



**RAIL TRAIL IMPLEMENTATION MASTER PLAN
CLEVELAND COUNTY, NORTH CAROLINA
PRESENTATION TO CITY & COUNTY BOARDS 05.29.18**



PROJECT GOALS

- Leverage the rail trail to **improve public health and quality of life** in Cleveland County
- Utilize the rail trail as a **platform for economic development**, with a special focus in Uptown Shelby and the core areas of Patterson Springs and Earl.
- Provide opportunities for **active recreation and an alternative transportation** corridor for Cleveland County residents





WORKSHOP SUMMARY

WORKSHOP SUMMARY

- September 19-21, 2017
- Two Venues: #3 VFD + Don Gibson Center
- 80+ attendees + 46 completed surveys
- Hundreds of comments

What would you most like to see integrated into the proposed Cleveland County Rail Trail?

Please tell us what you would most like to see integrated in the Rail Trail by voting stickers on your top 3 choices.

alata
PLANNING + DESIGN

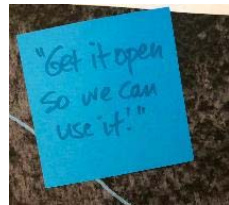
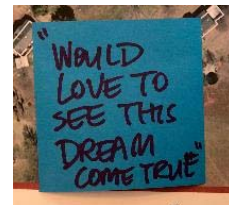
Categories shown: BENCHES, WATER FOUNTAINS, LIGHTING, WOODEN DECKING, BIKE STATIONS, FITNESS STATIONS, BASKETS, LOUSTRIAN FRIENDLY TRAILS, SIGNAGE, BIKES FOR SALE, BIKES FOR RENT, BIKES FOR REPAIR, BIKES FOR STORAGE.

PLEASE WRITE IN ANY ADDITIONAL THOUGHTS:

• I'd like to see a lot of benches along the trail, especially in the wooded areas. I'd also like to see a lot of water fountains and lighting.

• I'd like to see a lot of wooden decking along the trail, especially in the wooded areas. I'd also like to see a lot of water fountains and lighting.

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Three words that describe the potential Cleveland County Rail Trail?

Please provide written responses in the provided areas using 3 DESCRIPTIVE words.

alata
PLANNING + DESIGN

1) Inspiring 2) Approach 3) Community	1) PROGRESS 2) community 3) growth	1) Terrain 2) Fitness 3) Family
1) Exciting 2) Frustrating (Planning) 3) Good	1) Access to Nature + Fitness 2) High Quality for Run + Bike 3) A public FIAT	1) FAMILY 2) OUTDOOR ACCESS 3) TRANSPORTATION
1) Family 2) Healthy Community 3) Suburbs	1) Walkable 2) Fitness 3) Connectivity	1) TANKA 2) Healthy 3) Progress
1) Access 2) Safe 3) Quality	1) A "real" sense of community 2) Connectivity 3) Quality of life	1) Transformational growth 2) Access 3) Amenity
1) Access 2) Safe 3) Quality	1) A balance 2) Access to nature (for Haged) 3) much needed	1) Great Recreational 2) Community + Economic growth 3) Fitness
1) Unwanted 2) Structural Damage (overpasses) 3) many ppl	1) Personal Walking Areas 2) Economic Pop. Value 3) Quality of life	1) Recreation/Conservation 2) 3)
1) Healthy 2) Low resistance (positive) 3) destination	1) Paradise for community growth 2) Lifestyle enhancement 3) Economic growth	1) Growth 2) Family activities 3)
1) Fitness 2) Low resistance (positive) 3) destination	1) 2) 3)	1) 2) 3)

Handwritten note: "I'd like to see a lot of benches along the trail, especially in the wooded areas. I'd also like to see a lot of water fountains and lighting."

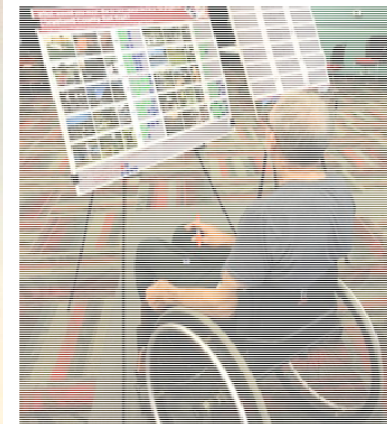
COME JOIN US!
CLEVELAND COUNTY NC RAIL TRAIL
MASTER PLAN MEETINGS
September 19-21

Tuesday (9/19) - 12pm-2pm and 5pm-7pm
Thursday (9/21) - 9am-11am at
No 3 Volunteer Fire Department
2326 Blacksburg Rd, Grover, NC 28073

Wednesday (9/20) - 11am-1pm and 5pm-7pm at
Don Gibson Theater
318 South Washington St, Shelby, NC 28150

For a complete schedule please visit the city website: www.cityofshelby.com
or contact Carol Williams: Carol.Williams@cityofshelby.com • 704-664-6800

Share your ideas for planning the rail-trail in Cleveland County!



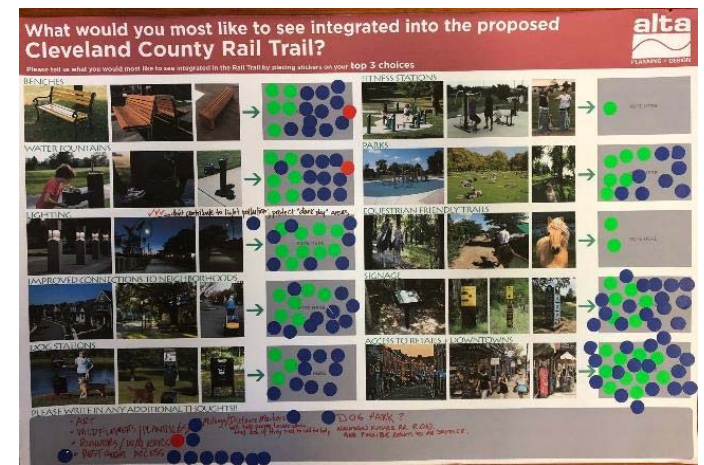
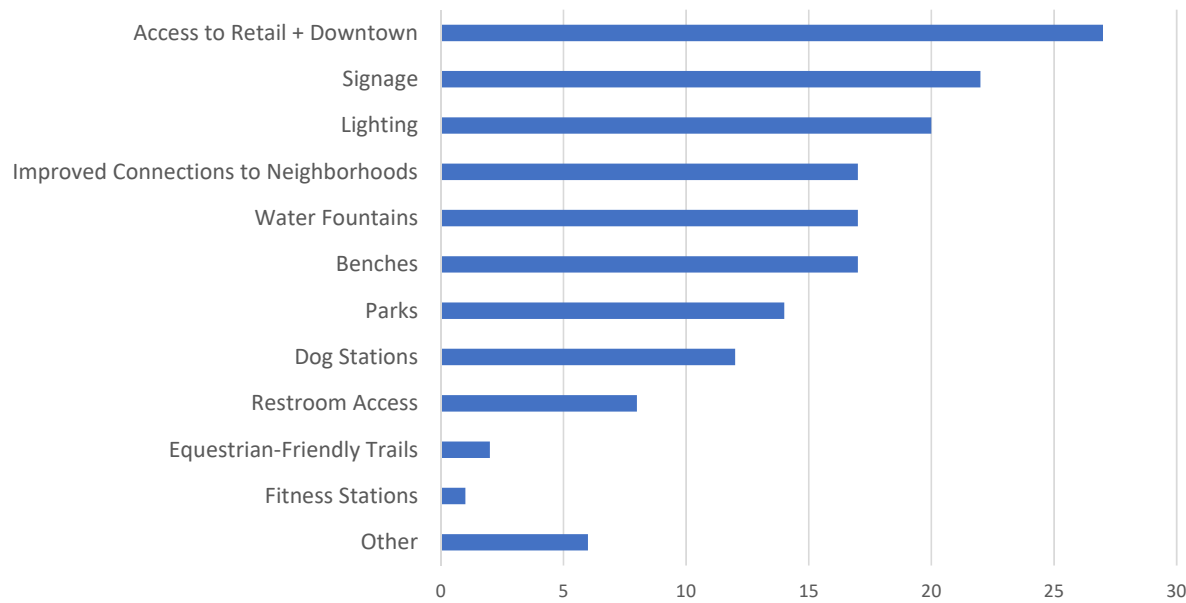
PUBLIC INPUT SUMMARY



THREE WORDS...

