

Request for Proposals (RFP):

Pedestrian Bridge to Orange Line Connection

Organization Name: Upstate Greenways and Trails Alliance

Contact Information:

Sam Davis
Associate Director
sdavis@ugata.org
(205)-873-3853

Project Location: Northern City Limit of Greenville SC

RFP Issue Date: September 21st, 2026

Questions and Clarifications Deadline: October 12th, 2026

Proposal Submission Deadline: October 23rd, 2026

Project Start Date: November 2nd, 2026

Project Completion Date: February 19th, 2017

Add Alternate Completion Date: To be negotiated

Introduction

Upstate Greenways and Trails Alliance (UGATA) is seeking qualified engineering firms to submit proposals for a feasibility study of a Shared Use Path connection between the Green Line of the Swamp Rabbit Trail to the Orange Line of the Swamp Rabbit Trail. The selected firm will determine the feasibility, cost, process, permitting, and timeline of two possible trail routes to make this connection.

Additionally, UGATA is seeking qualified engineers to submit proposals for the full design, engineering and permitting of one of the two routes explored in the feasibility study. Design, engineering, and permitting work are included as add alternates. UGATA will have the option but not the obligation to pursue full design based on the findings of the feasibility study.

We invite experienced engineering firms to submit proposals outlining their expertise, approach, and understanding of the project's requirements.

Project Goals

1. Gather necessary survey information and stakeholder restrictions to know project constraints
2. Outline the safest and most comfortable trail infrastructure that is possible on both routes given project constraints
3. Determine which permits and approvals that are likely to be required for both routes
4. Create a timeline of design, permitting, and construction for both routes
5. Create the best possible cost estimates for both routes given all available information

Orange Line Connection Routes:

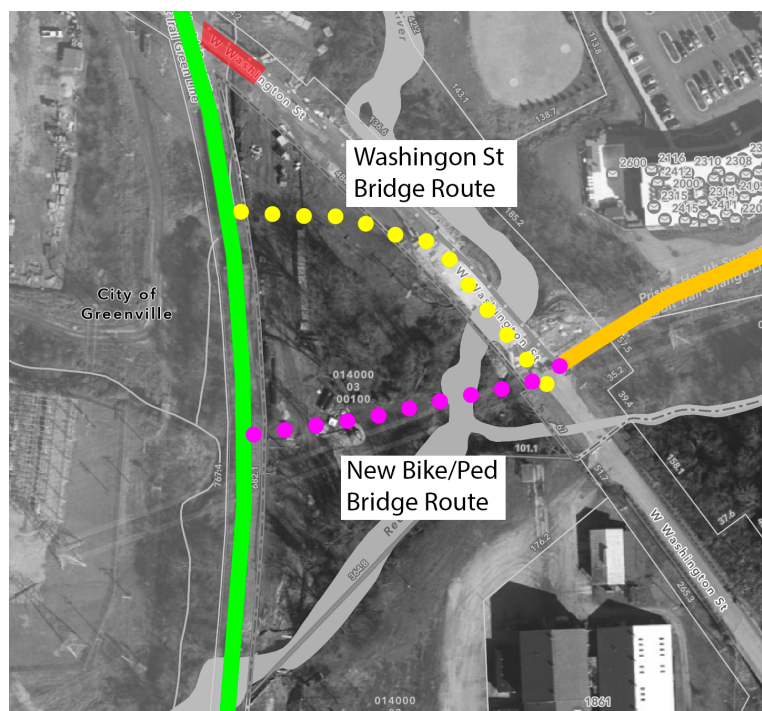
The selected firm will create a feasibility study to determine which of two routes will provide the best user experience while balancing the permitting burden and cost of construction. A map of the two routes is provided below.

Washington St Bridge Route: Shown in Yellow, this option will connect the Green and Orange Lines by taking advantage of the existing Washington St Bridge. The bridge has recently been expanded to 34 feet wide. This route is being explored to avoid the much narrower Washington St Bridge which is highlighted in Red. The Red bridge is 24 feet wide and does not have the space to include safe bike infrastructure. Particular interest will be paid to the level of safe infrastructure that SCDOT is likely to approve on the 34 foot Washington Street Bridge. We are particularly interested in separated or protected bike lanes or cycle tracks.

In addition to the Shared Use Path, UGATA would like to explore the feasibility of a plaza at the intersection of the Green and Orange lines. This plaza would serve as a meeting point for trail users as well as a traffic calming device in an area where there will likely be heavy trail traffic moving in many directions.

New Bike/Ped Bridge Route: Shown in Pink, this option will connect the Green and Orange Lines by building a new bike and pedestrian bridge across the Reedy River. The span is roughly 60 feet and includes extensive floodplains. Particular interest will be paid to the permitting burden of building in the floodplain and the necessity of seeking a LOMR from the Army Corps of Engineers.

In addition to the Shared Use Path, UGATA would like to explore the feasibility of a plaza at the intersection of the Green and Orange lines. This plaza would serve as a meeting point for trail users as well as a traffic calming device in an area where there will likely be heavy trail traffic moving in many directions.



Scope of Work: Feasibility Study

The selected engineering firm will complete the following tasks:

1. Conduct a site assessment, topographical survey, wetlands survey, and any other required surveys of the project area.
2. Coordinate with project stakeholders to understand their requirements:
 - a. ReWa
 - b. Duke Energy
 - c. SCDOT
 - d. City of Greenville
3. Create a forecast for the Washington St Bridge Route (Yellow) that will include the following:
 - a. Overview of the route feasibility and type of infrastructure that would likely be permitted on this site
 - i. Width and material of separated trail connecting Green Line to Washington Street
 - ii. Width and type of infrastructure that will be on Washington Street including the feasibility of protected bike lanes
 - b. Forecast of the types of approvals and permits required to build this route which may or may not include:
 - i. Disturbance Permit
 - ii. ReWa Encroachment Permit
 - iii. Duke Energy Encroachment Permit
 - iv. SCDOT Encroachment Permit
 - v. Army Corps Letter of Map Revision
 - vi. Wetlands Disturbance Permit
 - vii. Any others predicted
 - c. Timeline of permitting and construction
 - d. Cost of project
 - i. Design cost
 - ii. Permitting cost
 - iii. Construction cost
4. Create a forecast for the New Bike/Pedestrian Bridge Route (Pink) that will include the following:
 - a. Overview of the route feasibility and type of infrastructure that would likely be permitted on this site
 - i. Width, material, and construction type of the new trail and new bike/pedestrian bridge
 - b. Forecast of approvals and permits required to build this route which may or may not include the following:
 - i. Disturbance Permit
 - ii. ReWa Encroachment Permit
 - iii. Duke Energy Encroachment Permit
 - iv. SCDOT Encroachment Permit
 - v. Army Corps Letter of Map Revision
 - vi. Wetlands Disturbance Permit
 - vii. Any others predicted
 - c. Timeline of permitting and construction
 - d. Cost of project
 - i. Design cost
 - ii. Permitting cost

- iii. Construction cost
- 5. A professional opinion of which of the two options will best meet the goals of the project

Project Deliverables

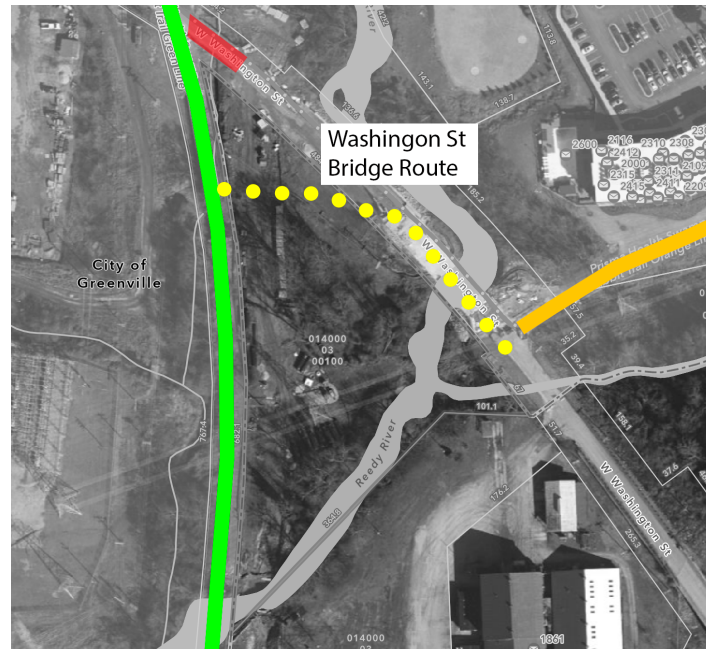
- Surveys of the project area
- Feasibility findings for both routes including
 - Feasible infrastructure overview
 - Predicted permits required
 - Predicted timeline to for design and permitting
 - Predicted cost of project
- A formal opinion of the preferred route

Add Alternate #1:

Design and permitting of Washington St Bridge Route

Add Alternative goals:

- Design and permit the best possible trail connection given project constraints
- Create a high quality trail experience for users
- Limit design and construction cost



Route Overview:

This route will connect the Green and Orange lines by taking advantage of the newly widened 34 ft. Washington Street Bridge. This route will cut across parcel 0140000300100. Routing across this parcel will allow the trail to avoid the narrow 24ft bridge closer to the Green Line. We are hopeful that this route will allow adequate safety infrastructure while avoiding the regulatory hurdles of a LOMR.

City of Greenville:

The City of Greenville will be the long term owner of this project and may be a major funder of the construction. Design of the project will need to take into account their design needs. Early coordination with Calin Owens (cowens@greenvillesc.gov) will be a major component of this project.

Re Wa:

This path will cross a ReWa pipeline and associated easement. UGATA has introduced this plan to ReWa employees and they are committed to finding a way to collaborate. Attached to this RFP is the most recent plans of the pipeline by ReWa. Early coordination with Dillon Thompson (dillont@re-wa.org) will be a component of this project.

Floodplain and floodway:

This path might fully avoid the floodplain and floodway or might interact with it slightly. The extent of interaction and level of regulatory approval will depend on the surveys and deliverables of the feasibility study. The selected firm will be required to secure all needed permits to make this project shovel ready.

To reflect the two possible outcomes of the feasibility study, firms are being asked to create two cost estimates and timelines for this add alternate. The first will assume that the design is able to meet the requirements of a No Rise (form attached). The second will assume that the design will require a LOMR for the Army Corps of Engineers.

