurance	19445
INSURER B : New Hampshire Insurance Company	23841
INSURER C : Travelers Property Casualty Company of America	25674
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
Edifice, Inc.
P.O. Box 36349
Charlotte NC 28236

COVERAGES **CERTIFICATE NUMBER:** 254774323 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			GL 992-56-69	5/1/2018	9/1/2019	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 300,000
	X Contractors Liab						MED EXP (Any one person)	$ 10,000
	X XCU Not Excluded						PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
A	AUTOMOBILE LIABILITY			CA 454-48-50	5/1/2018	9/1/2019	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
	X Comp 250 Ded / X Coll 500 Ded							$
C	X UMBRELLA LIAB / X OCCUR			ZUP-91M94730-18-NF	5/1/2018	9/1/2019	EACH OCCURRENCE	$ 20,000,000
	EXCESS LIAB / CLAIMS-MADE						AGGREGATE	$ 20,000,000
	DED / RETENTION $							$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY			WC 025-89-3793	5/1/2018	9/1/2019	X PER STATUTE / OTH-ER	
B	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBEREXCLUDED? Y / N	N / A		All States Except Monopolistic	5/1/2018	9/1/2019	E.L. EACH ACCIDENT	$ 1,000,000
B	(Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			Experience Mod Rating - 0.80	5/1/2018	9/1/2019	E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
C	Builders Risk - Reporting Form			QT-660-2G465615-TIL-18	5/1/2018	5/1/2019	Any One Structure	30,000,000
C	Lease/Rented Equipment			QT-660-2G46606-COF-18	5/1/2018	5/1/2019	Any One Item	175,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
PROOF OF INSURANCE

CERTIFICATE HOLDER

Edifice, Inc.
4111 South BLVD
Charlotte NC 28209

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Alan Wise

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Personnel Information

Michael Carlisto, LEED AP
VP, Project Executive / Key Decision Maker

PRE-CONSTRUCTION

Andy Aldridge
VP, Pre-Construction

LIL ASSOCIATES II INC

Stephane Berwald
Senior Diversity Specialist, Lil Associates II

CONSTRUCTION

Jason Cameron
Project Manager

Brian Merrill
Superintendent

James Hartsell
Alternate Superintendent

Personnel Information

Mike Carlisto, LEED® AP

Vice President, Project Executive

Mike brings 27 years of experience in a variety of public projects including primary & secondary education, higher education, and municipal projects as well as experience with restaurant, multi-family, and retail projects. In his position, Mike serves as project team leader on all civic-related projects providing clientas with a single point of contact from pre-construction through close-out. Prior to being elevated to his current role, Mike held the positions of project manager and senior estimator.

Length of Service with the Firm
21 years

Education
- Master of Construction Science and Management, Clemson University
- BS, Accounting, LeMoyne College
- Leadership Charlotte Class XXXI

Memberships/Affiliations
- LEED Accredited Professional
- UNC Charlotte Athletic Foundation, Board of Directors

Project Experience
- CMPD Central Division Facility, Charlotte, NC CM@Risk $20M
- Laurinburg City Hall and Police Department Facility CM@Risk $8.5M
- Mecklenburg County, MEDIC EMS HQ, Charlotte, NC CM@Risk $37M
- Mint Hill Police Department CM@Risk $1.7M
- City of Albemarle Police Department, Albemarle, NC CM@Risk 3.2M
- Harrisburg Fire Station No. 2, Harrisburg, NC CM@Risk $5M
- Iredell County Public Safety Complex, Statesville, NC Design-Build $15M
- Indian Trail Town Hall and Town Square, Indian Trail, NC CM@Risk $9.1M
- CMPD Freedom Division $3.5M *(prior to joining Edifice)*

Andy Aldridge

Vice President, Pre-construction Services

Andy serves as a link between owners, architects and subcontractors – maximizing efficiencies by shaping projects on paper prior to the start of construction. Over the last 25 years, he has gained extensive knowledge, holding positions in pre-construction and project management in and around the North Carolina area. He is a collaborative team player – providing real solutions for successful outcomes.

