

UNICOI & ERWIN BICYCLE + PEDESTRIAN MASTERPLAN

SEPTEMBER 2019

JARNIGAN, LISA. "ERWIN LINEAR TRAIL." [HTTPS://WWW.TRAILINK.COM/TRAIL-GALLERY/ERWIN-LINEAR-TRAIL/](https://www.trailink.com/trail-gallery/erwin-linear-trail/)



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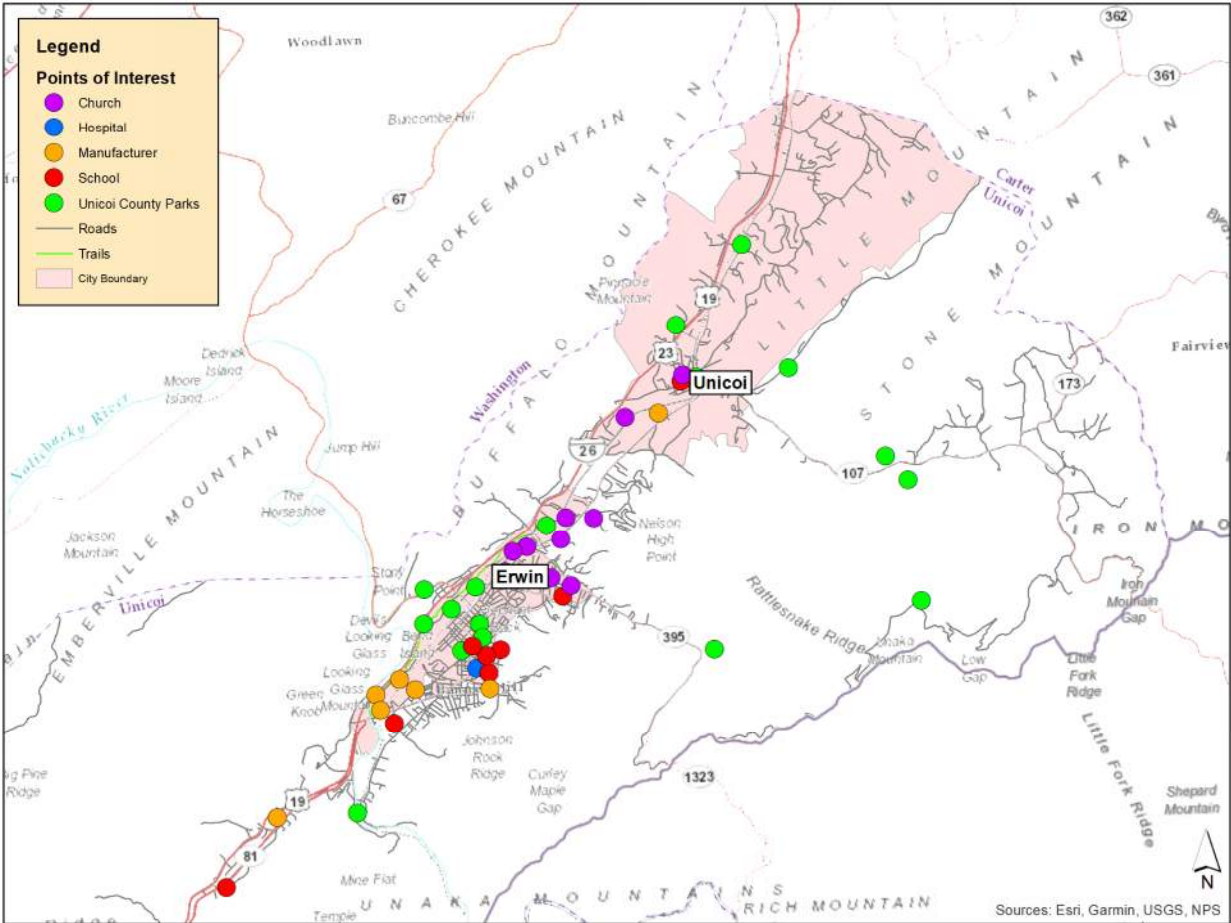
1 Introduction

1.1 Project Background

The Town of Erwin and the Town of Unicoi both lie within a valley in the Cherokee National Forest, which is in the eastern portion of the state of Tennessee in Unicoi County. The main study corridor is the State Route 107 (SR 107), which passes through both towns and is a mostly two-lane roadway with a two-way center turn lane running throughout portions of the corridor. The portion of the corridor that is being studied begins north from 6th Street in Erwin to State Route 173 (SR 173) in the Town of Unicoi. This stretch of roadway is approximately 5.65 miles in total length, with approximately one mile lying within the unincorporated portion of the County (See Figure 1-1).