PUBLIC INPUT SUMMARY

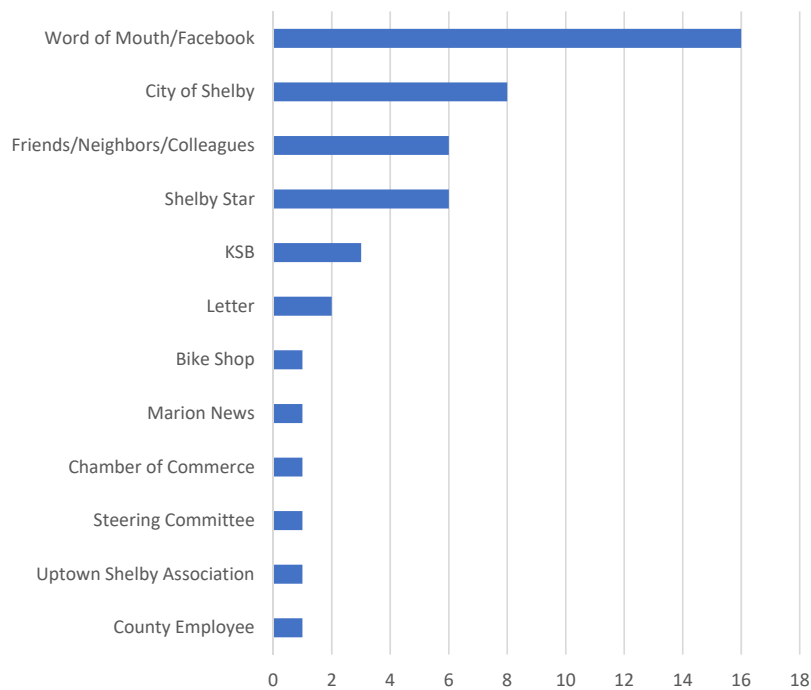
What would you most like to see integrated into the proposed Cleveland County Rail Trail?



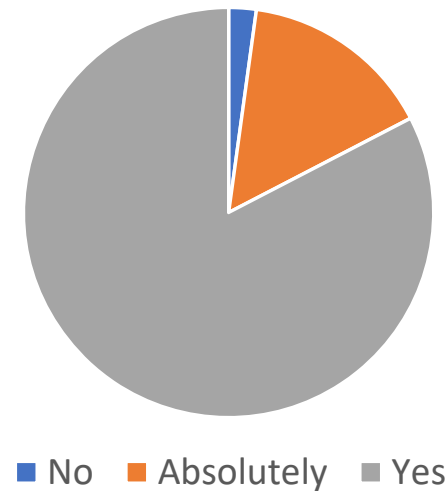
PREFERRED AMENITIES

PUBLIC INPUT SUMMARY

How did you hear about the Cleveland County Rail-Trail?



Do you support the Cleveland County Rail-Trail?