Length of Service with the Firm
10 years

Education
BS, Construction Science and Management, Clemson University

Certifications / Training
- Federal Contract Law
- Ethics Training
- OSHA 30-hour Construction Safety and Health Training

Project Experience
- CMPD Central Division Facility, Charlotte, NC CM@Risk $20M
- Laurinburg City Hall and Police Department Facility CM@Risk $8.5M
- Mecklenburg County, MEDIC EMS HQ, Charlotte, NC CM@Risk $37M
- Waxhaw Police Station CM@Risk $3.7M
- Mint Hill Police Department CM@Risk $1.7M
- City of Albemarle Police Department, Albemarle, NC CM@Risk 3.2M
- Iredell County Public Safety Complex, Statesville, NC Design-Build $15M
- Indian Trail Town Hall and Town Square, Indian Trail, NC CM@Risk $9.1M

Personnel Information

Jason Cameron
Project Manager

As Project Manager, Jason brings 23 years of construction experience and will provide the day-to-day administrative oversight of the project. He will be responsible for all budgets, schedules, subcontractors & suppliers, document control, and contractor/architect/owner correspondence throughout construction and closeout.

Length of Service with the Firm
1 year

Education
- B.S., Civil Engineering, University of Tennessee

Certifications / Training
- Federal CQM Training
- OSHA 30 Hour
- Soil & Erosion

Project Experience
- Laurinburg City Hall and Police Department Facility CM@Risk $8.5M
- Harrisburg Public Works Facility, Harrisburg, NC CM@Risk $5M

Previous Project Experience (with another company)
- Gaston Memorial Hospital, 2nd Floor Renovation Phase III
- Gaston Memorial Hospital Ambulatory Surgery HVAC and Lighting Upgrades
- Gaston Memorial Hospital Caromont Health 2nd Floor Corridor Renovation and BiPlane Equipment Replacement
- Gaston Memorial Hospital Courtland Terrace Finishes
- Gaston Memorial Hospital CaroMont Health Main OR Renovations

Brian Merrill
Superintendent

Brian Merrill brings 30 years of construction experience and will be on-site full time and responsible for the day-to-day direct oversight in the field. He will coordinate all field activities with respect to all subcontractors, materials, equipment, safety, quality, schedule adherence and inspections.

Length of Service with the Firm
2 years

Certifications / Training
- First Aid/CPR
- Federal CQM Training
- OSHA 30 Hour
- Soil & Erosion
- Certified Healthcare Constructor (CHC)

Project Experience
- ACTS I Tryon Estates Renovation, Columbus, NC GMP $8.4M
- ACTS I Tryon Estates Sales Center Renovation, Columbus, NC Lump Sum
- Cardinal Innovations Cabarrus Crisis Recovery Center, Concord, NC CM@Risk $1.3M
- Morningstar Clover Storage (Lake Wylie), Clover, SC GMP $4.7M

Previous Project Experience (with another company)
- Gaston Memorial Hospital, Security Office Renovations
- Gaston Memorial Hospital, Emergency Power Systems Upgrade
- Gaston Memorial Hospital, Risk Management Patient Safety
- Gaston Memorial Hospital, New Data Center

Personnel Information

James Hartsell

Alternate Superintendent

James brings over 36 years of construction experience and will be on-site full time and responsible for the day-to-day direct oversight in the field. He will coordinate all field activities with respect to all subcontractors, materials, equipment, safety, quality, schedule adherence and inspections.

Length of Service with the Firm
23 years

Certifications / Training
- Federal Contract Law & Ethics Training
- Federal CQM Training
- First Aid/CPR
- GHS / Hazcom 2013
- OSHA 10 and 30 Hour
- OSHA Steel Erection
- Soil & Erosion

Project Experience
- Laurinburg City Hall and Police Department Facility CM@Risk $8.5M
- Carl A. Furr Elementary, Kannapolis, NC Lump Sum $1M
- Immaculate Heart of Mary Parish Life & Education Center, High Point, NC GMP $9.6M
- Mount Zion Baptist Church, Greensboro, NC GMP $12.8M
- Hopewell Baptist Church, Phase II Education Wing, Monroe, NC GMP $4.3M
- Hopewell Baptist, Family Life Center, Monroe, NC GMP $4M

Stephane Berwald

Senior Diversity Specialist, Lil Associates II

Stephane has been with Lil Associates II for 10 years. She is responsible for ensuring diversity program compliance for their clients. Specifically: managing all phases of the participation plan for utilization of Minority and Small Business Enterprises outreach, procurement, monitoring, reporting & technical assistance; ensuring compliance with the inclusion programs; and identifying M/SBE's for project participation.