Figure 1-1 Study Area

Unicoi County Points of Interest



1.2 Project Purpose

The Town of Erwin (pop. 5,920) and the Town Unicoi (pop. 3,531) are seeking funding for a comprehensive study of the feasibility and location of a pedestrian and bicycle connection between them. The presence of numerous recreational trails and opportunities within the County, including the Appalachian Trail, has led to increased bicycle and pedestrian traffic traveling roadways in the northern portion of Unicoi County. The Towns of Erwin and Unicoi have taken steps to improve bicycle and pedestrian accessibility over the past several years within their own communities, but no steps have been taken to connect the two municipalities. To maximize on this nonmotorized potential, it is necessary to connect the cities and destinations in the region with safe and attractive bicycling and walking facilities.

This study is a collaborative effort between the two jurisdictions to address multimodal connectivity along the SR 107 corridor, with the anticipated effect of improving safety, recreational opportunities, health, and the local economy. It is the first step in building a regional network of bicycling, hiking and walking facilities.

2 Issues and Opportunities

The town of Unicoi and the town of Erwin are both positioned to increase the livability and prosperity for its citizens by investing in their non-motorized networks and increasing overall connectivity. This will not only benefit them by allowing for more transportation options, but by connecting to the regional recreational trails and pathways, it will allow tourists and hikers to pass through either city and potentially stop and visit.

2.1 State of Non-Motorized Facilities

There are several elements to a non-motorized network; pedestrian and bicycle infrastructure. Pedestrian infrastructure typically consists of sidewalks while bicycle infrastructure is more varied, consisting of bicycle lanes, pathways and other similar facilities. Also, recreational bicycle routes and trails have been discussed in a separate section as their needs can differ slightly.

Pedestrian Infrastructure

Within the towns of Erwin and Unicoi, there is currently minimal sidewalk coverage to allow for people to travel from one destination to another in a safe and efficient manner. This situation leads to people needing to use a vehicle to travel around the town each day. If a person does not own a vehicle, they must walk through grassy areas, navigate the few sidewalks that are available or use the roadway. None of these options are inherently safe and can lead to conflicts between pedestrians and vehicles.

It is suggested that the current sidewalks within the towns of Unicoi and Erwin be inspected, repaired or replaced, where possible to provide a good foundation for the recommended improvements. Both SR 107 and Zane Whitson Drive do not have complete sidewalk networks along the study corridor with most of the sidewalks being located on SR 107 in Downtown Erwin.

Along the SR 107 corridor, there are few non-motorized transportation facilities for people to use except for several blocks of N. Main Ave. in Erwin. The design of the roadway on SR 107 is well-suited for automobiles, but not pedestrians or bicyclists. This is especially true for the intersections, which are rather wide currently and do not lend themselves to being crossed easily or safely by pedestrians.