SCDOT:

This project will involve substantial collaboration with SCDOT to create safe and comfortable Bike/Ped infrastructure inside their ROW. The goal of UGATA is to be able to permit the most robust bike and pedestrian infrastructure that would be allowed by an SCDOT encroachment permit. We are particularly interested in separated or protected bike lines or cycle tracks if they will be permitted by SCDOT. UGATA has spoken to staff at SCDOT about this plan but has received no definitive response.

Scope of Work:

- Develop a comprehensive, ADA approved, trail design that meets or exceeds AASHTO standards and incorporates industry best practices.
- Prepare detailed construction plans, specifications, and cost estimates.
- Address environmental considerations and ensure compliance with relevant regulations.
- Secure required permits for all portions of the projects.
 - Including Army Corps Map Revision if needed
- Collaborate with UGATA, and relevant stakeholders (Duke Energy, City of Greenville, ReWa, Greenville County) throughout the project lifecycle to understand relevant limitations on trail design while maintaining a quality product.
- Provide professional services related to bidding of project

Deliverables:

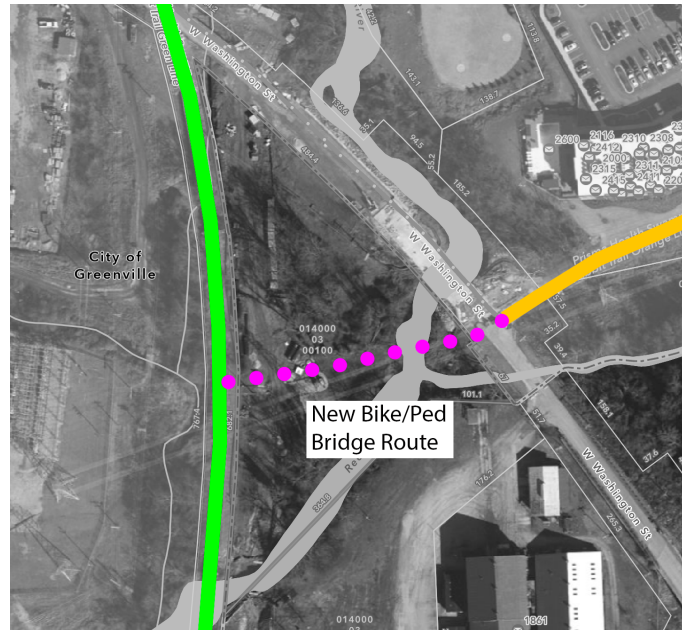
- Three (3) total submittals: 30%, 90%, and Final (100%)
- Cost estimates at each submittal
- Each submittal in PDF format with 11x17 paper format as requested
- Copy of all permits submitted for application and copies of all permits received
- A No Rise Certification, LOMR, or equivalent
- Two (2) signed and sealed copies of final plans
- Digital Construction drawings to be used for bidding

Add Alternate #2:

Design and permitting of New Bike/Ped Bridge Route

Add Alternative goals:

- Design and permit the best possible trail connection given project constraints
- Create a high quality trail experience for users
- Limit design and construction cost



Route Overview:

This route will cut across parcel 0140000300100. This route will allow for minimal interaction between trail users and Washington Street traffic. If possible, UGATA would like to design this route to meet No Rise standards and avoid a LOMR.

City of Greenville:

The City of Greenville will be the long term owner of this project and will be a major funder of the construction. Design of the project will need to take into account their design needs. Early coordination with Calin Owens (covens@greenvillesc.gov) will be a major component of this project.

Re Wa:

This path will cross a ReWa pipeline and associated easement. UGATA has introduced this plan to ReWa employees and they are committed to finding a way to collaborate. Attached

to this RFP is the most recent plans of the pipeline by ReWa. Early coordination with Dillon Thompson (dillont@re-wa.org) will be a component of this project.

Floodplain and floodway:

This path will interact with both the floodplain and the floodway. The level of regulatory approval will depend on the surveys and deliverables of the feasibility study as well as the design choices of the selected firm. The selected firm will be required to secure all needed permits to make this project shovel ready.

To reflect the two possible outcomes of the feasibility study, firms are being asked to create two cost estimates and timelines for this add alternate. The first will assume that the design is able to meet the requirements of a No Rise (form attached). The second will assume that the design will require a LOMR for the Army Corps of Engineers.

SCDOT:

This project will include the design of an at grade crossing at Washington Street and will need collaboration with SCDOT to secure an encroachment permit. Greenville County has created a matrix to help guide designers on how to create Swamp Rabbit Trail road crossings. That matrix has been attached.

Duke Energy:

This project will likely interact with a Duke transmission line and associated easement. UGATA has introduced this plan to Duke employees and there is commitment to collaborate within the confines of Duke regulations. The selected firm will either need to work closely with Duke engineers to ensure the design meets their regulations for building within a transmission easement or design the project to avoid the Duke easement. Duke has provided their standard rules and regulations for multiuse trails in their easements which have been attached as exhibits.

Scope of Work:

- Develop a comprehensive, ADA approved, trail design that meets or exceeds AASHTO standards and incorporates industry best practices.
- Prepare detailed construction plans, specifications, and cost estimates.
- Address environmental considerations and ensure compliance with relevant regulations.
- Secure required permits for all portions of the projects.
 - Including Army Corps Map Revision if needed.
- Collaborate with UGATA, and relevant stakeholders (Duke Energy, City of Greenville, ReWa, Greenville County) throughout the project lifecycle to understand relevant limitations on trail design while maintaining a quality product.
- Provide professional services related to bidding of project

Deliverables:

- Three (3) total submittals: 30%, 90%, and Final (100%)
- Cost estimates at each submittal
- Each submittal in PDF format with 11x17 paper format as requested
- Copy of all permits submitted for application and copies of all permits received
- A No Rise Certification, LOMR, or equivalent
- Two (2) signed and sealed copies of final plans
- Digital Construction drawings to be used for bidding

Submission Instructions

Submission Deadline: All proposals must be received by October 23rd, 2026 4pm Eastern Time. Late submissions may not be considered.

Submission Method: Proposals must be submitted in PDF format electronically to sdavis@ugata.org or in hard copy to the following address. Electronic submissions are preferred.

701 Easley Bridge Rd
Ste 6070
Bldg 6000
Greenville SC
29611

Cover Page: Include a cover page with the following information:

- Project Name
- Company Name
- Contact Information (Name, Title, Phone Number, Email Address)
- Date of Submission

Table of Contents: Include a table of contents to help reviewers navigate through your proposal.

Executive Summary: Provide a one page summary of your proposal, highlighting key points and benefits.

Technical Proposal: Clearly outline your approach to the project, including:

- Understanding of the project requirements
- Project timeline and milestones
- Key personnel and their qualifications
- Subcontractors and their roles
- Any assumptions or constraints

Past Experience: Detail relevant projects your company has completed, showcasing your expertise and success in similar projects. Particular interest will be paid to previous experience that includes maintenance work inside the floodplain and floodway and experience obtaining a Letter of Map Revision from the Army Corps of Engineers.

Qualifications: Provide information about your company's technical qualifications, relevant certifications, and memberships in professional organizations.

References: Include two (2) references from previous clients who can speak to your company's performance and capabilities.

Cost Proposal: Fill out the attached table of high level total costs for the feasibility study and four potential add alternates.

Feasibility Study	\$
Add Alternate #1A (No rise or equivalent feasible)	\$
Add Alternate #1B (LOMR needed)	\$
Add Alternate #2A (No rise or equivalent feasible)	\$
Add Alternate #2B (LOMR needed)	\$

Additionally, provide a detailed breakdown of costs associated with the design engineering phase. This should include:

Design and Engineering Services: Provide a detailed breakdown of costs associated with the design and engineering phase. This should include:

- **Personnel Costs:** Specify the hourly rates for engineers, designers, and other relevant staff involved in the design process.
- **Subcontractor Fees:** If any specialized design tasks are subcontracted, detail the associated costs.

Permitting Services: Detail the costs related to obtaining the necessary permits for the project. This should include:

- **Permit Application Fees:** List the expected fees for each required permit.
- **Consultation Fees:** List any third-party consultations required for permit approvals, provide the associated costs.
- **Administrative Costs:** Include any administrative expenses associated with permit application and processing.

Bid Services: Detail the cost related to overseeing the bidding process with the relevant local government body. This should include:

- **Pre-Bid meeting:** List the hourly rate and expected number of hours to attend a pre-bid meeting
- **Responses to Contractor Inquiries:** List the hourly rate and expected number of hours to respond to contractor inquiries
- **Construction Bid Opening:** Include any expenses associated with reviewing bid responses.

Miscellaneous Costs: Account for any other costs that may arise during the design engineering and permitting phases. This may include but is not limited to printing, document delivery, and communication expenses.

Hourly Rate: For services outside of the scope of this project that may be necessary, please provide an hourly rate for labor.

Payment Schedule: Propose a payment schedule that corresponds to project milestones and deliverables.

Schedule: Provide a detailed project schedule with milestones and anticipated completion dates.

Questions and Clarifications: If you have any questions or need clarifications regarding the RFP, submit them via email to Sam Davis (sdavis@ugata.org) by TIME

Conflict of Interest: Declare any potential conflicts of interest that may arise during the project.

Important Dates

RFP Issue Date: DATE

Questions and Clarifications Deadline: DATE

Proposal Submission Deadline: DATE

Project Start Date: DATE

Project Completion Date: DATE

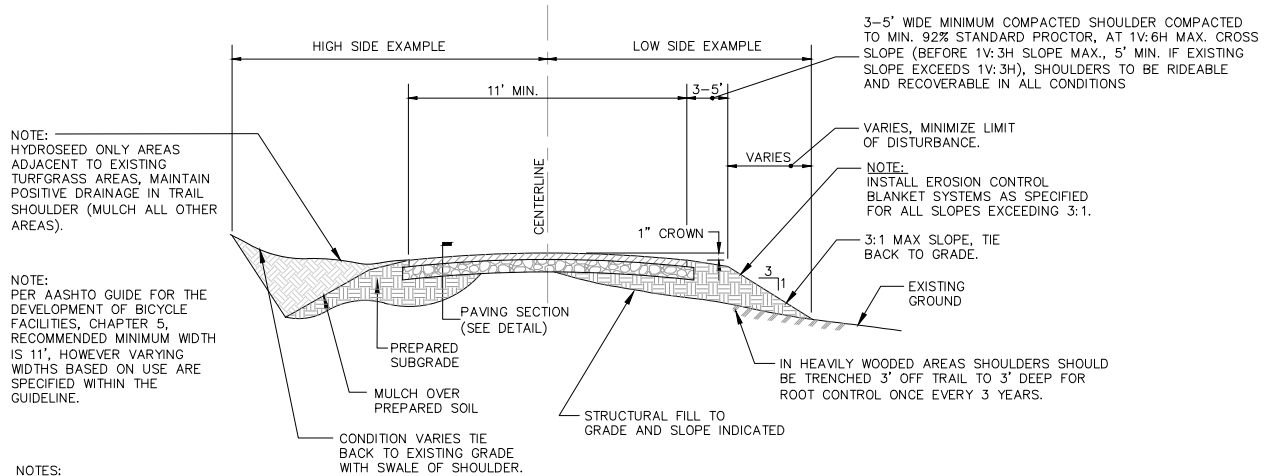
Evaluation Criteria

Proposals will be evaluated based on the following criteria:

1. 20% Experience and Qualifications of the Firm and Key Personnel.
2. 15% Understanding of the Project Goals and Community Needs.
3. 25% Technical Approach and Methodology.
4. 15% Quality and Completeness of the Proposal.
5. 25% Cost Effectiveness and Value for Money.