Length of Service with the Firm
10 years

Education
- University of North Carolina - Charlotte

Community Involvement
- President - Metrolina Minority Contractors Association
- Secretary - Charlotte Mecklenburg County NAACP

Project Experience when Teamed with Edifice
- CMPD Central Division Facility, Charlotte, NC
- MEDIC Headquarters & Operations Relocation, Charlotte
- UNC Charlotte, PORTAL Building, Charlotte, NC
- Charlotte East Language Academy, Charlotte, NC
- Ranson Middle School, Charlotte, NC
- UNC Charlotte University Recreation Center, Charlotte, NC
- UNC Charlotte, Belk Residence Hall, Charlotte, NC

Other Project Experience
- Charlotte Mecklenburg Schools – Stadium Improvements, Sharon Amity Elementary School
- NASCAR Hall of Fame, Charlotte, NC

Experience

CMPD Central Division Facility
Charlotte, NC

Owner
Kathleen Cishek
City of Charlotte
704.432.5214
kcishek@charlottenc.gov

Contract $ Amount
$20,233,577

Time Period Involved
August 2017 - December 2019

GMP vs Actual Cost History
Original: $20,233,577
Actual: TBD

S/W/MBE Goals vs Actual
Goal: 14% SBE, 10% MBE
Actual: TBD

Key Team Members Involved
Mike Carlisto, Andy Aldridge

Awards
TBD

Project Descriptions
$20 million, new three-story, 31,000-square-foot facility with a 5-level parking structure. This project will serve the Charlotte-Mecklenburg Police Department's Central Patrol Division. The site consists of 1.2 acres, located between 5th and 6th streets, bordering the railroad tracks.

Methods, Approach and Controls
In the preconstruction process, we elected to sign a contract with the City of Charlotte, based off of a 50% complete set of documents. We then broke the project up into four different bid groups, so that we could award long lead time subcontracts, in time to execute the work as efficiently as possible, once all of the bid packages were opened and a GMP was set. This also allowed us to begin value engineering throughout the bid process with trade contractor input, as bid packages were awarded. The result is a fast tracked preconstruction effort, that delivered pertinent information to the project team, more quickly than usual.

Lessons Learned
Get as much budget participation as possible from subs in the major trades. Market input is critical when it comes to special systems like mechanical, electrical, and plumbing.

Experience

Laurinburg City Hall and Police Department Facility
Laurinburg, NC

Owner
Charles Nichols
City of Laurinburg
910.276.8324
cnichols@laurinburg.org

Contract $ Amount
$8,539,693

Time Period Involved
May 2016 - January 2019

GMP vs Actual Cost History
Original: $8,539,693
Actual: TBD

S/W/MBE Goals vs Actual
Goal: 10%
Actual: TBD

Key Team Members Involved
Mike Carlisto, Andy Aldridge, Jason Cameron, James Hartsell

Awards
TBD

Project Description
This $8.5 million, two-story, 20,000sf building will house the City's police department, administrative operations and Council Chambers. The new building will provide modern spaces for these teams that have enhanced security features and technology capabilities, and move them into an ADA compliant building.

Methods, Approach and Controls
The new City Hall shared a parking lot with and was only 20 feet away from the current municipal building. We worked closely with the City of Laurinburg and Creech to develop a phased construction sequence which allowed for the quickest move in for the owner with minimal disruption to existing operations.

Lessons Learned
Do not be afraid to rebid trade packages that come in over budget initially. For example, we received one drywall bid and it was unreasonably high. We went to the market and asked three more companies if they would bid the job and the number came in $168,000 lower.

Experience

MEDIC - Mecklenburg County EMS Agency Headquarters & Operations Facility
Charlotte, NC

Owner's Representative
Bryan Turner
Mecklenburg County
980.314.2504
bryan.turner@
mecklenburgcountync.gov

Contract $ Amount
$37,476,641

Time Period Involved
Pre-Con: April 2015 - March 2016
Constr: April 2016 - January 2018

GMP vs Actual Cost History
GMP: $37,476,641
Actual: $36,989,391 (forecasted)

S/W/MBE Goals vs Actual
Goal: 21%: Actual 32%

Key Team Members Involved
Mike Carlisto, Andy Aldridge, Lil Associates

Awards
TBD

Project Description
The MEDIC project included the renovation of a 120,000sf warehouse, an administration addition, plus two new buildings totaling approximately 180,000sf on a 20-acre site. This project accommodates space needs to include office areas for administration, training and stimulation space, finance, and operations support, a 911 call center, communications center, fleet maintenance, Ready-Line for ambulances and special equipment, logistics, warehousing, vehicle wash building and a fueling station. Site work included circulation, parking and storm water management for approximately 500 cars.