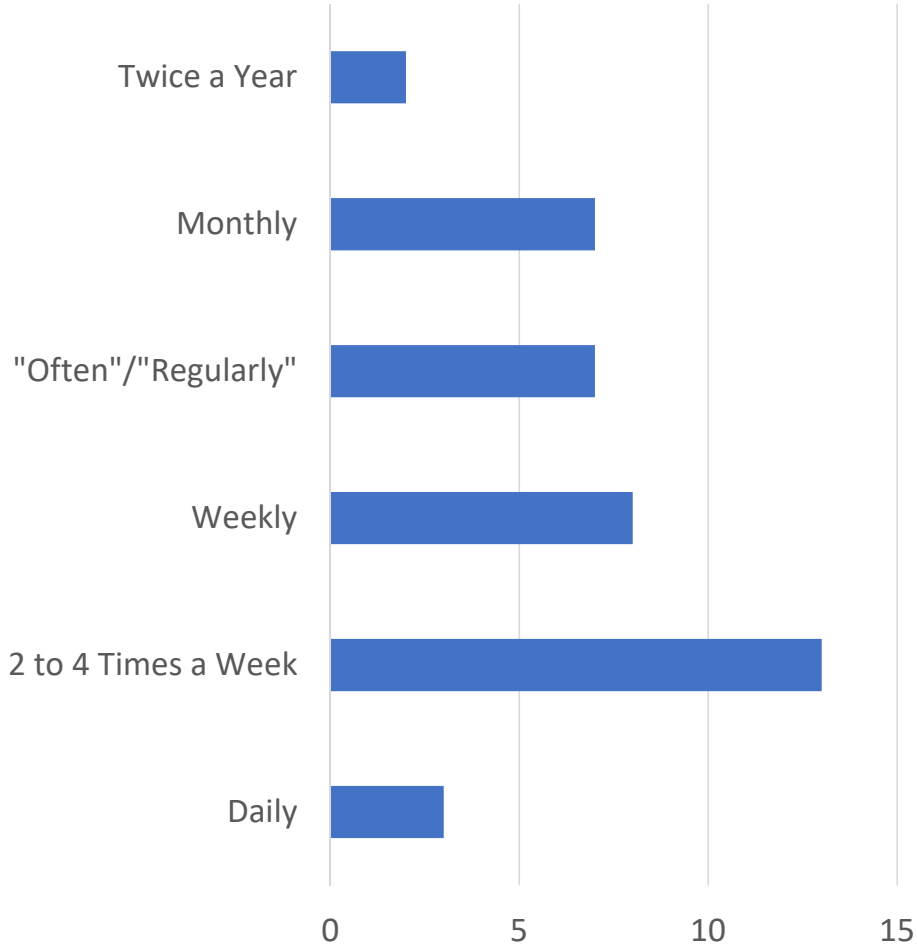


Cleveland County Rail Trail Implementation Plan Questionnaire

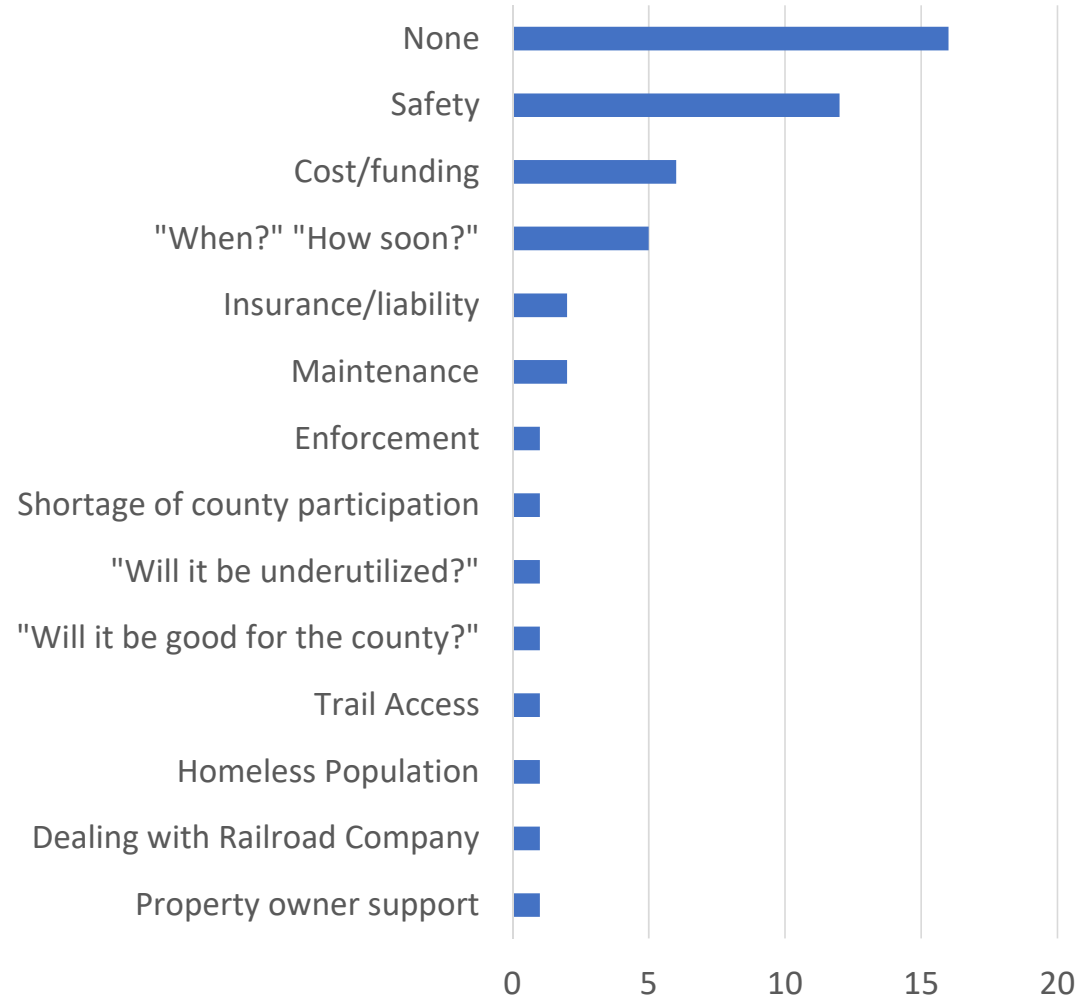
- How did you hear about the Cleveland County Rail-Trail?
- Do you support the Cleveland County Rail-Trail?
- How often would you use the trail if it's open for public use?
- What type of improvements would you like to see along the trail?
- Do you have any concerns about the Cleveland County Rail Trail?

Please use the back of this sheet to provide any additional input.

How often would you use the trail once it is open for public use?

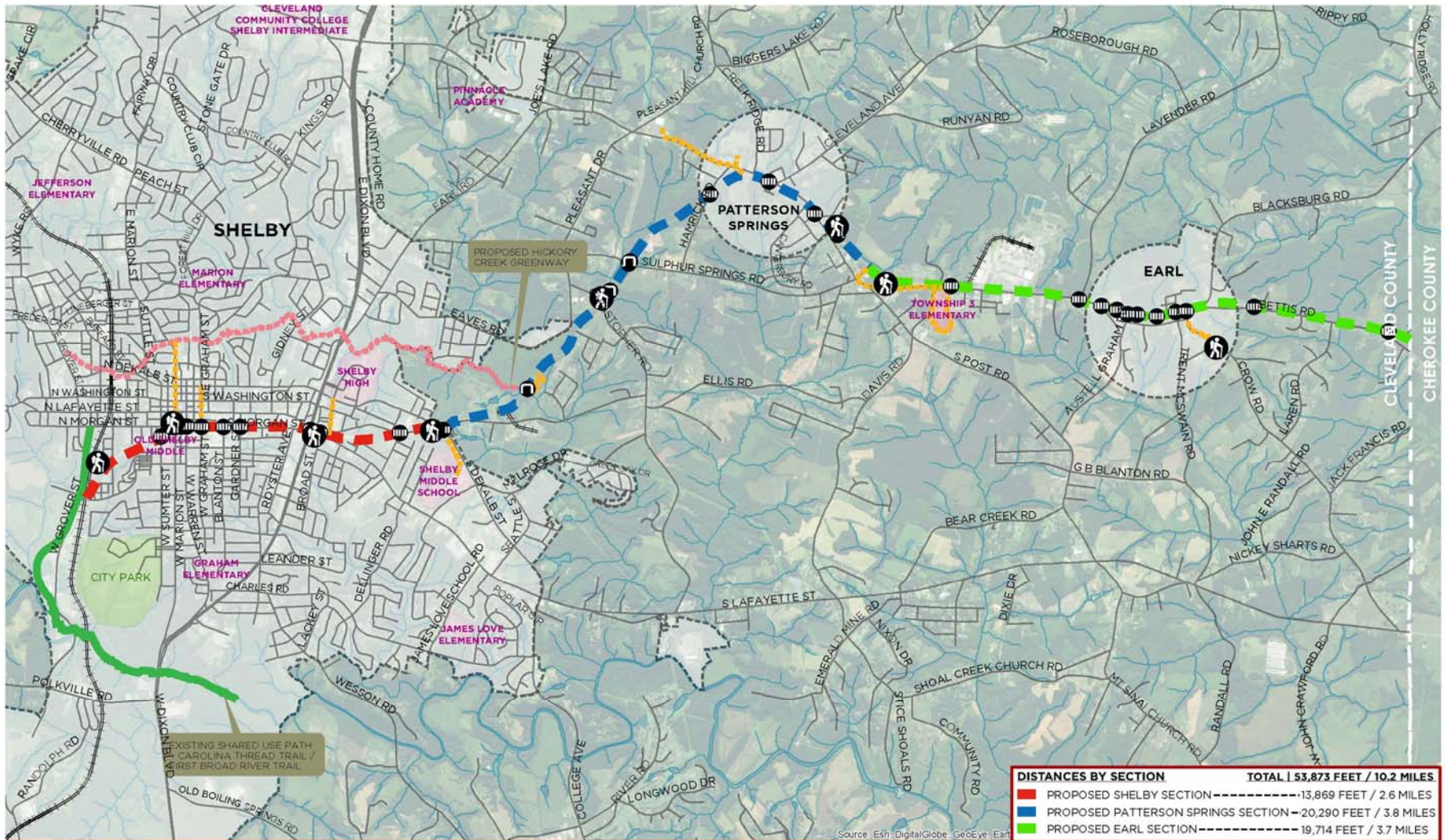


Do you have any concerns about the rail-trail?