Feasibility Study	\$
Add Alternate #1A (No rise or equivalent feasible)	\$
Add Alternate #1B (LOMR needed)	\$
Add Alternate #2A (No rise or equivalent feasible)	\$
Add Alternate #2B (LOMR needed)	\$

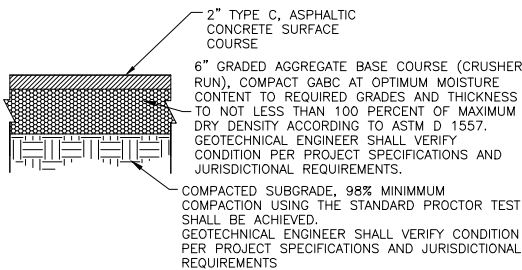
ASPHALT TRAIL SECTION



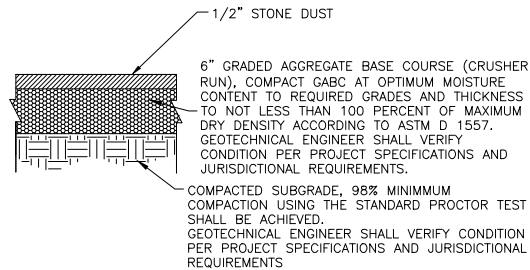
NOTES:

1. MINIMIZE TREE REMOVAL AND DISTURBANCE WHEN CLEARING FOR PATHWAYS.
2. PREPARE SOIL TO A DEPTH OF 3", CLEAN AND FREE OF ALL ORGANIC LAYER (LEAVES/DEBRIS REMOVED)
3. CROSS SLOPE OF TRAIL NOT TO EXCEED 2%.
4. CONTRACTOR TO CONTACT GEOTECHNICAL ENGINEER IF ANY UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED, WHICH MAY COMPROMISE STRUCTURAL INTEGRITY OF PATH.
5. ENSURE TRAIL AND SHOULDERS ARE CLEARED OF ALL TREES AND VEGETATION THAT COULD CAUSE ROOT GROWTH BELOW TRAIL BED.
6. 4" DASHED OR SOLID CENTERLINE (THERMOPLASTIC OR RETRO REFLECTIVE PAINT DEPENDING ON TRAIL CONDITIONS.
7. EVERY 1/10 OF A MILE PROVIDE ALPHA NUMERIC MILEAGE SYSTEM W/ 4" NUMBERING (THERMOPLASTIC OR RETRO REFLECTIVE PAINT) AND POSTS EVERY 1/2 MILE THAT ARE 2' MIN. FROM EDGE OF TRAIL.

PAVING SECTION



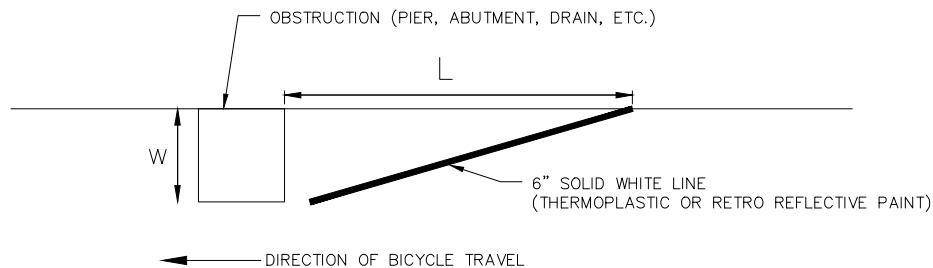
STONE DUST SECTION



PAVING NOTES

SUBGRADE, BASE COURSE AND PAVEMENT CONSTRUCTION METHODS SHALL MEET THE MINIMUM REQUIREMENTS OF THE SCDOT "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", LATEST EDITION.

OBSTRUCTION MARKINGS



$$L=WS$$

L=TAPER LENGTH (FT)

W=OBSTRUCTION WIDTH

S= BICYCLE APPROACH SPEED (MPH)

(20 MPH FOR GHS SWAMP RABBIT TRAIL)

NOTE: ALL EFFORTS SHOULD BE TAKEN TO ROUTE TRAIL TO AVOID VERTICAL OBSTRUCTIONS

FIGURE 4-30

(SOURCE: GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES 2012-FOURTH EDITION-AASHTO)



TYPICAL BIKE TRAIL CROSS SECTION (1 of 2)
GREENVILLE COUNTY PARKS & RECREATION DEPT. &
SEAMON WHITESIDE & ASSOC., INC.

CONTACT: Ty Houck, (864)676-2180 ext. 141, thouck@greenvillecounty.org
CONTACT: Joe Bryant, (864)298-0534, jbryant@seamonwhiteside.com

SCALE: NTS

Federal Emergency Management Agency

Region IV
3003 Chamblee-Tucker Road
Atlanta, GA 30341

GUIDANCE FOR "NO-RISE / NO-IMPACT" CERTIFICATION FOR PROPOSED DEVELOPMENTS IN REGULATORY FLOODWAYS

The National Flood Insurance Program (NFIP) floodplain management criterion that is adopted by all participating communities in their local ordinances, as described in Title 44 of the Code of Federal Regulations, Section 60.3(d)(3), states:

"A community shall prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge."

Prior to issuing any development permits involving activities in a regulatory floodway, the community must obtain a certification stating the proposed development will not impact the pre-project base flood elevations, regulatory floodway elevations, or regulatory floodway widths. The certification should be obtained from the permittee and be signed and sealed by a professional engineer in accordance with State Licensing Board specifications.

The engineering or "No-Rise / No-Impact" certification must be supported by technical data. The supporting technical data should be based upon the standard step-backwater hydraulic model utilized to develop the regulatory floodway shown on the community's effective Flood Insurance Rate Map (FIRM) or Flood Boundary and Floodway Map (FBFM) and the results tabulated in the community's Flood Insurance Study (FIS).

Communities are required to review and approve or disapprove the "No-Rise/No-Impact" submittals; however, they may request technical assistance and review from the FEMA regional office. If this alternative is chosen, the submittal will be treated as a Conditional Letter of Map Revision by the National Service Provider, and will be subject to the same fees as such.

To support a "No-Rise / No-Impact" certification for proposed developments encroaching onto the regulatory floodway, a community will require that the following procedures be followed:

1. Currently Effective Model

Furnish a written request for the step-backwater hydraulic model for the specified stream and community, identifying the limits of the requested data. A fee will be assessed for providing the data. Send data requests to:

Federal Emergency Management Agency
http://www.fema.gov.fhm/st_order.shtm

or to:

MOD RMC Region 4
Faxed to (678) 459-1030 to the attention of:
“Back-up Technical Data Request”

2. Duplicate Effective Model

Upon receipt of the step-backwater hydraulic model, the engineer should run the effective hydraulic model to duplicate the data in the effective FIS.

3. Existing Conditions Model

Revise the duplicate effective model to reflect site-specific existing conditions by adding new cross-sections (two or more) in the area of the proposed development, without the proposed development in place. Regulatory floodway limits should be manually set at the new cross-section locations by measuring from the effective FIRM or FBFM. The cumulative reach lengths of the waterway should remain unchanged. The results of these analyses will indicate the base flood elevations and the regulatory floodway elevations for the effective hydraulic model revised to incorporate existing conditions at the proposed project site.

4. Proposed Conditions Model

Modify the existing conditions models to reflect the proposed development using the new cross-sections, while retaining the currently adopted regulatory floodway widths. The overbank roughness parameters should remain the same unless a valid explanation of how the proposed development will impact the roughness parameters is included with the supporting data. The results of this floodway hydraulic model will indicate the regulatory floodway elevations for proposed conditions at the project site. These results must indicate NO impact on the base flood elevations, regulatory floodway elevations, or regulatory floodway widths shown in the duplicate Effective Model or in the Existing Conditions Model (items 2 and 3 above, respectively).

The "no-impact" analysis along with supporting data and the original engineering certification must be reviewed by the appropriate community official prior to issuing a development permit. The original effective FIS model, the duplicate effective FIS model, the Existing Conditions Model, and the Proposed Conditions Model should be reviewed for any changes in the base flood elevations, regulatory floodway elevations and floodway widths.

The "No-Rise / No-Impact" supporting data should include, but may not be limited to:

- (1) Copy of the currently effective FIS hydraulic models (legible hard copy and a disc (if available))
- (2) Duplicate effective FIS hydraulic models (hard copy and a disc).
- (3) Existing conditions hydraulic models (hard copy and a disc).
- (4) Proposed conditions hydraulics models (hard copy and a disc)
- (5) Annotated effective FIRM or FBFM and topographic map, showing regulatory floodplain and floodway boundaries, the additional cross-sections, and the site location along with the proposed topographic modifications.
- (6) Documentation clearly stating analysis procedures. All modifications made to the duplicate effective hydraulic models to correctly represent existing conditions, as well as those made to the existing conditions models to represent proposed conditions should be well documented and submitted with all supporting data.
- (7) Annotated effective Floodway Data Table (from the FIS report).
- (8) Statement defining source of additional cross-sections, topographic data, and other supporting information.
- (9) Cross-section plots of the additional cross sections for existing and proposed conditions hydraulic models.
- (10) Certified planimetric (boundary survey) information indicating the location of structures on the property.
- (11) Hard copy of all output files.
- (12) Clear explanation of how roughness parameters were obtained (if different from those used in the effective hydraulic models).
- (13) Engineering certification (sample attached).

The engineering “No-Rise / No-Impact” certification and supporting technical data must stipulate NO impact or NO changes to the base flood elevations, regulatory floodway elevations, or regulatory floodway widths at the new cross-sections and at all existing cross-sections anywhere in the model. Therefore, the revised computer model should be run for a sufficient distance upstream and downstream of the development site to insure proper “No-Rise / No-Impact” certifications.