Methods, Approach and Controls
Right from the start of design, we worked with the County and ADW Architects on various methods of renovation, refurbishment, and new construction. The most economical plan was to save the structure on the large warehouse and turn the building into MEDIC's operations hub. This was a cost saver and a time saver. Working with the Design Team, Mecklenburg County, and MEDIC personnel on their needs and wants and the realities of what could fit into the budget was crucial for this project. Everything also had to be designed and planned around the fortified ECOM/911 Call Center which is Mecklenburg County's main medical emergency dispatch and command center.

Lessons Learned
If the entity you're building for has an existing facility, do some test fits or mock ups of new or specialized systems or products. This can help to choose the best products that fit the Owner's operation needs.

Experience

Waxhaw Police Station
Waxhaw, NC

Owner's Representative
Greg Ferguson
Town of Waxhaw
704.843.2195
gferguson@waxhaw.com

Contract $ Amount
$3,327,863

Time Period Involved
March 2013 - May 2014

GMP vs Actual Cost History
Original: $3,327,863
Actual: $3,747,812

S/W/MBE Goals vs Actual
Goal: 10%
Actual: 27.75%

Key Team Members Involved
Andy Aldridge

Awards
None

Project Description
The 26,000sf facility provides the department with the space to implement new technology offering ongoing training and education, while allowing room for growth. The renovated building features distinct entrances to separate the intake of suspects and others visiting the department as well as new offices and training rooms, process rooms, interview rooms, an on-site fitness center, and plenty of space to carry out investigative services. There is also a simulator room for realistic driving and firearm situations. The entire building is equipped with the highest internal and external security elements.

Methods, Approach and Controls
How do you make turn an ordinary office building into a specialized command center for Law Enforcement professionals? This was the task at hand for the Project Team. Turn an existing building not designed for a Police Station, into a Police Station. Many of the safety factors and elements were not originally designed into the building. Bullet proof and/or resistant glass areas and other important security elements were added. A Sally Port addition was built, and simulation areas for training were added inside. Our detailed estimating options and constructability reviews helped the Town make key decisions on what could be implemented while staying within the budget parameters.

Lessons Learned
It's best to build new public safety buildings. A police department must be an Essential building - meaning it must have structural elements designed and built to withstand strong storms and other catastrophic events. Renovations require additional materials and money to make it Essential.

Experience

Mint Hill Police Department
Mint Hill, NC

Owner's Representative
Brian Welch
Town of Mint Hill
704.545.9726
bwelch@admin.minthill.com

Contract $ Amount
$1,758,036

Time Period Involved
June 1, 2012 - August 11, 2013

GMP vs Actual Cost History
GMP: $1,758,036
Actual: $1,738,609

S/W/MBE Goals vs Actual
Goal: 10%
Actual: 24.5%

Key Team Members Involved
Mike Carlisto, Andy Aldridge

Awards
None

Project Description
This project consisted of a 7,000sf addition and renovation of the old Mint Hill Town Hall into the new Mint Hill Police Station. Brick and textured paint was added to the 30-year-old building's contemporary façade to give it a more traditional look, and the breezeway through the middle of the building was enclosed. The old administrative side of the building has been refurbished, but is still used for offices, a conference room, and an interrogation room. The other side of the building, which housed the assembly room, now has restrooms and lockers for officers, a roll call room, another interrogation room, and state of the art evidence lockers and evidence storage room. Cameras were installed inside and out, and a bullet-resistant film was added to the front windows. Doors have a dual locking process with electronic card readers.

Methods, Approach and Controls
With any CM at Risk project the ultimate benefit is having the Project Team (Owner, Designers, Construction Manager) on board early in the design process. In Mint Hill the same team that built the Town Hall came back together again to renovate the old Town Hall into the new Police Department. With the space vacant we were able leave no stone unturned in examining the existing structure and building components. Our constructability process, utilized for new ground up projects and renovations, played a key role in allowing us to modify and revise the new MEP infrastructure into the existing structure and keep safety and visual elements in mind for the project.

Lessons Learned
Urge owners and designers not to utilize buildings with multiple structures. This made coordination of new systems very challenging. But the Town already owned the building and that outweighed the challenge.

Experience: Meeting Schedules and Budgets

Describe the firm's and the key team members' past success in meeting established schedules and budgets for major projects as construction manager. Describe the methods, procedures, and policies used to maintain schedules and budgets.