RECOMMENDATIONS





CLEVELAND COUNTY RAIL TRAIL STUDY

- PROPOSED SHELBY SECTION
- PROPOSED PATTERSON SPRINGS SECTION
- PROPOSED EARL SECTION
- EXISTING SHARED USE PATH
- PROPOSED SPUR CONNECTION
- PLANNED SHARED USE PATH
- BRIDGE CROSSING IMPROVEMENT
- ROAD CROSSING IMPROVEMENT
- NEW TRAILHEAD LOCATION
- RAIL
- CITY LIMITS
- WATER BODY
- SCHOOL PROPERTY

0 0.5 1 Miles

NORTH

Overview





TYPICAL SECTION

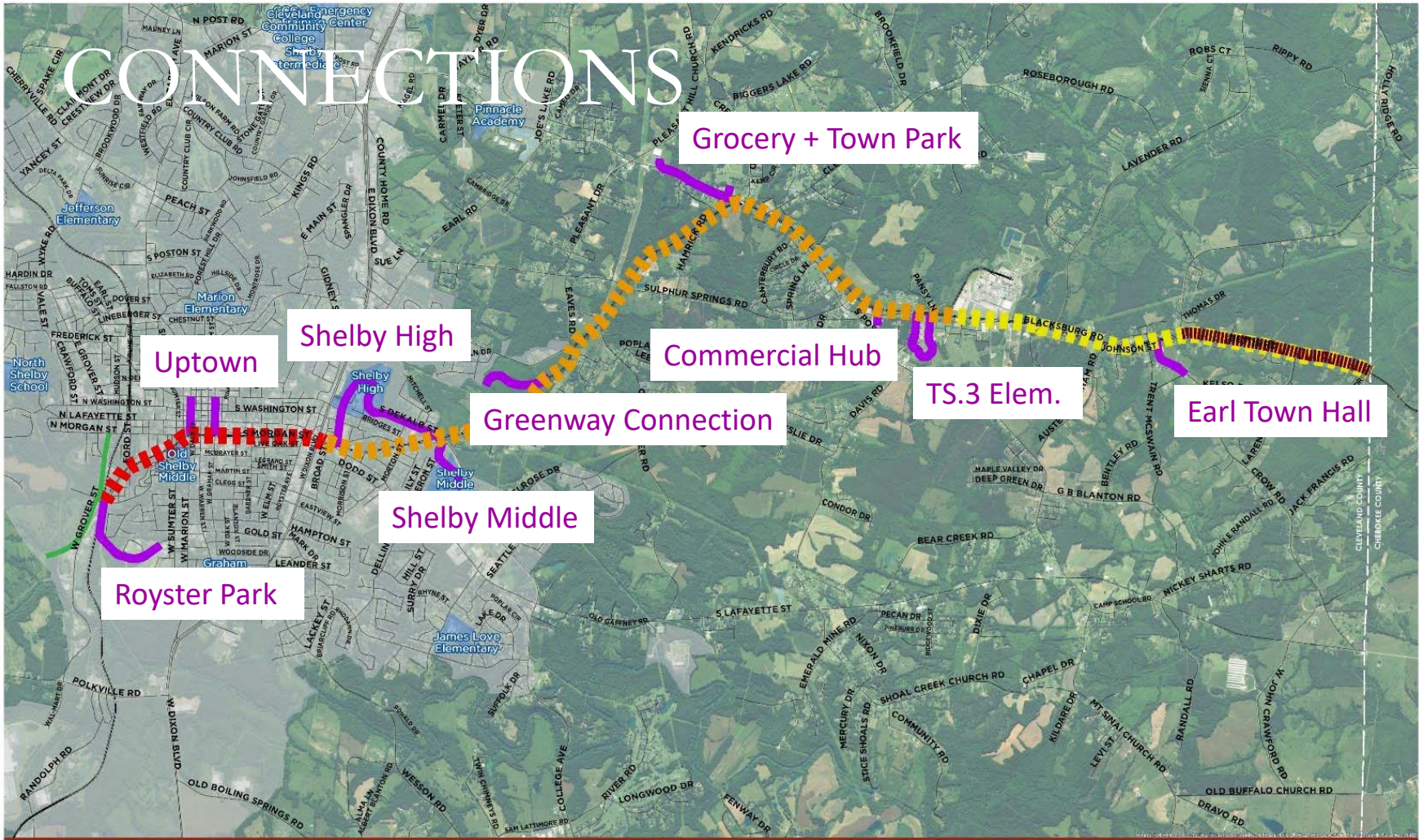


TYPICAL SECTION

PROJECT SEGMENTS (10.2 miles total)

- **1: SHELBY SECTION**
 - 2.6 MILES
 - 9 ROAD CROSSINGS
- **2: PATTERSON SPRINGS SECTION**
 - 3.8 MILES
 - 5 ROAD CROSSINGS
 - 3 TRESTLE BRIDGES
- **3: EARL SECTION**
 - 3.7 MILES
 - 12 ROAD CROSSINGS
- **3.A: EARL TRAILHEAD TO STATE LINE**
 - 1.48 MILES (potential shared equestrian)
 - 2 ROAD CROSSING

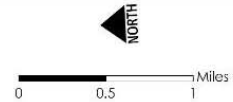
CONNECTIONS

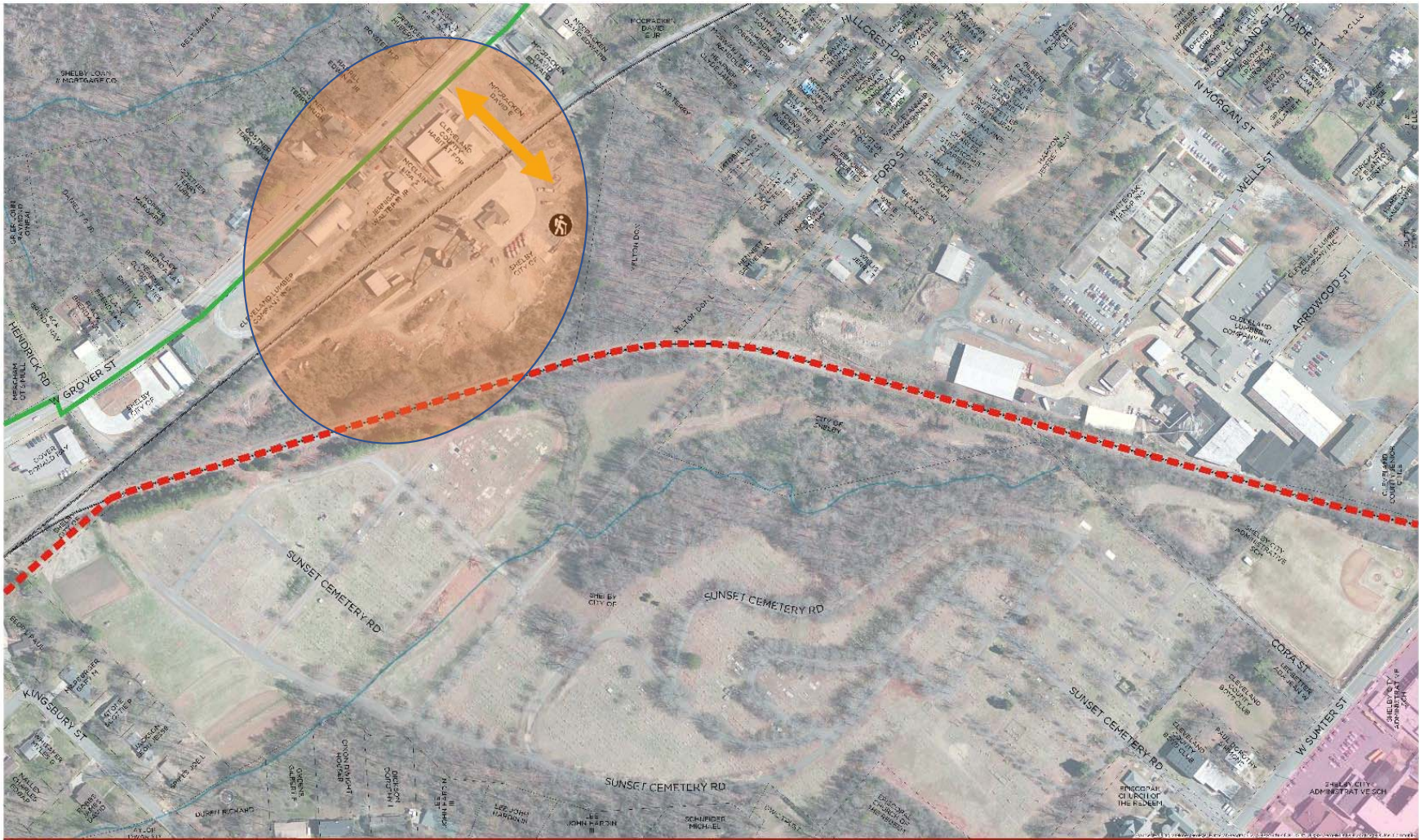


CLEVELAND COUNTY RAIL TRAIL STUDY

LEGEND







- EXISTING
- PLANNED
- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 3A
- SPUR CONNECTIONS
- RAIL
- SCHOOL PROPERTY
- Shelby_CityLimits_ETJ
- WATER BODY