Attached is a SAMPLE “No-Rise / No-Impact” certification form that can be completed by a registered professional engineer and supplied to the community along with the supporting technical data when applying for a development permit. This form does not have to be utilized to submit for a “No-Rise / No-Impact” certification. It is provided as a guide, if needed.

Note: Definitions of terms base flood, development, and regulatory floodway are same as those included in Title 44 of the Code of Federal Regulations, Section 59.1. Additional regulations pertaining to this certification are described in Title 44 of the Code of Federal Regulations, Section 65.3.

SAMPLE FORM

FLOODWAY "NO-RISE / NO-IMPACT" CERTIFICATION

This document is to certify that I am duly qualified engineer licensed to practice in the State of

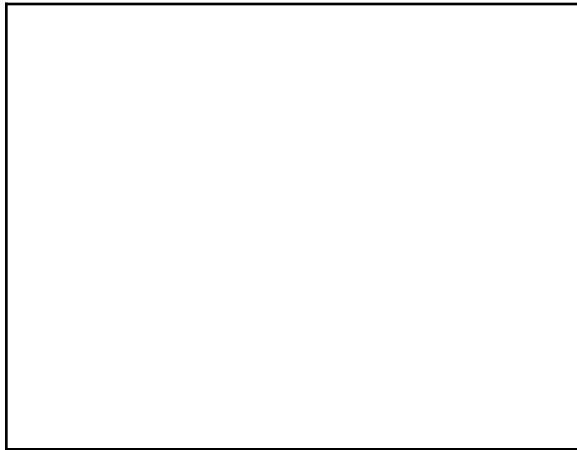
_____ It is to further certify that the attached technical data supports
(State)

the fact that proposed _____ will not impact the base flood

(Name of Development)
elevations, floodway elevations, and floodway widths on _____ at published

(Name of Stream)
cross sections in the Flood Insurance Study for, _____, dated _____
(Name of community) (Date)

and will not impact the base flood elevations, floodway elevations, and floodway widths at the unpublished cross-sections in the area of the proposed development.



SEAL, SIGNATURE AND DATE

Name

Title

Address

FOR COMMUNITY USE ONLY:		
Community Approval ☐ Approved ☐ Disapproved		
Community Official's Name	Community Official's Signature	Title



Crossing Treatments for the Upstate

Case Study: Prisma Health - Swamp Rabbit Trail

Segments North of Greenville, SC

8/17/2022 Version



Prepared by: Christy Staudt, PE

Est. 1989 **TPD** TRAFFIC PLANNING
AND DESIGN, INC.

Review of FHWA Guide

FHWA Tables

Countermeasure Factors

- Traffic Volume Per Day
- Speed Limit
- Number of Travel Lanes / Crossing Distance

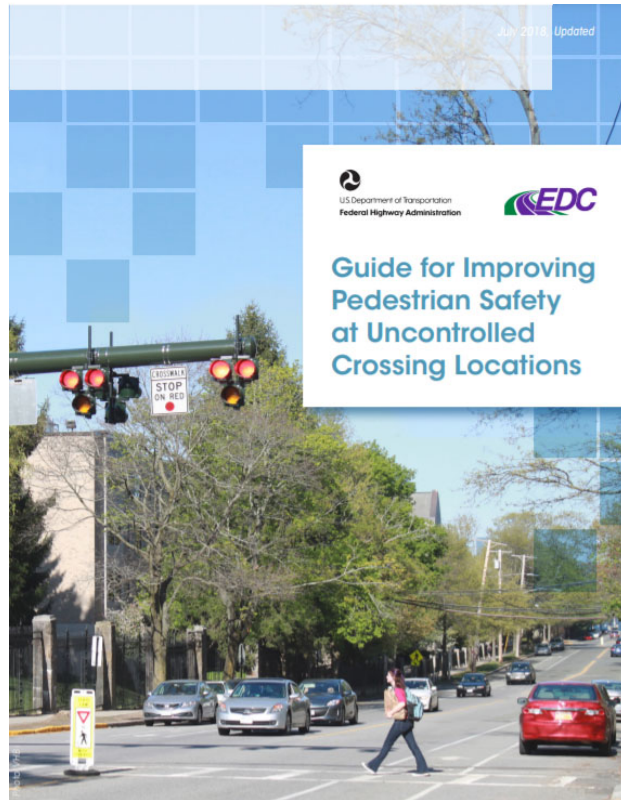


Table 1. Application of pedestrian crash countermeasures by roadway feature.

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	① 2 4 5 6 7 9	① 5 6 7 9	① 5 6 7 9	① 4 5 6 7 9	① 5 6 7 9	① 5 6 7 9	① 4 5 6 7 9	① 5 6 7 9	① 5 6 9
3 lanes with raised median (1 lane in each direction)	① 2 3 4 5 7 9	① 3 5 6 7 9	① 3 5 6 7 9	① 3 4 5 7 9	① 3 5 6 7 9	① 3 5 6 7 9	① 3 4 5 7 9	① 3 5 6 7 9	① 3 5 6 9
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	① 2 3 4 5 6 7 9	① 3 5 6 7 9	① 3 5 6 7 9	① 3 4 5 6 7 9	① 3 5 6 7 9	① 3 5 6 7 9	① 3 4 5 6 7 9	① 3 5 6 7 9	① 3 5 6 9
4+ lanes with raised median (2 or more lanes in each direction)	① 3 5 7 8 9	① 3 5 7 8 9	① 3 5 8 9	① 3 5 7 8 9	① 3 5 7 8 9	① 3 5 8 9	① 3 5 7 8 9	① 3 5 8 9	① 3 5 8 9
4+ lanes w/o raised median (2 or more lanes in each direction)	① 3 5 6 7 8 9	① 3 5 6 7 8 9	① 3 5 6 8 9	① 3 5 6 7 8 9	① 3 5 6 7 8 9	① 3 5 6 8 9	① 3 5 6 7 8 9	① 3 5 6 8 9	① 3 5 6 8 9
Given the set of conditions in a cell, # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location. ● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location. ○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.* The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.									
1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs 2 Raised crosswalk 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line 4 In-Street Pedestrian Crossing sign 5 Curb extension 6 Pedestrian refuge island 7 Rectangular Rapid-Flashing Beacon (RRFB)** 8 Road Diet 9 Pedestrian Hybrid Beacon (PHB)**									

*Refer to Chapter 4, 'Using Table 1 and Table 2 to Select Countermeasures,' for more information about using multiple countermeasures.

**It should be noted that the PHB and RRFB are not both installed at the same crossing location.

This table was developed using information from: Zegeer, C.V., J.R. Stewart, H.H. Huang, P.A. Lagerway, J. Feaganes, and B.J. Campbell. (2005). Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines. FHWA, No. FHWA-HRT-04-100, Washington, D.C.; FHWA, Manual on Uniform Traffic Control Devices, 2009 Edition, (revised 2012), Chapter 4F, Pedestrian Hybrid Beacons. FHWA, Washington, D.C.; FHWA, Crash Modification Factors (CMF) Clearinghouse, <http://www.cmfclearinghouse.org/>; FHWA, Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE), <http://www.pedbikeinfo.org/PEDSAFE/>; Zegeer, C., R. Srinivasan, B. Lan, D. Carter, S. Smith, C. Sundstrom, N.J. Thirk, J. Zegeer, C. Lyon, E. Ferguson, and R. Van Houten. (2017). NCHRP Report 841: Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. Transportation Research Board, Washington, D.C.; Thomas, Thirk, and Zegeer. (2016). NCHRP Synthesis 498: Application of Pedestrian Crossing Treatments for Streets and Highways. Transportation Research Board, Washington, D.C.; and personal interviews with selected pedestrian safety practitioners.

SCDOT District 3 Standard Trail Crossing Categories	<1,000 AADT				1,000 - 9,000 AADT				9,000-15,000 AADT				>15,000 AADT			
	1-2 Lane Route		>2 Lane Route		1-2 Lane Route		>2 Lane Route		1-2 Lane Route		>2 Lane Route		1-2 Lane Route		>2 Lane Route	
	<=35mph	>35mph	<=35mph	>35mph	<=35mph	>35mph	<=35mph	>35mph	<=35mph	>35mph	<=35mph	>35mph	<=35mph	>35mph	<=35mph	>35mph
1 - High Visibility Crossing (i.e. Old Buncombe in TR)	X															
2 - High Visibility Crossing + (i.e. Old Buncombe - Furman)		X	X	X	X				X							
3 - RRFB, or Similar (i.e. Roe Ford near Furman)						X	X			X	X		X			
4 - Signal, PHB, etc. (i.e. Sulphur Spings)								X				X		X	X	
5- Grade Separated (Interstates, and other High Volume/Speed Primary Routes)																X

CATEGORY 1: High Visibility Crossing

Roadway: Set of X-Walk Signs, and Ladder Crosswalk / **Trail:** Yield Signs, and Yield Tracks

CATEGORY 2: High Visibility Crossing +

Roadway: High Visibility with Advanced Signage / **Trail:** Stop Signs and Stop Bar

CATEGORY 3: RRFB, or Similar

Roadway: High Visibility Plus+ with RRFB, Yield Tracks, and Yield Here to Ped Sign / **Trail:** High Visibility Plus+ with Push Button and Signage

CATEGORY 4: Signal, PHB, etc.

Roadway: High Visibility Plus+ with Signal, Stop Bar, and Signal Ahead Signs / **Trail:** High Visibility Plus+ with Push Button and Ped Heads, or RYG Signal

CATEGORY 5: Grade Separated

Roadway: Site Specific Bridge, Culvert, etc. design will be required/ **Trail:** Typically free flow, no stop condition

Examples

CATEGORY 1

1 High Visibility Crossing

Volume: < 1000 vehicles per day

Speed: $\leq$ 35 mph

Width: 1-2 lanes

Example:

Old Buncombe Road

Other Category 1

-Church Street

-Hampton Avenue



CATEGORY 1

1 High Visibility Crossing



CATEGORY 2

① High Visibility Crossing w/ Advanced Signage/Markings (+ Supplemental Left Side Signs)

Volume: 1000 - 9000 vehicles per day

Speed: ≤ 35 mph

Width: 1-2 lanes

Example:

Old Buncombe Road (2500 vpd, Posted 35 mph)

Note: Treatments for this location should be verified by collecting traffic data and sight lines.