Scheduling:
We believe that the generation, maintenance and utilization of the project schedule is absolutely key to achieving our project completion dates. Our philosophy is to be the keeper of the entire project schedule, not just of the construction activities, but of every phase of the construction process including the design, permitting, submittals, construction, inspections, owner's equipment and project close-out requirements. We don't develop our schedules in a "vacuum." The success of building a usable working schedule depends on the buy-in and input of the entire project team including the Owner, Architect, Engineers, Contractor, and the Subcontractors.

Pre-Construction: We will generate a milestone schedule at the onset of the project. This schedule incorporates all the projects major milestones including all design completion dates, bidding, budget updates, prequalification, permitting requirements, and NTP for major construction activities and sequencing.

Construction: We will build upon the milestone schedule generated during the pre-construction phase and expands the schedule to include all construction activities, sequencing and durations. We incorporate all long-lead material lead times and their respective submittals to make sure we are pro-active in our approach to the buyout and submittal process. We incorporate any Owner equipment or fixtures so they can be coordinated with the other trades. We build our schedules to include any special inspection requirements and any specific certificate of occupancy needs.

Ownership: The majority of our schedules are completed and maintained in-house by our Project Manager utilizing Phoenix scheduling software. On our large complex projects we employ the services of several scheduling consultants who utilize Primavera P6 software.

Budgets:
All of our costs and scheduling details are handled with an "open book policy." We will share the details of every pricing situation from pre-construction estimates to actual job costs. The project budget is monitored weekly on a detailed itemized cost breakdown where subcontractor and supplier commitments are measured against the itemized budget and actual expenditures. The owner is always made aware of the status of the project budget throughout the progress of the job. At the completion of the project, all savings under the GMP are reconciled to the contract through a deductive change order.

We work with the designer's or owner's cost estimator to reconcile our estimates and the budget at each design milestone. We do this on quite a few of our CM@Risk projects and on all State Construction projects.

Experience: Availability of Key Team Members

Discuss the availability of your key team members, particularly for the next 12-24 months.

All of our key team members proposed will be available for this project based on the estimated schedule included in the RFQ and the construction time line.

Quality Control

Briefly describe the firm's quality control program specifically its technical review process.
and
Discuss the firm's management and quality control procedures related to subcontractors

Quality Control

We have developed and implemented a quality control program that is built on the Core of Engineers and United State Navy's "Construction Quality Management (CQM)" plan. This very systematic approach to quality is derived from following a set of repeated processes for each component of the project throughout the life of the construction project. Starting with the end goal in mind, each definable feature of work is identified and pre-determined as to the intended quality outcome. We work throughout the pre-construction phases of a project till the very end of construction to assure the intended results are met.

The CQM system is built on a precise set of checklists that follow the same basic setup and implementation for each definable feature. This system briefly explained below is what we call the PIF system and is as follows:

P – **Preparatory**: Before any work begins each definable feature is identified and a check list completed that includes product details, installation instructions, inspection requirements, submittal information, checks of all pre-requisite work, appropriate hazard analysis and testing procedures.

I – **Initial**: At the very beginning of the installation each definable feature will have another check list completed that includes the review of the Preparatory Meeting, review of all pre-requisite work, review of installation instructions, product verifications, specific safety requirements, and any appropriate hazard analysis identified.

F – **Follow Phase**: Daily checks are performed to assure continuing compliance with contract requirements including safety, testing, inspections, and installation instructions. Reports are developed and kept to document the installation.

Document Control

Project tracking and reporting involves daily, weekly and monthly attention. We use Primavera for development and tracking of project planning and scheduling. It is preferred to have the project plan include all parties involved and not just be restricted to the construction phases. This should include but not be limited to design, turnover, and FF&E activities. The project schedule should be tracked weekly and updated monthly. This does not preclude any emergency schedule analysis or work around plan if the need arises, just a minimum frequency of review and updates.

Project issues are tracked using ViewPoint and daily reports/logs are maintained. ViewPoint issues project reports that can be updated daily. This should be the basis of the project operational meeting. ViewPoint also contains RFI & submittal management component. All RFI's can be written, tracked and answered in this software. All submittals are pre-scheduled, logged and status checked during the submittal review phase. We will make every effort to integrate the electronic abilities of all parties involved so RFI's & submittals can be managed efficiently.

Quality Control: Project Management / Approach

Describe the firm's Project Management and Quality Control procedures, processes for performance, and past involvement of these types of projects.