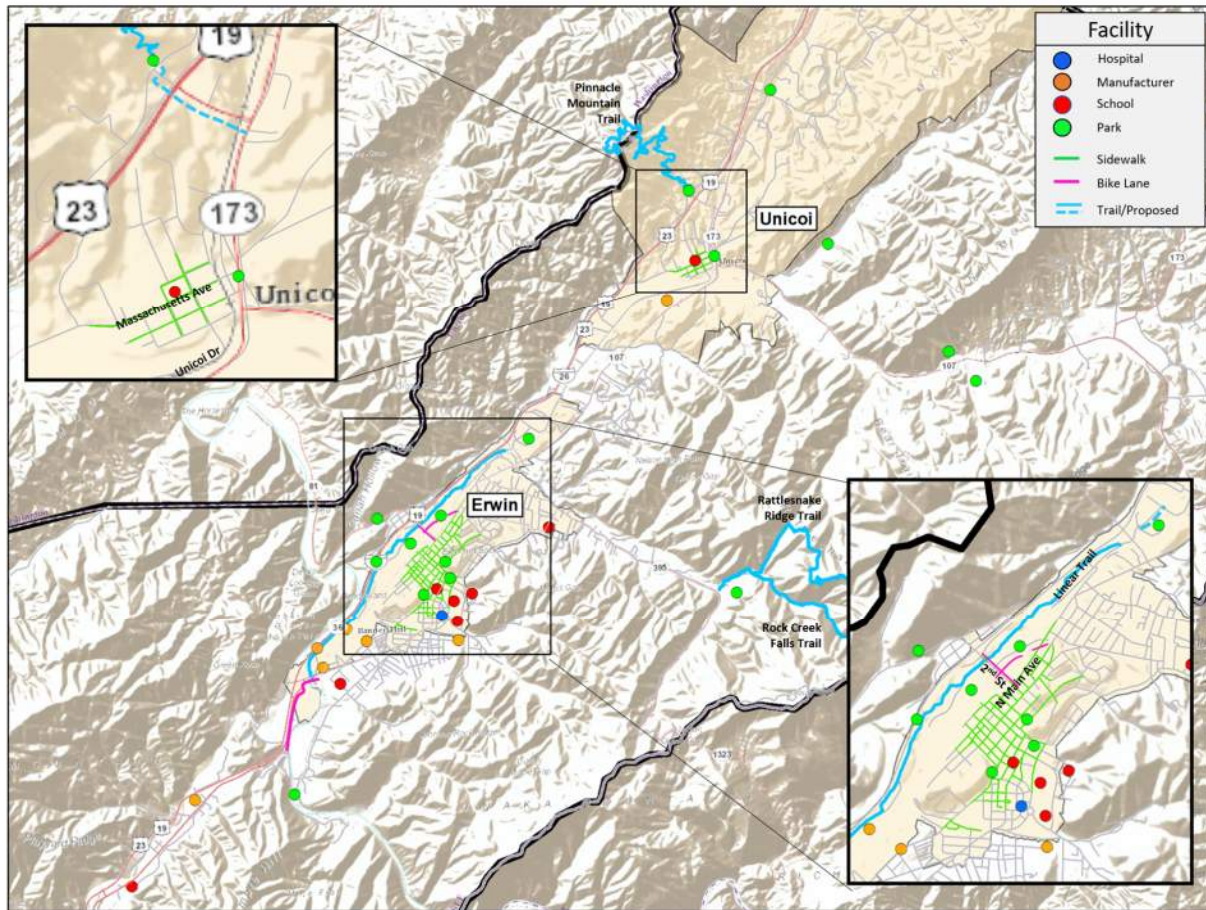
Bicycle Infrastructure

There is no significant bicycle infrastructure throughout Unicoi or Erwin except for the Erwin Linear Trail. There are sections of SR 107 that have paved shoulders, which have the potential for use by bicyclists, but some of these shoulders are very narrow, which poses a hazard for bicyclists trying to use the paved shoulders to travel along SR 107. Bicyclists can easily fall when attempting to move out of the way for vehicles. The lack of clear paved shoulder space forces bicyclists to either ride in the roadway or where debris accumulates which could also cause a bicyclist to fall or get a flat tire. Most of Zane Whitson Drive does not have any paved shoulder; however, the traffic volumes are lower, making it more conducive to riding a bicycle.

Bicycle Routes & Trails

Existing sidewalks and bicycle facilities in the towns are shown in Figure 2-1 Bicycle and Pedestrian Facilities in Unicoi County. Of particular importance is the Erwin Linear Trail which is illustrated in light blue. The proposed ARC POWER trails are shown in the dotted light blue lines and the pink lines show existing bike lanes. The Erwin Linear Trail provides a spine for future bicycle facilities and for connecting the two towns.

Figure 2-1 Bicycle and Pedestrian Facilities in Unicoi County



2.2 Economic Development

Tourism has been increasing rapidly in Northeast Tennessee as shown in

Figure 2-2 below. From 2016 to 2017, spending from tourism increased by 4.8% in Unicoi County, bringing in over \$1.25 million between state and local tax receipts.