CATEGORY 2

- 1 High Visibility Crossing w/ Advanced Signage/Markings
(+ Supplemental Left Side Signs)



Example:

Old Buncombe Road
(S. of Travelers Rest)

CATEGORY 3

⑦ RRFB

① High Visibility Crossing Including Advanced Signage/Markings (+ Supplemental Left Side Signs)

Volume: 1000 - 9000 vehicles per day

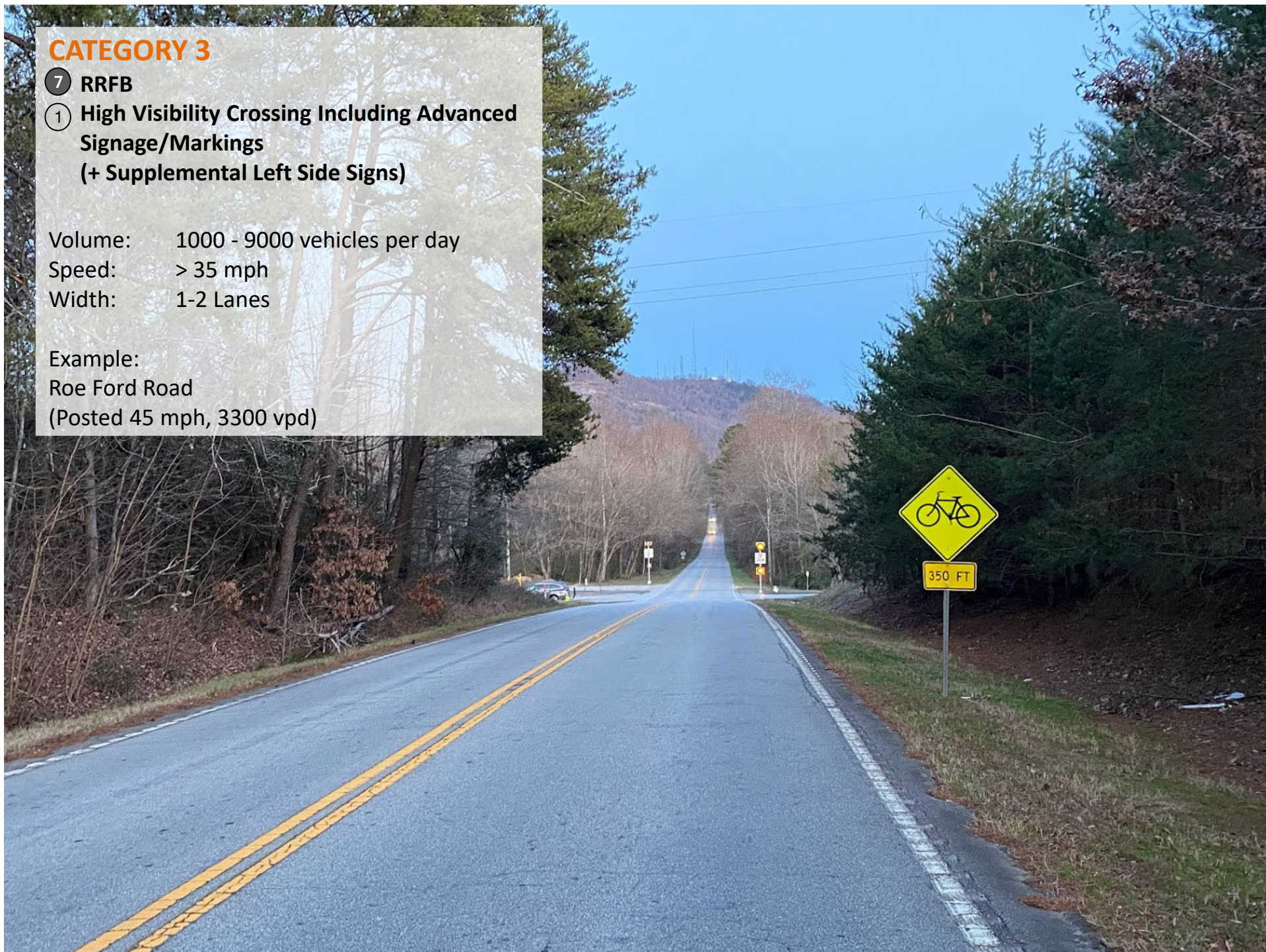
Speed: > 35 mph

Width: 1-2 Lanes

Example:

Roe Ford Road

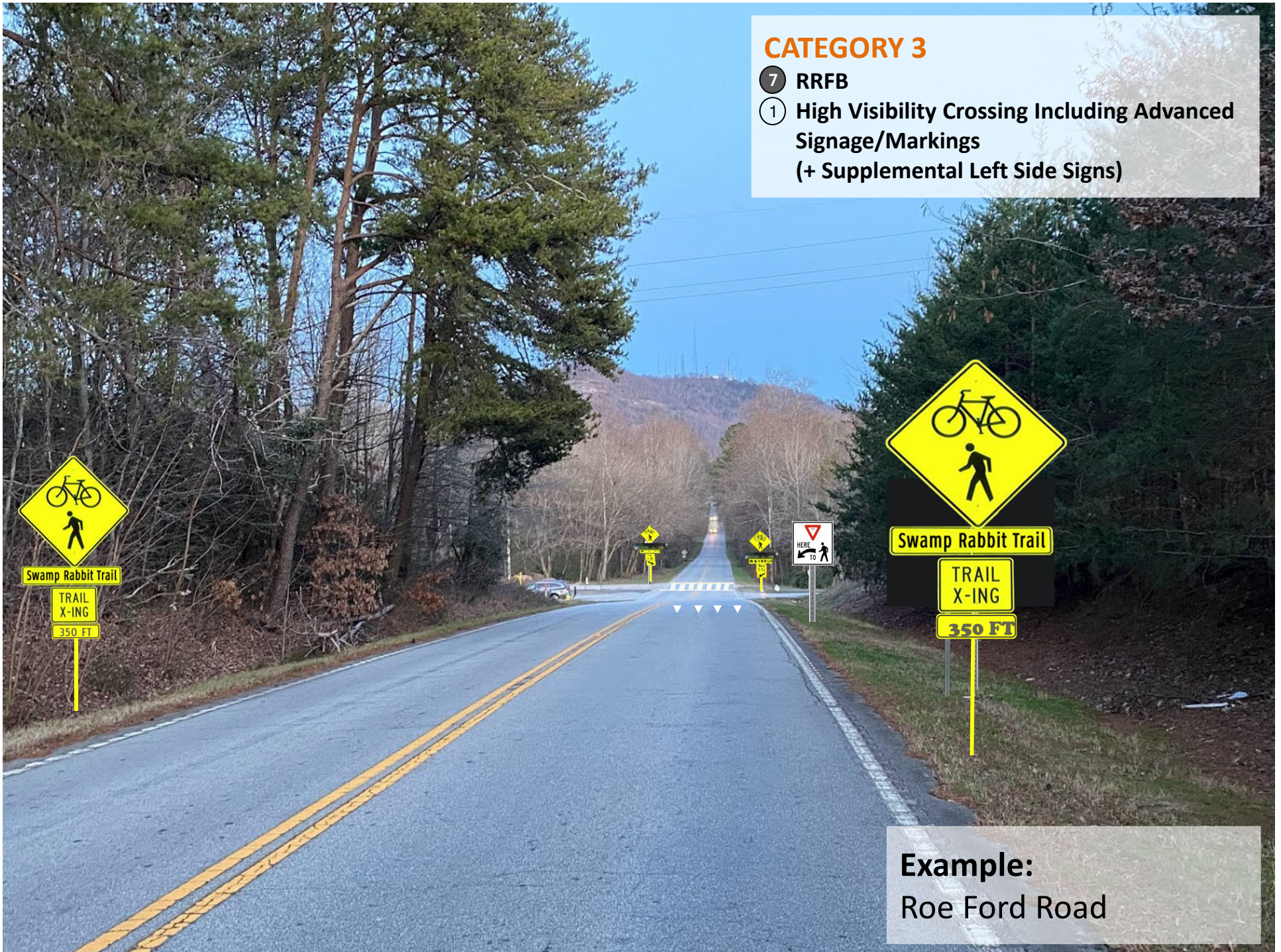
(Posted 45 mph, 3300 vpd)



CATEGORY 3

7 RRFB

① High Visibility Crossing Including Advanced Signage/Markings
(+ Supplemental Left Side Signs)



Example:
Roe Ford Road

CATEGORY 4:

Full Signal (or Pedestrian Hybrid Beacon)

⑨ Signal (Installed)

① High Visibility Crossing Including Advanced Signage/Markings (+ Supplemental Left Side Signs)

Volume: 9000 – 15,000 vehicles per day

Speed: > 35 mph

Width: > 2 Lanes

Example:

Sulphur Springs Road

(Posted 40 mph, 10,600 vpd, 4 lanes)



CATEGORY 4:

Full Signal (or PHB)

- ⑨ Signal (Installed)
- ① High Visibility Crossing Including Advanced Signage/Markings
(+ Supplemental Left Side Signs)



Example:

Sulphur Springs Road

CATEGORY 4:

Standard Signal Ahead Signage

Advanced Flashing Warning Device
(Activated by Signal Detection)





CATEGORY 5:
Grade Separated

Volume: > 15,000 vehicles per day
Speed: > 40 mph
Lanes: > 4 Lanes

Example: US 25 - W. Duncan Road
(Travelers Rest)
(45/50 mph, 17,400 vpd, 7 lanes)

US 25 - W. Duncan Road
(Travelers Rest)