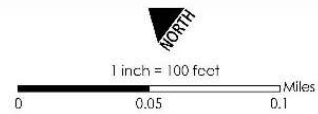




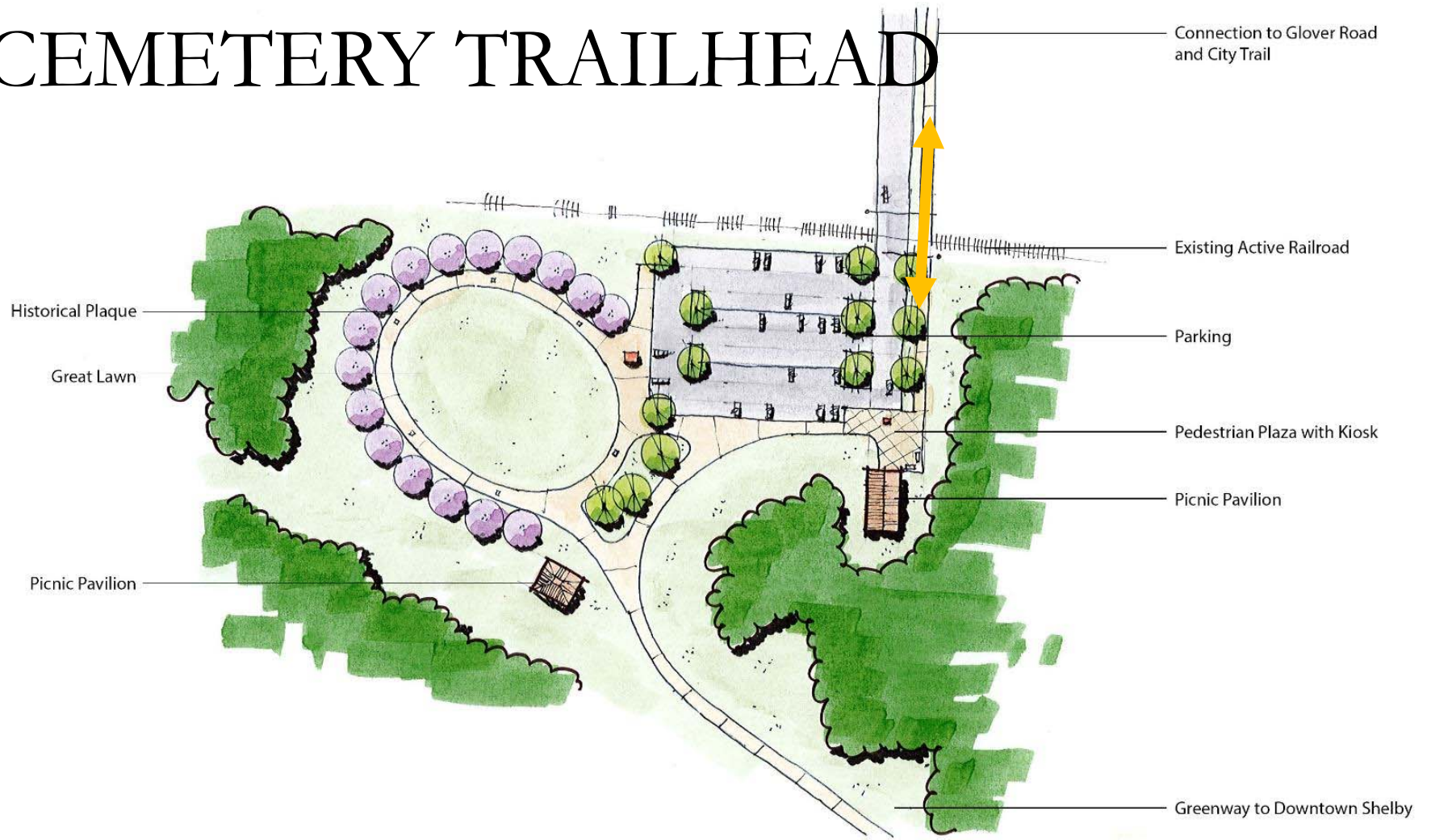
CLEVELAND COUNTY RAIL TRAIL STUDY

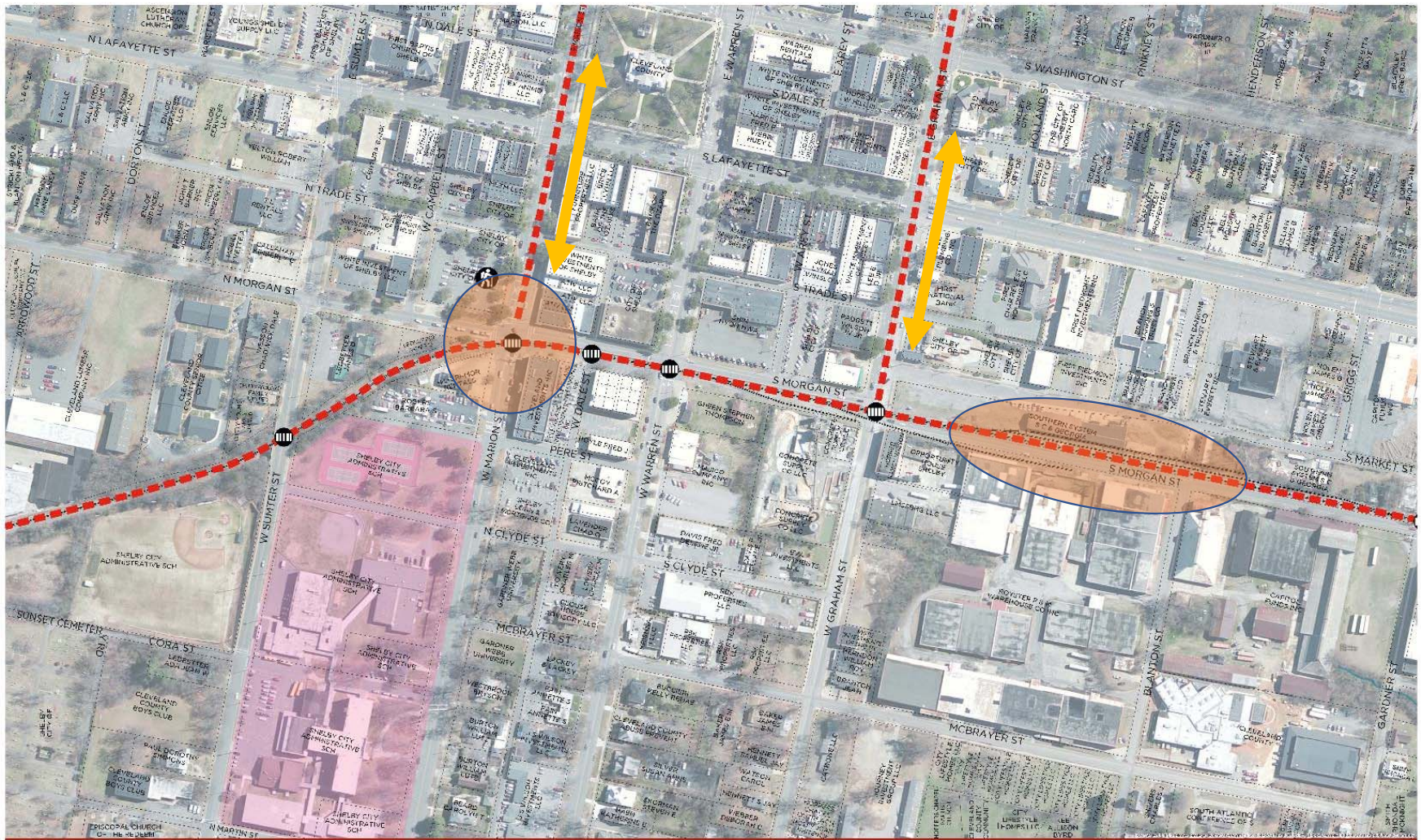
LEGEND

- EXISTING SHARED USE PATH
- - - PROPOSED RAIL TRAIL
- - - PLANNED GREEN WAY
-  BRIDGE CROSSING IMPROVEMENT
-  ROAD CROSSING IMPROVEMENT
-  NEW TRAIL HEAD LOCATION
-  RAIL
-  WATER BODY
-  SCHOOL PROPERTY



CEMETERY TRAILHEAD











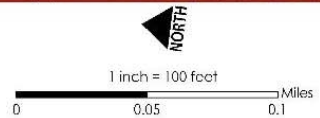
CLEVELAND COUNTY RAIL TRAIL STUDY

LEGEND

- EXISTING SHARED USE PATH
- PROPOSED RAIL TRAIL
- PLANNED GREEN WAY

-  BRIDGE CROSSING IMPROVEMENT
-  ROAD CROSSING IMPROVEMENT
-  NEW TRAIL HEAD LOCATION

-  RAIL
-  WATER BODY
-  SCHOOL PROPERTY



FARMERS MARKET TRAILHEAD



FARMERS MARKET TRAILHEAD



UPTOWN ADAPTIVE REUSE



UPTOWN ADAPTIVE REUSE



US 74 BRIDGE



US 74 BRIDGE





TOWN OF EARL TRAILHEAD





DESIGN GUIDELINES

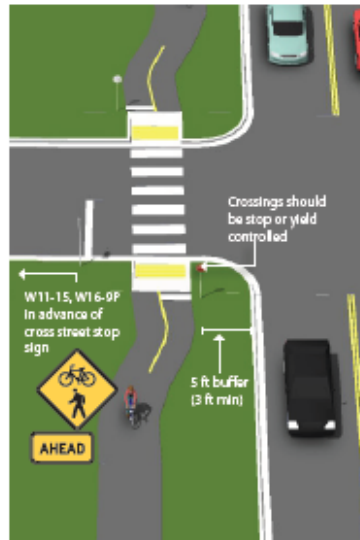
DESIGN GUIDELINES

DESIGN CONSIDERATIONS FOR GREENWAY TRAILS IN ROADWAY CORRIDORS

Greenway trails located within the roadway right-of-way (ROW) are typically classified as Greenway Connectors. Sometimes referred to as 'sidepaths,' they provide more comfortable widths than sidewalks and can accommodate multiple users when designed adequately.

Guidance

- This configuration works best along roadways with limited driveway crossings and with services primarily located on one side of the roadway, or along a riverfront or other natural feature. Not recommended in areas with frequent driveways or cross streets.
- A minimum of 10 feet wide is necessary for bicyclists to pass other users safely on sidepaths.
- A 5 foot or greater vegetated buffer between the sidepath and the roadway should be provided.