Figure 2-2 2017 Economic Impact of Domestic Travel on Northeast Tennessee Counties

County	Travel Expenditures	Percentage Change from 2016	State Tax Receipts	Local Tax Receipts
Washington County	\$257.5 million	4.7%	\$15.44 million	\$6.01 million
Carter County	\$39.47 million	6.3%	\$2.44 million	\$2.49 million
Unicoi County	\$9.27 million	4.8%	\$520,000	\$760,000
Sullivan County	\$386.70 million	4.1%	\$21.49 million	\$10.63 million

Source: Johnson City Press, 9/2/18 and U.S. Travel Association

The Northeast Tennessee Regional Partnership was formed to assist the cities in the region to capitalize on their collective resources and the area's natural resources to sustainably grow the region's economy. The Unicoi County Sustainable Tourism Initiative identified green tourism opportunities and helped galvanize local leaders to develop mountain bike trails, complete the Tweetsie Trail, build the Pinnacle Mountain Fire Tower Trail, and become the fourth community to receive the Appalachian Trail Community designation in the United States.

By connecting the region with trails and hiking facilities, Unicoi County can harness the success of its neighboring cities and wilderness areas. The vision of a region connected by trails is a powerful way to attract green tourism dollars.

2.3 Encourage Outdoor Recreation

Both communities currently cater to outdoor recreation, this connection could be the impetus to attract more participation by residents and encourage more visitors. Ultimately this connection could become the first step in a nonmotorized trail system linking Unicoi County with Johnson City and the tri-state region.

It has been well established that the results of limited exercise and physical activity can lead to major health problems for individuals. This is one of the reasons that heart disease is so prevalent throughout the United States (Center for Disease Control and Prevention, 2016). In particular, the rise of obesity in the United States is one such condition that has dominated health statistics in recent decades due to a lack of sufficient exercise by Americans.

Of particular note is the large and growing senior population that has mobility needs, which could be better served. As this population transitions from driving a vehicle to a motorized scooter or walking, it will be imperative that the region consider other options for them to continue to be mobile. A greater connected sidewalk and bicycle network would be a strong benefit for seniors to maintain their overall independence and mobility.

For those who are younger, the ability to walk and bike safely to school, parks and other destinations in the region could help quell and reduce obesity and diabetes epidemics facing the younger generations.

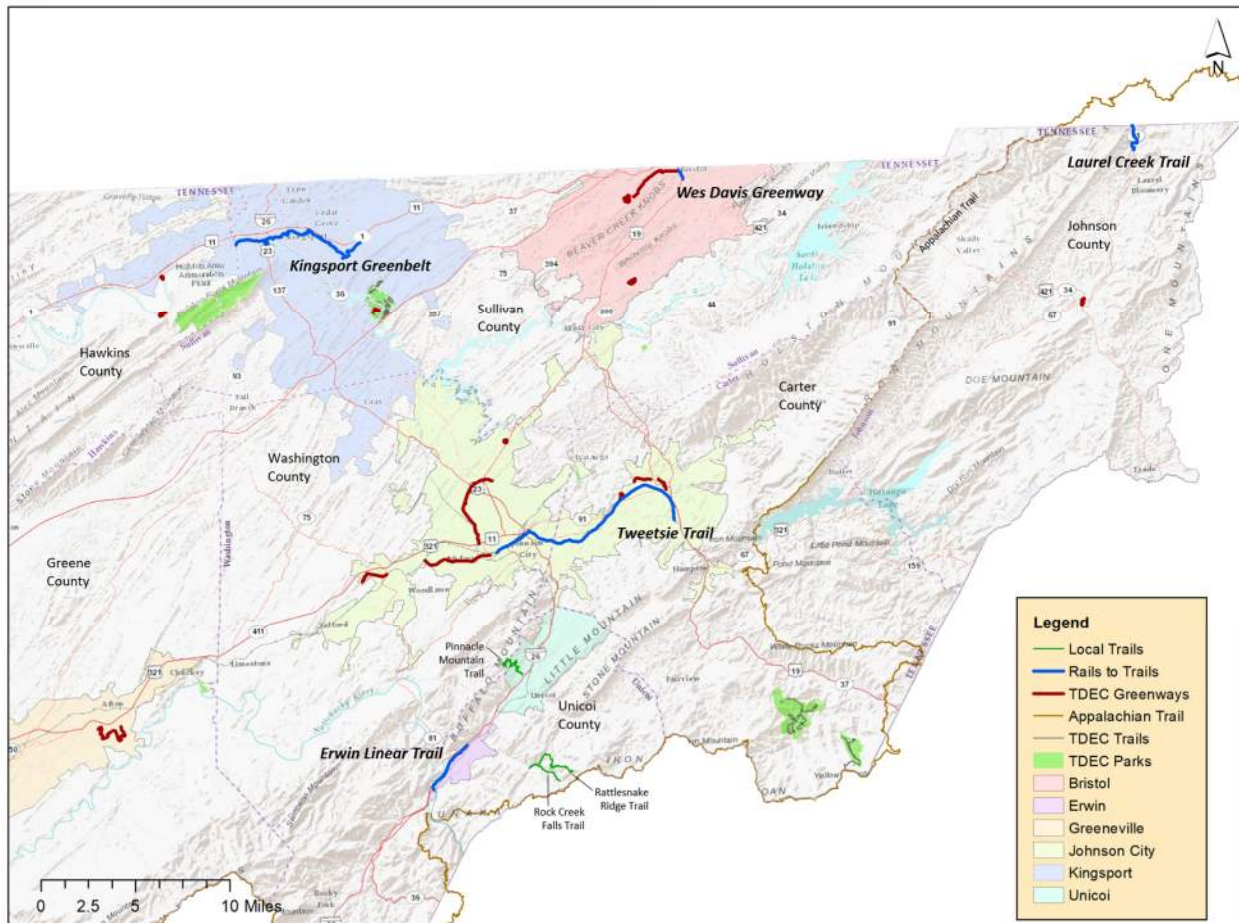
The popularity of the Erwin Linear Trail shows that people would like the opportunity to walk or bicycle more. Connecting this Trail to the towns by sidewalk or shared-use path and bike lanes will provide access to this facility by those without a car.