CATEGORY 5:
Grade Separated

Volume: > 15,000 vehicles per day

Speed: > 40 mph

Lanes: > 4 Lanes

Examples: US 25, S. Main Street and River Street

S. Main Street
(Greenville)



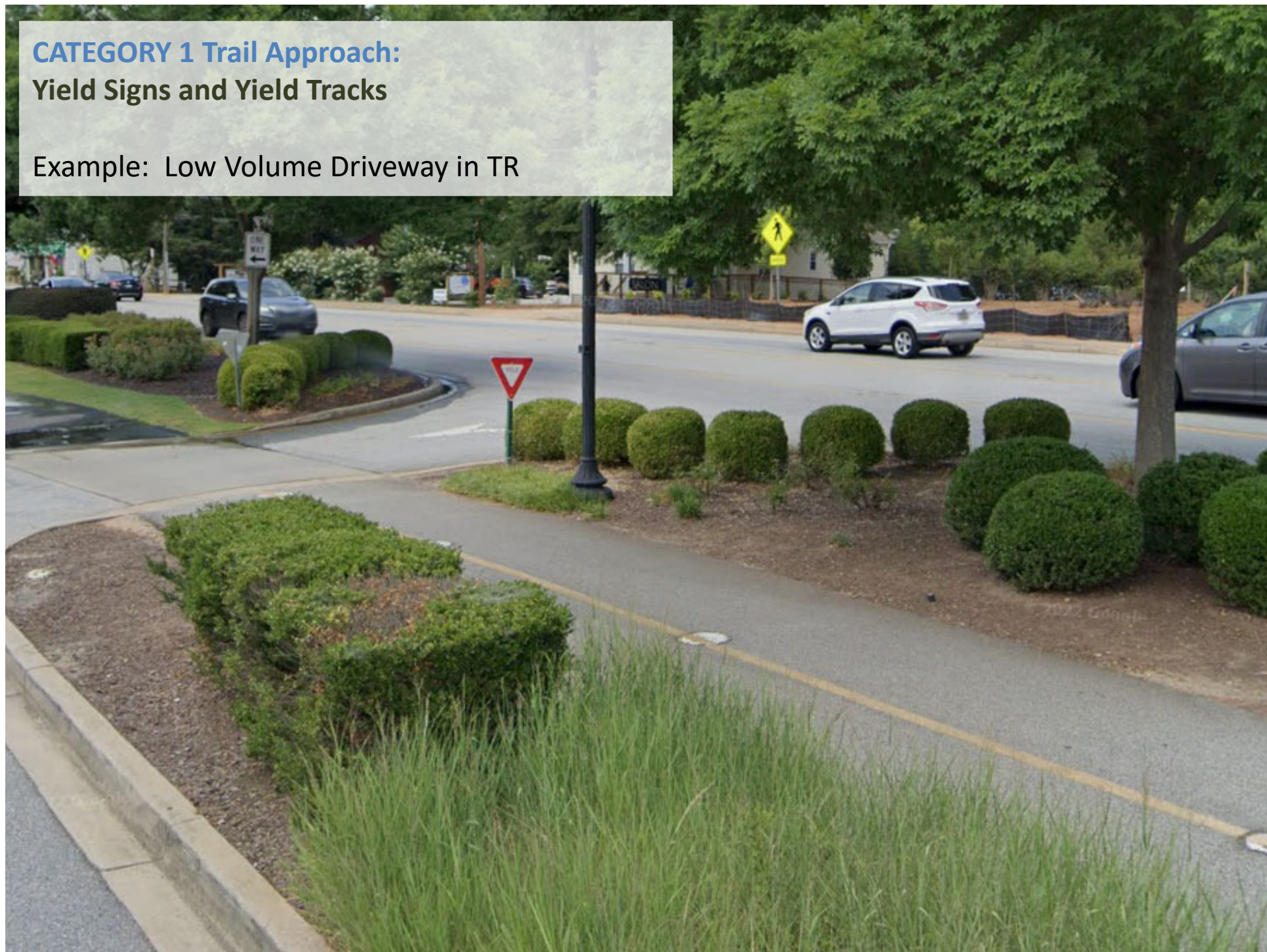
River Street
(Greenville)



Trail Approach Treatments

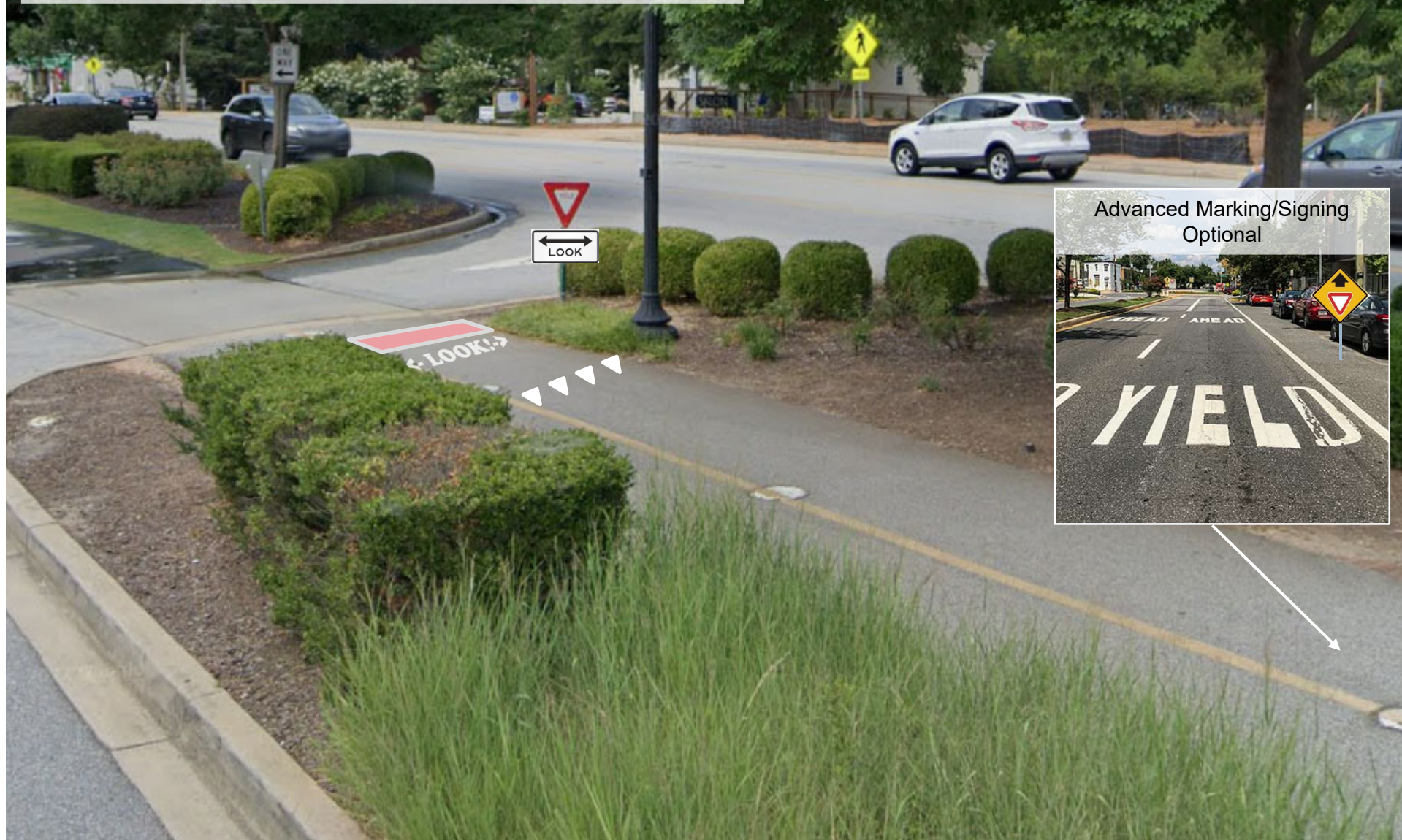
CATEGORY 1 Trail Approach:
Yield Signs and Yield Tracks

Example: Low Volume Driveway in TR



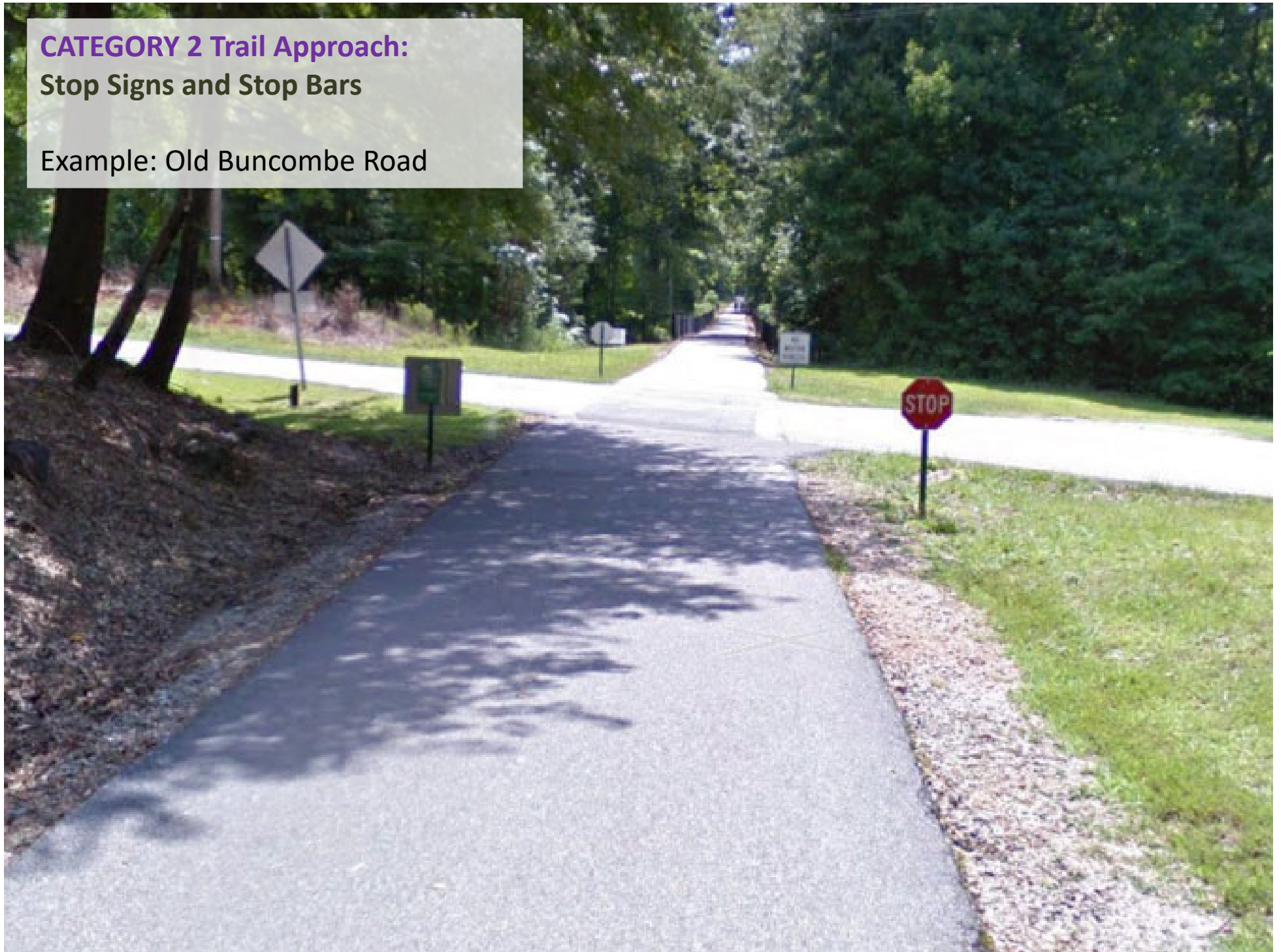
CATEGORY 1 Trail Approach: Yield Signs and Yield Tracks

Example: Low Volume Driveway in TR



CATEGORY 2 Trail Approach:
Stop Signs and Stop Bars

Example: Old Buncombe Road



CATEGORY 2 Trail Approach:
Stop Signs and Stop Bars

Example: Old Buncombe Road



CATEGORY 3 Trail Approach:
Stop Signs and Stop Bar

Example: Roe Ford Road (with RRFB)



CATEGORY 3 Trail Approach: Stop Signs and Stop Bars

Example: Roe Ford Road (w RRFB)



CATEGORY 4 Trail Approach:
Signal, PHB, etc.