Edifice likes to utilize the entire project team from the beginning of our involvement in the project on through to the end of construction. The operations team gets involved during the pre-construction phase and literally starts building the project on paper through schedule development and constructability reviews. Within our pre-construction schedule we start developing construction milestones and the identification of design, agency approval, and long lead item(s) milestones. With the construction activities, means and methods, planning, and construction methodologies analyzed and laid out, we are literally able to hit the ground running once a Guaranteed Maximum Price (GMP) is finalized for the start of construction. This allows for a shorter project duration that allows the Owner to save time and money, and also allows for the implementation of Owner, Designer, and Construction team input into the drawings throughout the pre-construction process.

The following is a listing of the typical services we perform in each of these phases and a brief description of how those services will be performed.

SERVICES			
Pre-construction		**Construction**	
Drawing Reviews • Constructability • Detail Clarification • Drawing Coordination **Estimating** • Detailed Quantity Survey • Market Input on Major Trade Packages • Budget Reviews • Value Engineering **Quality** • Develop site specific QC Plan **Safety** • Develop site specific safety plan	**Scheduling** • Design Phase • Permitting • Phasing Milestones **Bidding** • Prequalification Process • Sub/Vendor Solicitation • Bid Reviews • O/A/C Bid Recommendations & Awards	**Schedule** • Further define construction schedule • Progress updates • Communicate project status **Budget** • Track costs against original budget • Present budget updates monthly • Always seek ways to save	**Quality Control** • P - Preparatory meetings and plan implementation • I - Initiate pre-installation check lists • F - Follow-up implementation and report **Safety** • Implement safety plan • Conduct weekly site safety meetings w/subs • Safety reporting and records

Quality Control: Project Management / Approach

Overall Project Management Process

Mike Carlisto will serve as the Team Leader/Project Executive for this project and will represent Edifice throughout both pre-construction and construction phases. It will be Mike's responsibility to manage the Pre-Construction operation through the design and budget phases to the GMP negotiations. Mike will be a management and coordination link to the design team and City of Hendersonville's representatives. He will coordinate and manage trade package bids with the Pre-Construction team, and then facilitate contract negotiations and scheduling with the Project Management team. During construction, Mike will provide direct oversight of the construction management team.

Pre-Construction

Andy Aldridge, with assistance from the rest of the pre-construction team, will be responsible for the management of the estimating process, assembling cost proposals, value engineering activities, project design document and constructability reviews. They will assure tracking mechanisms are in place to communicate changes in the budget during each phase of the pricing exercise. During the construction phase, the pre-construction team will provide support to the Construction team during any pricing exercises as needed. This team is ready to assist with document reviews, contract negotiations, and pricing changes to contract documents as needed.

Construction

Our Project Manager, **Jason Cameron**, will be responsible for the day-to-day administrative control and ultimate authority and oversight of the project. This includes but is not limited to: contract negotiations, writing subcontracts, subcontractor management, processing submittals, processing RFI's, handling changes, accounts receivables, account payables, addressing constructability issues, document control, schedule generation and maintenance, budget control and reporting, maintaining all logs, lead Owner/Architect/Contractor meetings and distribute meeting minutes.

Our Project Superintendent, **Brian Merrill** or **James Hartsell**, will be responsible for the day-to-day oversight of the project and will have daily authority on the site. This includes but is not limited to: scheduling subcontractors, project safety, project cleanliness, pushing and maintaining scheduled progress, quality control, erosion control, environmental control, obtaining appropriate state construction approvals and coordinating inspections with local building inspectors, coordinating subcontractor trades, and assuring overall project harmony.

Quality Control: Safety

Discuss your firm's safety program

It is the policy of Edifice, Inc. that every employee be entitled to work under the safest possible conditions for the construction industry. To this end, every reasonable effort will be made in the interest of accident prevention, fire protection, and health preservation. All local, state, and federal safety codes will be adhered to. Edifice, Inc. will endeavor to maintain a safe and healthful workplace. It will provide safe working equipment and necessary personal protective equipment will be made available. In the event of injury, the best first aid and medical service available will be provided.

Our Safety program is managed by Chris Gates. The overall effectiveness of the safety program is his responsibility. Duties include the review and analysis of accident information, safety meeting reports, communication of pertinent information, and compliance with OSHA standards.