- At driveway entrances and other roadway crossings, appropriate regulatory and wayfinding signage and crossing treatments should be provided.
- In some cases, Greenway Connectors will transition from sidepaths to sidewalks or designated bicycle lanes. In the event that sidepaths merge onto streets, provide appropriate signage and pavement markings to help safe merging.
- Structures, such as retaining walls and bridges are not permitted in ROW and may only be used in special conditions.
- Depending on Average Daily Traffic (ADT) and design speeds, a clear recovery zone of 9 to 14 feet from the edge of travel lane to edge of greenway trail is required in roadway ROW.



PAVEMENT MARKINGS

Pavement markings are commonly used to reinforce signs along a greenway trail, but they should not be used to replace signs altogether. Center line striping is the most common form of pavement marking, but warning, regulatory, and directional messages can be used. Use pavement markings sparingly and only where necessary to attract additional attention to a possible problem area.

Guidance

- Do not use pavement markings at critical stopping or turning points.
- High visibility thermoplastic material is the most durable and visible. Use white or yellow.
- Pavement markings to consider include "Stop," "Yield," and "Slow."

- Place messages at greenway trail access points, prior to roadway intersections or bridges, or near intersections with converging greenway trails.
- When striping is required, use a 4 inch dashed yellow centerline stripe with 4 inch solid white edge lines.
- Solid centerlines can be provided on tight or blind corners, and on the approaches to roadway crossings.
- Non-slip or non-skid pavement marking or striping materials should be used in all cases when trails are wet.
- Consider using at road intersections for road name identification.