CATEGORY 4 Trail Approach:
Signal, PHB, etc.

***Add Audible Pedestrian
Signal**

Messages to Include:

“Wait”

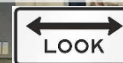
&

“Walk Sign is on to cross
Sulphur Springs”

Pedestrian and Bicycle Signals
and Detection



<-LOOK!->



“SIGNAL HEAD”
Advanced Marking/Signing Option



References & Contact

Manual on Uniform Traffic Control Devices (MUTCD) 2009 Guidance and Supplemental Information

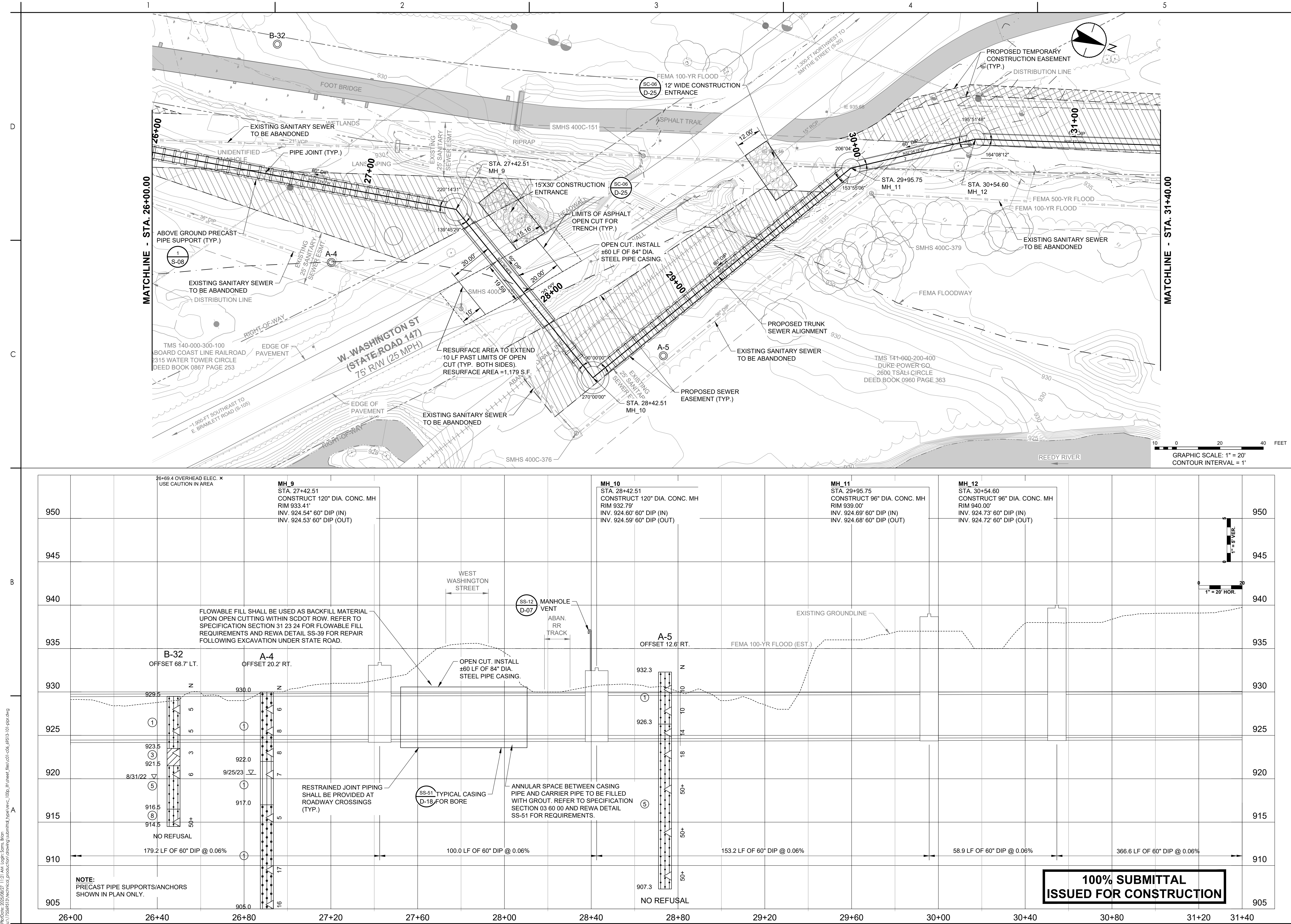
FHWA Guide for Improving Pedestrian Safety at Uncontrolled intersections (2018)

Christy Staudt, PE
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828-575-0133



Project: 175569513-101-PLPR.dwg
User: JTS69513-101-PLPR.dwg
Path: \\JTS69513-101-PLPR.dwg
Date: 05/13/2025
Time: 11:07 AM
Author: JTS69513-101-PLPR.dwg
Title: 100% SUBMITTAL
Issued for Construction

ORIGINAL SHEET - ANSI D



Stantec
101 N. Main Street, Suite 810
Greenville, SC 29601
Tel: (864) 315-3440
www.stantec.com

Consultant

STANTEC CONSULTING SERVICES INC. No. 2310 CERTIFICATE OF AUTHORITY

Rev	By	Date	Description
1	JTS	05/13/2025	ISSUED FOR CONSTRUCTION

Permit/Seal

Client/Project
Renewable Water Resources (ReWa)
SWAMP RABBIT TRUNK GRAVITY UPGRADES
Greenville, South Carolina

Project No.: 175569513
File Name: C01-C06_69513-101-PLPR
Scale: AS NOTED
BFS CM JCM 2025.05.16
Dwn. Dsgn. Chkd. YYYY.MM.DD

Title
PROPOSED SEWER PLAN AND PROFILE
STA. 26+00 TO STA. 31+40
Revision: C Sheet: 8 of 69
Drawing No.

C-04



Duke Energy reviews Site Plans for proposed improvements within its transmission power line easements for your benefit.

To help avoid creating encroachments or interferences, please provide engineering plans to obtain **prior written approval** from Duke Energy "Transmission Asset Protection" before commencing any construction in the transmission easements. Approvals from Duke Energy Distribution and/or other Duke Energy organizations shall not be accepted for transmission easements. This will help to avoid the subsequent need to have obstructions removed by the landowner.

Note 1: Duke Energy will review conceptual drawings and preliminary site plans and provide feedback, however, to receive a formal, written Letter of No Objection from Duke Energy, your drawings must be stamped and signed by a Licensed Professional Engineer, Landscape Architect or Surveyor:

Note 2: Initial Plan Reviews typically take 6 weeks, and any subsequent iteration of revisions also typically takes 6 weeks. The entire plan review process timeline is dependent on the requestor making the required revisions based upon Asset Protection feedback since each plan review iteration typically takes 6 weeks.

Note 3: All underground facilities, such as, but not limited to, utility pipes or cables, and ground facilities such as, but not limited to, streets, parking lots and sidewalks, must be capable of a heavy equipment load bearing weight of 80,000 lbs. Duke Energy will not be responsible for damages to these approved installed facilities.

Note 4: It is important to specifically note underground metallic crossings or parallel sections of facilities, as there could be associated AC Mitigation study requirements associated with these types of encroachment proposals.

We review the following applicable PLAN SHEETS insofar as our easement rights are concerned:

OVERALL SITE PLAN (including street / road crossings) [\[PDF FORMAT\]](#)

GRADING PLAN (3D, Geo-referenced DWG File with existing & proposed grading as polylines with elevations (not TIN) [\[CAD FORMAT\]](#)

GRADING PLAN (proposed grade elevations and existing elevations) [\[PDF FORMAT\]](#)

UTILITY PLAN [\[PDF FORMAT\]](#)

STORM WATER DRAINAGE PLAN [\[PDF FORMAT\]](#)

LANDSCAPE PLAN [\[PDF FORMAT\]](#)

LIGHTING PLAN [\[PDF FORMAT\]](#)

IRRIGATION PLAN [\[PDF FORMAT\]](#)

Plans should include the following:

- Locations of all Duke Energy structures (poles, towers, guy wires, guy anchors, etc.)
- Borders of Duke Energy easement area
- Outermost conductors (wires) of the transmission power line
- Crossing angles of encroachments (i.e., streets, water lines, sewer lines, natural gas lines, storm water pipes, etc.)
- Illustrated 25' radial buffers around each transmission structure.
- Clearly dimensioned distances from all proposed encroachments to the DE transmission structures.

Additional Requirements:

- Grading Plan – label proposed and existing elevations clearly.
- Irrigation Plan – clearly label and illustrate location of low-pressure drip systems.
- Lighting Plan – clearly label proposed light height and perpendicular distance to outermost conductor (wire)

Proposed Vegetation Plantings:

Any vegetation within or outside of the transmission easement that will pose a grow-in, fall-in, or blowing together threat (typical maximum mature height greater than 15' within the transmission easement depending up voltage), limit or block access, limit the safe and reliable operation, emergency restoration, or maintenance of the transmission facilities, or limit the full use of the easement for its intended purposes, is incompatible with the high voltage transmission power lines and therefore could be subject to removal by Duke Energy.

Electric Transmission Right of Way Requirements for Shared-Use Paths/Trails

This list of Duke Energy's transmission right of way requirements for the co-location of shared-use paths/trails has been developed as a guideline to answer the most frequently asked questions. This should not be considered a comprehensive list of all requirements or factors that may need to be addressed. You should contact the Asset Protection Right of Way Specialist if you have additional questions or concerns. This list of requirements and guidelines is subject to change at any time and without notice. Duke Energy reserves all rights conveyed to it by the right of way agreement applicable to the subject property. An engineering drawing, including topographic grade changes, location of Duke Energy structures and paths/trails must be approved by an Asset Protection Specialist.

Compliance with these Duke Energy Shared-Use Path/Trails requirements, or approval of any such plans by Duke Energy, does not guarantee that other applicable requirements imposed by any local, county, state, federal or other applicable regulatory agency have been satisfied.