The responsibility for safety on each job remains with the superintendent of that job. Their duties include the reviewing of all accident investigation and safety inspection reports for the job. They must also maintain a log or list of accidents to help in identifying accident trends. The superintendent will perform a daily inspection of the job site at the beginning of each day and as often as needed thereafter. A written checklist will be used at least monthly on all job sites and a copy will be sent to the office to be reviewed and maintained for record. All work related accidents and all "near miss" accidents will be investigated by the superintendent. A written report will be prepared and forwarded to the office for record. The necessary precautions to prevent similar accidents will be taken and others in the area will be re-instructed or cautioned as necessary. The superintendent is responsible for conducting weekly toolbox talks at which accidents and other information concerning the safety of workers will be discussed. A complete copy of the Edifice Safety Program is available upon request.

EMR Rating: Edifice enjoys the lowest possible OSHA Experience Modification Rating based on our company's size and volume of work.

	Current	2017	2016	2015
EMR	.80	.79	.80	.84

Recognition: Edifice currently holds a STEP Diamond Award in recognition of our exemplary safety performance, programs, and commitment to jobsite safety as judged by the National Environment, Health and Safety Committee of Associated Builders and Contractors (ABC).

2 MILLION employee hours without a lost time accident *(as recognized by NCDOL)*

17 YEARS *without a lost time accident (as recognized by Ameirsure Insurance & Wells Fargo Insurance Services)*

M/W/SBE Participation

Edifice always tries to maximize M/W/SBE participation at all levels, and wil continue those practices for this project. We are honored to announce our recent award, Prime Contractor of the Year at last year's City of Charlotte Crowns of Enterprise M/W/SBE awards ceremony. In addition to our plan outlined below, we will utilize the services of Lil Associates II, Inc. (a certified M/W/SBE) as our M/W/SBE consultant. Our plan includes the following:

CROWNS of ENTERPRISE

Prime Contractor of the Year | 2017

M/W/SBE PARTICIPATION PLAN

Strategic Planning
- Establish inclusion M/W/SBE goals and objectives for the overall project
- Identify potential areas for utilization of M/W/SBE specific to the project needs
- Coordinate with specific Trade Contractors to develop scopes and bid package goals
- Create advertisements for minority media

Development
- Recruit and assist M/W/SBE firms with pre-qualification and certification
- Develop a communication plan between Edifice and M/W/SBE firms
- Organize targeted outreach sessions coordinated with the City of Hendersonville
- Maintain a project specific database to track inclusion goals and objectives

Implementation
- Assist with breaking down bid packages to achieve the project goals
- Attend pre-bid meetings and bid opening meetings
- Conduct pre-qualified bidders workshops to educate bidders on the M/W/SBE program
- Contact pre-qualified bidders to review the M/W/SBE goal required paperwork prior to bid
- Perform conflict resolution throughout the life cycle of the project
- Assist with change orders including establishing goals for inclusion and making opportunities available for (M/W/SBE firms)

Monitoring and Tracking
- Confirm M/W/SBE certification
- Provide monthly comprehensive utilization reports
- Conduct audits for program compliance in accordance with the City of Hendersonville

Economic Impact Strategy
- Community engagement – publicize/report
- Report participation from the local and regional community

Community Outreach for the City of Hendersonville
- Lil & Associates will serve as a liaison between Edifice/the City of Hendersonville and the M/W/SBE contracting community including attending organization and association meetings and events.
- Will develop ongoing opportunities for the City of Hendersonville to network with M/W/SBE firms through trade organizations and associations, with intent to demonstrate Edifice's commitment to inclusion within the M/W/SBE Community