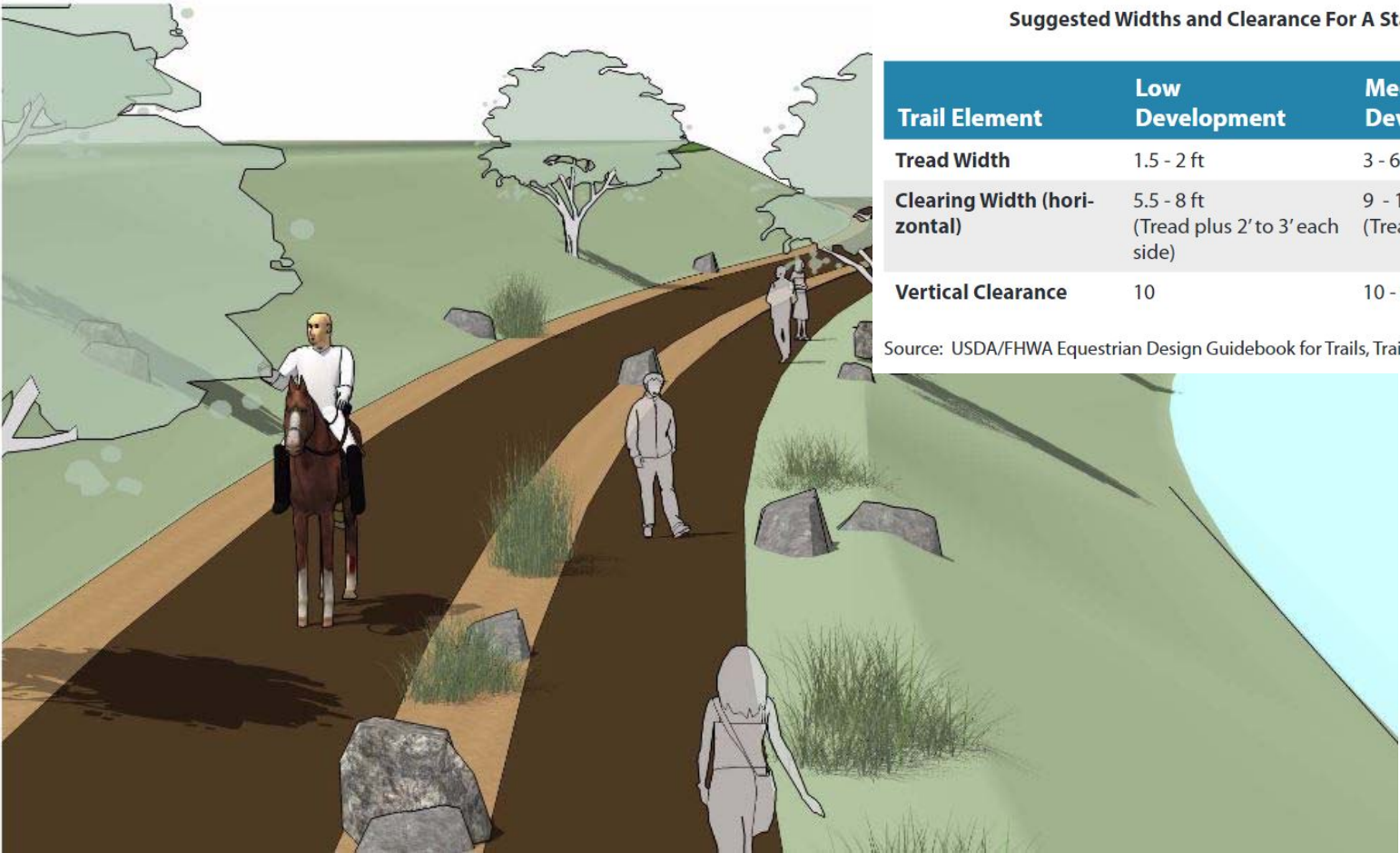


DESIGN GUIDELINES

Suggested Widths and Clearance For A Standard, Single-Track Horse Trail

Trail Element	Low Development	Medium Development	High Development
Tread Width	1.5 - 2 ft	3 - 6 ft	8 - 10 ft
Clearing Width (horizontal)	5.5 - 8 ft (Tread plus 2' to 3' each side)	9 - 12 ft (Tread plus 3' each side)	14 - 18 ft (Tread plus 3' each side)
Vertical Clearance	10	10 - 12 ft	10 - 12 ft

Source: USDA/FHWA Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds



DESIGN GUIDELINES

BRIDGES

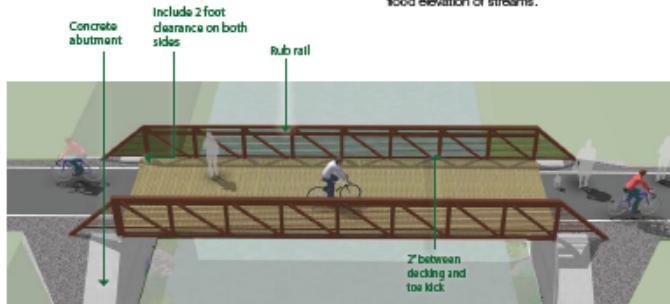
Trail bridges are most often used to provide user access over natural features such as streams and rivers, where a culvert is not an option or the span length exceeds 20 feet. The type and size of bridges can vary widely depending on the greenway trail and specific site requirements. Bridges often used for greenway trails within the Hardeeville trail system include suspension bridges and prefabricated clear span bridges. When determining a bridge design for greenway trails, it is important to consider emergency and maintenance vehicle access.

Greenway trails that are poorly designed through water features can impact wetlands and streams, and become conduits for delivering sediments, nutrients, and pathogens to the watershed. Greenway trails that cross streams can exhibit bank and streambed erosion if not properly constructed.

Guidance

- The clear span width of the bridge should include 2 feet of clearance on both ends of the bridge approach for the shoulder.
- Bridge deck grade should be flush with adjacent greenway trail tread elevation to provide a smooth transition. Any gap between bridge deck and trail tread should be covered with steel plate.

- Railing heights on bridges should include a 42 inch minimum guard rail, and 48 inches where hazardous conditions exist.
- A minimum overhead clearance of 10 feet is desirable for emergency vehicle access. Maximum opening between railing posts is 4 inches.
- A greenway trail bridge should support 10 tons for 10 foot wide greenway trails, and 20 tons for wider than 10 feet for emergency vehicle access.
- Bridges along greenway trails that allow equestrian use should be designed for mounted unit loadings.
- When crossing small headwater streams, align the crossing as far upstream as possible in the narrowest section of stream channel to minimize impact.
- Greenway trail drainage features should be constructed to manage stormwater before the greenway trail crosses the watercourse.
- All abutment and foundation design should be completed and sealed by a professional structural engineer licensed in the State of South Carolina. All greenway trail bridges will require local building permits, stormwater and land disturbance permits, floodplain development permits, and FEMA approval. Length and height of the bridge cords are governed by the width of the floodway and impacts to the base flood elevation of streams.



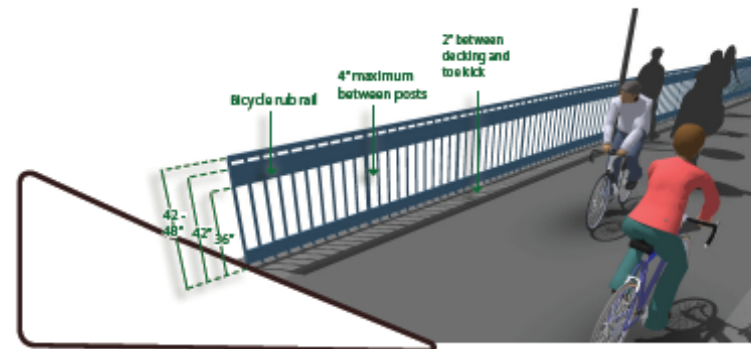
FENCING & RAILINGS

Railing and fences are important features on bridges, some boardwalks, or in areas where there may be a hazardous drop-off or incompatible adjacent land uses.

Guidance

- At a minimum, railings and fences should consist of a vertical top, bottom, and middle rail. Picket style fencing should be avoided as it presents a safety hazard for bicyclists.
- Railings should be at least 42 inches above the finished grade, and up to 48 inches where more hazardous conditions exist, such as a bridge over a highway.
- Openings between horizontal or vertical members on railings should be small enough that a 6 inch sphere cannot pass through in the lower 27 inches. For the portion of railing higher than 27 inches, openings may be spaced such that an 8 inch sphere cannot pass through.

- Use durable fencing and railing materials, such as vinyl or recycled plastic, for reduced maintenance and sustainability.
- The middle railing functions as a 'hub rail' for bicyclists and should be located 33 to 36 inches above the finished grade.
- Local, state, and/or federal regulations and building codes should be consulted to determine when it is appropriate to install a railing and comply with current standards.



BRANDING + WAYFINDING



BRANDING



BRAND

perceived emotional corporate image as a whole.



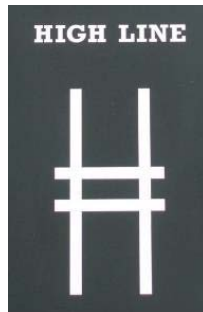
IDENTITY

visual aspects that form part of the overall brand.