Definition: For purposes of this document the term "trail(s)" shall be used to refer to Multi-Use Paths or Shared-Use Paths as defined by the American Association of State Highway and Transportation Officials (AASHTO).

1. The trails must not exceed a total of 12 feet in width, regardless of the surface construction material.
2. A minimum separation of 25 feet is required between the trail and its associated easement, to any Duke Energy electrical facility. This includes, but is not limited to, poles, towers, guy anchor(s), equipment, etc. If the owner of the trail is not the current owner of the fee simple title to the lands underlying Duke Energy's easement, the trail owner shall obtain a legally sufficient easement from the current fee simple title owner and produce said easement to Duke Energy prior to commencing activities within the Duke Energy easement. In the event a private easement is not required, no portion of the trail or shoulder, or associated grading, shall be located within 25 feet of any electrical facility.
3. The owner of the trail shall be responsible for safety and liability associated with its construction or use thereof.
4. Bollards shall be installed per Duke Energy specifications, with Duke Energy locks, where the trailheads connect with roads/streets as to prevent vehicular traffic. Duke Energy may require reinforcement of the trail at specified access points along the corridor for Duke Energy heavy equipment crossings. These trail reinforcement areas shall consist of a 20-foot-long, 12-foot-wide paved area capable of supporting 80,000 pounds with pavement markings indicating "heavy equipment crossing."
5. Culverts shall be installed where the trails cross creeks, ditches, etc. These culverts shall be capable of supporting 80,000 pounds, and shall be a minimum of 20 feet wide. Signage must indicate the maximum load of the crossing at culvert approach.
6. No structures including, but not limited to, lights, signs, benches, exercise equipment, and irrigation systems shall be located within the Duke Energy easement.
7. Planting of vegetation shall adhere to the Right of Way (RW) Restrictions Guidelines for the specific Duke Energy territory. A copy of the RW Restrictions/Guidelines can be obtained from your Asset Protection Specialist.
8. Duke Energy reserves the right to close, without notice, all or a portion of the trail located within the transmission line easement, for any length of time, for construction, maintenance or emergency line operations.
9. Duke Energy will not be held responsible for any damages to the trails due to its operations or any liability based on the use of the trail. Prior to the installation of a shared-use trail, a "Trail Encroachment Agreement", which includes "hold harmless" language, shall be executed with Duke Energy. In addition, deed information of all property owners that the trail affects must be supplied to Duke Energy. Proof that the property owners have signed an easement agreement with the owner of the trail will be required, as applicable.
10. All other Duke Energy electric transmission right of way restrictions/guidelines shall apply to the installation of trails.

We hope this is useful information. If you have additional questions or plan any activity not mentioned above, please contact:

Matthew Odom

864-624-6153

Duke Energy Representative

Phone Number

USE GUIDELINES FOR ENCROACHMENTS INVOLVING TRANSMISSION EASEMENTS

Duke Energy has a property interest called an easement (or sometimes a right-of-way) in land that you own or are considering purchasing. This easement grants Duke Energy the right to use the easement area for purposes described in the easement document that is filed and recorded in the county's recorder office. This property interest stays with the land when it is bought and sold and generally is perpetual in duration. A series of easements often form a corridor in which the transmission facilities are located and access up and down the corridor is part of the reason Duke Energy obtains these rights.

Broadly stated, easements allow Duke Energy to use another person's property to construct, operate, maintain, repair, and replace electrical facilities for the transmission of high voltage power. The landowner may continue to use the easement area so long as the use is not inconsistent with the easement document or Duke Energy's use of the easement. Any incompatible use by the landowner is called an encroachment. Where an encroachment is under construction, Duke Energy will request that it be stopped and removed; where an encroachment is already installed, Duke Energy will request that it be removed. Where a landowner fails to cooperate, Duke Energy will seek legal recourse to remove the encroachment.

Electricity is a public service and subject to state and federal regulations with which Duke Energy must comply. Any use by the landowner that does or could create regulatory issues is an encroachment. Power lines in the transmission easement are uninsulated and electricity is a dangerous instrumentality. Any landowner use that increases the danger to the landowner, the public or Duke Energy in its use of the easement is also an encroachment.

Over years of designing, constructing, operating, repairing, upgrading and maintaining electric facilities in transmission easements, Duke Energy has developed an understanding of the types of uses by landowners that do, or potentially can, interfere with the easement's purposes and Duke Energy's ability to provide safe and reliable service. This guidance, which supersedes all prior versions, provides a brief overview of types of things that do, or can, interfere with Duke Energy's easement rights and thereby create encroachments.

This overview cannot address all possible situations and is intended to provide general guidance. Please contact the Asset Protection Specialist if you have additional questions or concerns about the use of the easements. Please discuss any proposed activity in the transmission easements with Duke Energy to avoid creating an encroachment or interference. The Asset Protection Specialist can assist and help avoid a subsequent need by the landowner to revise plans or remove obstructions from the easements. Engineering plans may be required by Duke Energy to fully understand any proposed use by the landowner.

By providing these guidelines, Duke Energy does not waive any rights it has in its easements or under the law. Duke Energy's concurrence that a proposed use does not constitute an interference with its easement rights does not mean that requirements of local, county, state or federal governments or other agencies with governing authority have been met.

The following are not permitted in Duke Energy's transmission easements as they interfere with Duke Energy's use of the easements for transmission of electricity by, among other things, interfering with full use the easement, interfering with existing facilities, interfering with access to the facilities, interfering with future expansion in the easement, increasing the danger to the public or those who may be required to work in the easement, creating regulatory violations and generally, making the transmission of electricity more dangerous, costly and/or unreliable: Examples include but are not limited to:

- Permanent or temporary structures and buildings, including for example, permanent or manufactured/mobile homes (and home additions and extensions), garages, sheds, satellite systems, intersections, cul-de-sacs, entrances, streets, swimming pools (any associated equipment and decking), playground equipment, graves, billboards, dumpsters, signs, wells, deer stands, retaining walls, septic systems or tanks (whether above or below ground).
- Mounding or stockpiling any material, such as spoils, dirt, logs, construction or building material, wrecked or disabled vehicles, (e.g. may create clearance and access issues and/or increases dangers in using the easement).
- Transformers, telephone/cable pedestals and associated equipment (unless specifically addressed in a joint use agreement), fire hydrants, manholes, water valves, water meters, backflow preventers & irrigation heads, (e.g. may increase the likelihood of safety hazards & access issues).

- Attachments to Duke Energy structures in the easement; (unless specifically addressed in a joint use agreement).
- Streets, roads, driveways, sewer/water lines, other utility lines or any underground facilities that run in parallel to the centerline in the easement or cross in one contiguous segment from outside edge of easement to opposing outside edge of easement, at any angle that is less than 30 degrees or greater than 90 degrees as measured from the centerline. No portion of such facility shall be located within 25 feet of Duke Energy's facilities (unless specifically addressed in a joint use agreement.)
- Fences or utilities that cross the easement in multiple segments in a non-continuous alignment from outside edge of easement to opposing outside edge of easement at any angle of less than 30 degrees or greater than 90 degrees as measured from the centerline. This generally creates an interference as the ability to access and utilize the full easement and reach facilities in the easement is substantially impaired. If a fence crosses the easement at an angle greater than or equal to 30 degrees and less than or equal to 90 degrees with the centerline, a gate (16 feet wide at each crossing) shall be installed by the landowner, per Duke Energy's specifications. Duke Energy will supply a lock. The landowner is required to install the Duke Energy lock on the gate to ensure access. The lock can be interlocked with the landowner's lock. Fences and gates that exceed 10 feet in height are prohibited because they create a clearance issue and are an interference. Fences that inhibit Duke Energy's access because they lack a gate that is at least 16 feet wide, interfere with Duke Energy's easement use.
- Grading (cuts or fill) in the easement that is closer than 25 feet to transmission facilities i.e. poles, towers, guys and anchors and/or slopes greater than 4:1 no matter where located or that otherwise change clearances or topography.
- Parking or lighting facilities which affect clearances, access or Duke Energy's ability to make full use of its easement.
- Placement of combustible materials and/or the purposeful burning of anything within the easement are inconsistent with electric facilities, the transmission of power and create safety hazards and system reliability issues.
- Any water feature in the easement, such as a detention and retention pond, stream or lake. Where a structure outside the easement causes erosion or directs storm water toward the easement or the electric facilities or access to or around the electric facilities, such structure will interfere with Duke Energy's use and must be altered to eliminate that effect.
- Incompatible vegetation above ground transmission lines - Vegetation within or outside of the transmission easement that will mature to a height or size that will pose a grow-in, fall-in, or blowing-together threat to the transmission conductor (typical maximum mature height greater than 15 feet within the transmission easement depending on location and voltage).
- Incompatible vegetation underground transmission lines - Vegetation within or outside of the transmission easement that is capable of posing a threat (e.g., root systems, etc.) to the underground transmission conductor by **a)** causing damage to the underground pipes / cables or **b)** reducing the moisture in the soil, thus altering the thermal properties of the surrounding soil / backfill and thereby negatively impacting the cable ampacity rating (typical maximum mature height within the easement - greater than 3 feet depending on location and voltage).
- Incompatible vegetation for safe and reliable operation and access on all transmission lines - Vegetation that will limit or block access, limit the safe and reliable operation, emergency restoration, or maintenance of the transmission facilities, limit the full use of the transmission easement for its intended purposes or vegetation which is typically within a horizontal distance of 25 feet of any Duke Energy facilities (towers, poles, guy wires, guy anchors, manholes, dip-poles, substation equipment, etc.).

As discussed, these guidelines are not exhaustive and there may be other interferences on a case-by-case basis depending on individual circumstances. Certain conditions such as line voltage, line criticality, frequency of required access and structure type may require heightened restrictions in the easements to provide safe and reliable service.

If you have additional questions or plan any activity not mentioned above, please contact customer service and ask for your local Transmission Asset Protection Specialist.

Duke Energy Carolina West and Carolina East Power Grid Operations - Asset Protection Zones



Zone 1 – Craig Garrett 828.258.5018
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Zone 3 – Stephen Lord 704.812.2316
stephen.lord@duke-energy.com

Zone 4 – Taylor George 336.786.3113
taylor.george@duke-energy.com

Zone 5 – River Norton 843.679.2516
river.norton@duke-energy.com

Zone 6 – Bill Wilder 910.772.4903
bill.wilder@duke-energy.com

Zone 7 – Bruce Pait 919.431.4831
bruce.pait@duke-energy.com

Zone 8 – Currently vacant - email
john.hanes@duke-energy.com for assignment