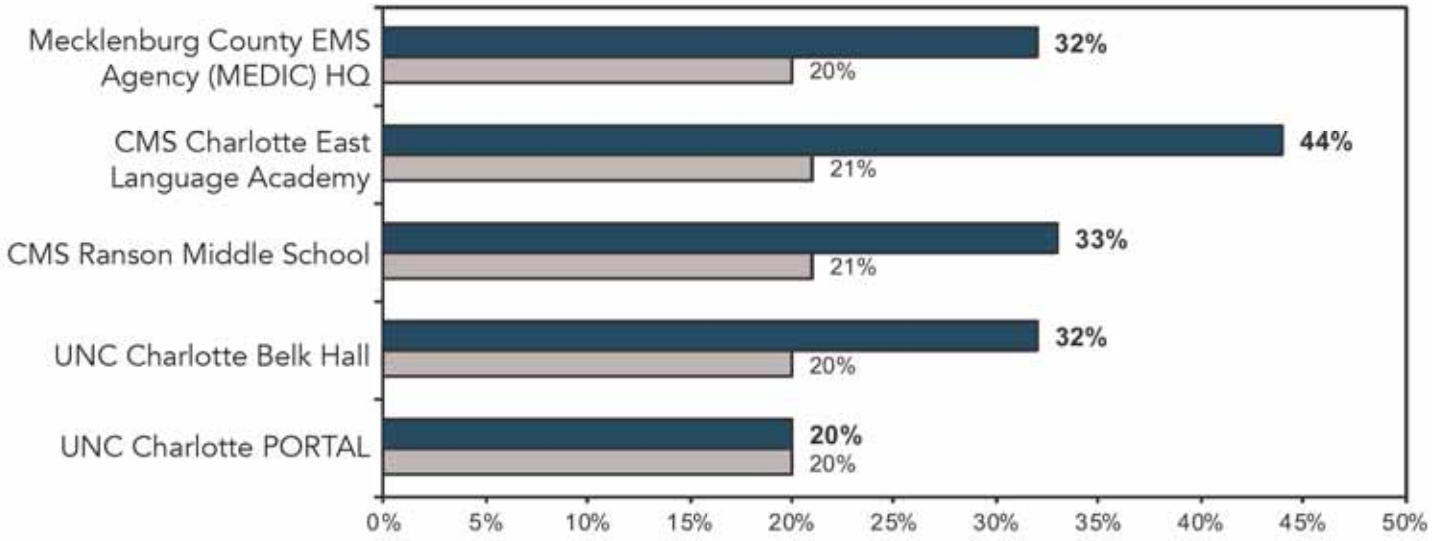
M/W/SBE Participation

Edifice and Lil Associates teamed on the following projects:

- CMS Charlotte East Language Academy
- UNC Charlotte Residence Hall
- UNC Charlotte PORTAL
- East Meck Additions & Renovations
- Mecklenburg County, MEDIC EMS HQ
- UNC Charlotte University Recreation Center

Success Rate

The above strategies were implemented on the most recently completed relevant projects in the chart below:



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GENERAL CONTRACTORS
The Art and Science of Construction

4111 South Boulevard, Charlotte, North Carolina 28209
704.332.0900 | www.Edificeinc.com

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: Tammie Drake

Department: Admin

Date Submitted: 09.19.18

Presenter: Tammie Drake

Date of Council Meeting to consider this item: 10.04.18

Nature of Item: Presentation Only

Summary of Information/Request: **Item #** 13

Historic Preservation Commission: Ms. Laura Flores has resigned from the HPC. We have an application on file from Derek Cote who is building a home in Druid Hills and owns property in the City.

Board of Adjustment: The alternate position on the Board of Adjustment has been vacant for quite some time. We have received an application from Libby Collina who resides in the City and is willing to serve. Henderson County appoints 3 positions and 1 alternate. They currently have only one representative who attends meetings, two vacant positions as well as a vacant alternate position. It is important to appoint an alternate if possible because of the ordinance that requires 7 members to approve variances, etc. that come before the Board. It is my understanding it has been difficult to establish a quorum.

Report on Vacancies:

Business Advisory Committee: 1 vacancy
Environmental Sustainability Board: 3 vacant positions for City residents, 1 vacant position for outside-City rep. We have no applications on file at this time.
Walk of Fame Steering Committee: 1 vacant position

Budget Impact: $_____ Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:
I move City Council to appoint Derek Cote to an unexpired position on the HPC. This term will expire December 2019.

Attachments:
Board membership lists

Agenda

CITY OF HENDERSONVILLE
AGENDA ITEM SUMMARY

Submitted By: John Connet

Department: Admin

Date Submitted: 9/25/2018

Presenter: John Connet

Date of Council Meeting to consider this item: 10/4/2018

Nature of Item: Council Action

Summary of Information/Request: **Item #** 15

I would like to hold a Closed Session in accordance NCGS 143-318.11(a) (5) to establish, or to instruct the public body's staff or negotiating agents concerning the position to be taken by or on behalf of the public body in negotiating the price and other material terms of a contract or proposed contract for the acquisition of real property.

Budget Impact: $ TBD Is this expenditure approved in the current fiscal year budget? N/A If no, describe how it will be funded.

Suggested Motion:

I move that the City Council enter Closed Session in accordance with NCGS 143-318.11(a) (5) to establish, or to instruct the public body's staff or negotiating agents concerning the position to be taken by or on behalf of the public body in negotiating the price and other material terms of a contract or proposed contract for the acquisition of real property.

Attachments:

None at this time