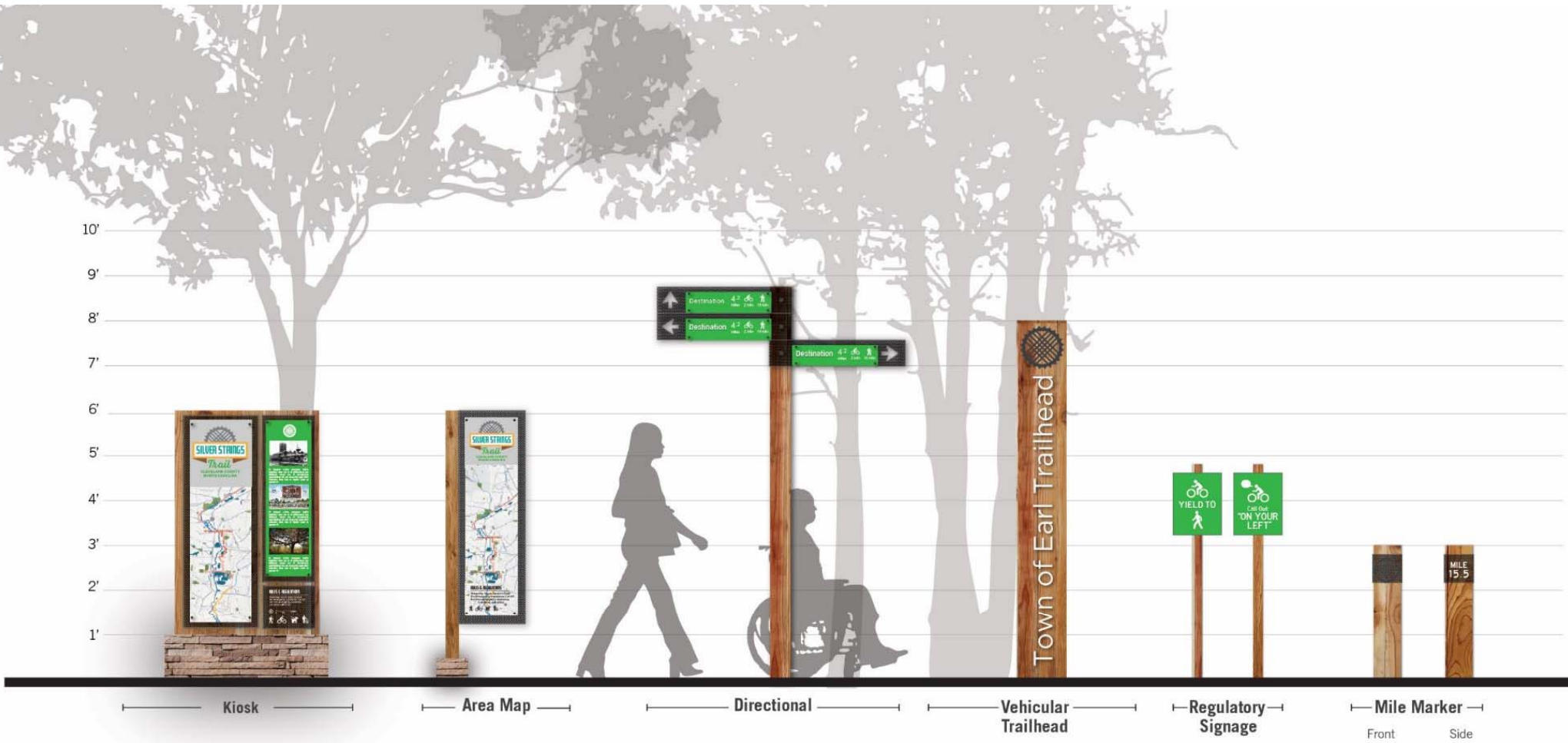
LOGO

identifies a business in its simplest form via the use of a mark or icon.



BRANDING CONCEPTS





Cleveland County Rail Trail Wayfinding DRAFT

Oct. 31, 2017





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SILVER STRINGS
Trail
CLEVELAND
COUNTY NC



*Healthy living has
never been so much fun!*

COST ESTIMATES

COST ESTIMATES

- SECTION 1: UPTOWN SHELBY TO DEKALB \$1.75M
- SECTION 2: DEKALB ST TO CELANESE \$5.5M
- SECTION 3: CELANESE TO STATE LINE \$1.9M
- **PHASE 1-3 TOTAL \$9.15M**



BENEFITS ANALYSIS

Demand & Benefits

- **Estimated Demand:**
 - 5,000 trips/day
 - 1,070,000 trips/year
 - 514,000 non-local trail users
 - 1,028,000 annual person-days of trail visitors
- **\$17M in annual trail-related spending** from non-local users
- **\$21,000,000 in annual benefits:** health, environmental and transportation

	Estimated Values
Annual Transportation Benefits	\$927,000
Annual Health Benefits	\$2,808,000
Annual Economic Benefits	\$17,035,000
Total Annual Benefits	\$20,770,000

PHYSICAL ACTIVITY

30%

OF LOCAL ADULTS
DON'T GET ENOUGH
PHYSICAL ACTIVITY



IMPLEMENTATION
COULD LEAD TO
176k
MORE HOURS OF
EXERCISE PER YEAR

MILES OF BIKING & WALKING

THROUGH
7.6 mil
MORE MILES BIKED &
WALKED PER YEAR



...enough to travel across North Carolina 45,000 times

HEALTHCARE COSTS

RESULTING IN
\$2.8 mil
IN HEALTHCARE COST SAVINGS



HOUSEHOLD VEHICLE OPERATION COSTS

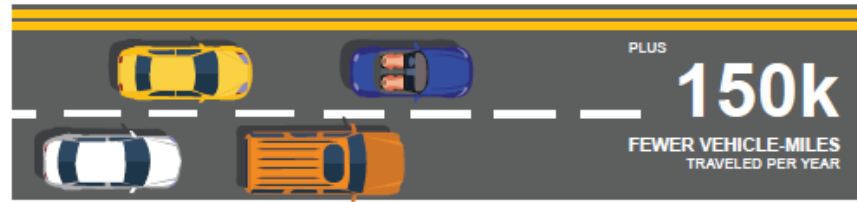
32%

OF CLEVELAND CO.'S
HOUSEHOLD INCOME
GOES TO TRANSPORTATION



IMPLEMENTATION
COULD LEAD TO
\$600k
IN VEHICLE OPERATION
COST SAVINGS PER YEAR

VEHICLE-MILES TRAVELED



PLUS
150k
FEWER VEHICLE-MILES
TRAVELED PER YEAR

...the equivalent of 5 households no longer travelling by personal auto each year

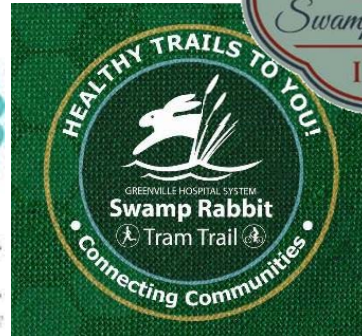
TOTAL BENEFITS

TOTALING
\$21 mil
IN BENEFITS PER YEAR



USE + BENEFIT ANALYSIS

- Furman University – Impact Study (Dr. Julian Reed)
- **502,000 annual users** in year 3 study
 - 60% male/40% female
 - 14% children (under 17)
 - 10% used trail for transportation
- Nearby businesses reported revenue or **sales increases of 30 to 85 percent**
- Up to **30% of new bike users** purchasing bikes for the trail
- **Annual Revenue** from trail users ranged from \$50,000 to **\$400,000** (avg. = \$111,250)





John Cock, VP
SE Region

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Greenville
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