2.4 Regional Trail Connections

Unicoi County is located near several other cities. Johnson City is located approximately six miles north of the Unicoi County border. Kingsport is located approximately 29 miles to the north, Bristol 31 miles northeast, Elizabethton 15 miles northeast and Jonesborough is approximately 14 miles northwest of the County. Asheville, North Carolina is located approximately 32 miles from Unicoi County's border at the top of Sams Gap. These cities are all within bicycling and driving distance of Unicoi County and provide access to shopping, dining, entertainment, medical facilities, education and employment. The rural tone of the area with proximity to larger cities makes Unicoi County an excellent place for bicycling and hiking. It is a destination, base for exploration, and an area to travel through for bicyclists and hikers. This also provides a positive and important source of economic activity for the region.

In addition to existing local facilities there are many bicycling and hiking facilities within 35 miles of Unicoi County. These are illustrated in Figure 2-3 below. Regional Rails to Trails include the Erwin Linear Trail, the Tweetsie Trail in Johnson City, the Laurel Creek Trail, and the Kingsport Greenbelt. In addition to the Appalachian Trail, numerous regional hiking trails, mountain biking areas and parks are shown on the map. As the region works together in the future to connect and market these resources, the area's ecotourism stature will grow, along with the economy.

Figure 2-3 Regional Trails Map



2.5 Safe and Equitable Access

It is important that the connection between Unicoi and Erwin be accessible to bicyclists of all skill levels from children to adults and senior adults. To do this requires a facility that is physically separated from vehicular traffic. It is also essential to provide linkages to key destinations, sidewalks, and the Erwin Linear Trail so that people of all abilities can access the connection between the two towns without an automobile. Unicoi County's population over 65 makes up 22% of the population versus 15 % for the State of Tennessee.

3 Development and Evaluation of Alternatives

3.1 Multimodal Transportation Options

There are many destinations throughout the SR 107 corridor in Erwin and Unicoi. Connecting these destinations with more transportation modes can provide a significant amount of benefits for the people who live in these cities. For this to happen, there must be more types of transportation infrastructure along the SR 107 corridor for people to utilize.

Corridor Alternatives

The project team, after reviewing the existing demographic conditions and meeting with local stakeholders, reviewing the existing bicycle and pedestrian facilities along the study corridor and intersection geometries (Section 4.3: Additional Considerations), developed a series of potential alternatives (recommendations) for SR 107 and Zane Whitson Road. Originally, SR 107 was the only alternative intended to be studied, but after speaking with stakeholders, Zane Whitson Drive was also added as another corridor that should be studied. Most sections of these alternatives consist of adding a shared use path along one side of the roadway, with some areas having only sidewalks instead (See Figure 3-1 and Figure 3-2).

Figure 3-1 Erwin and Unicoi Recommended Alternatives (Part 1)

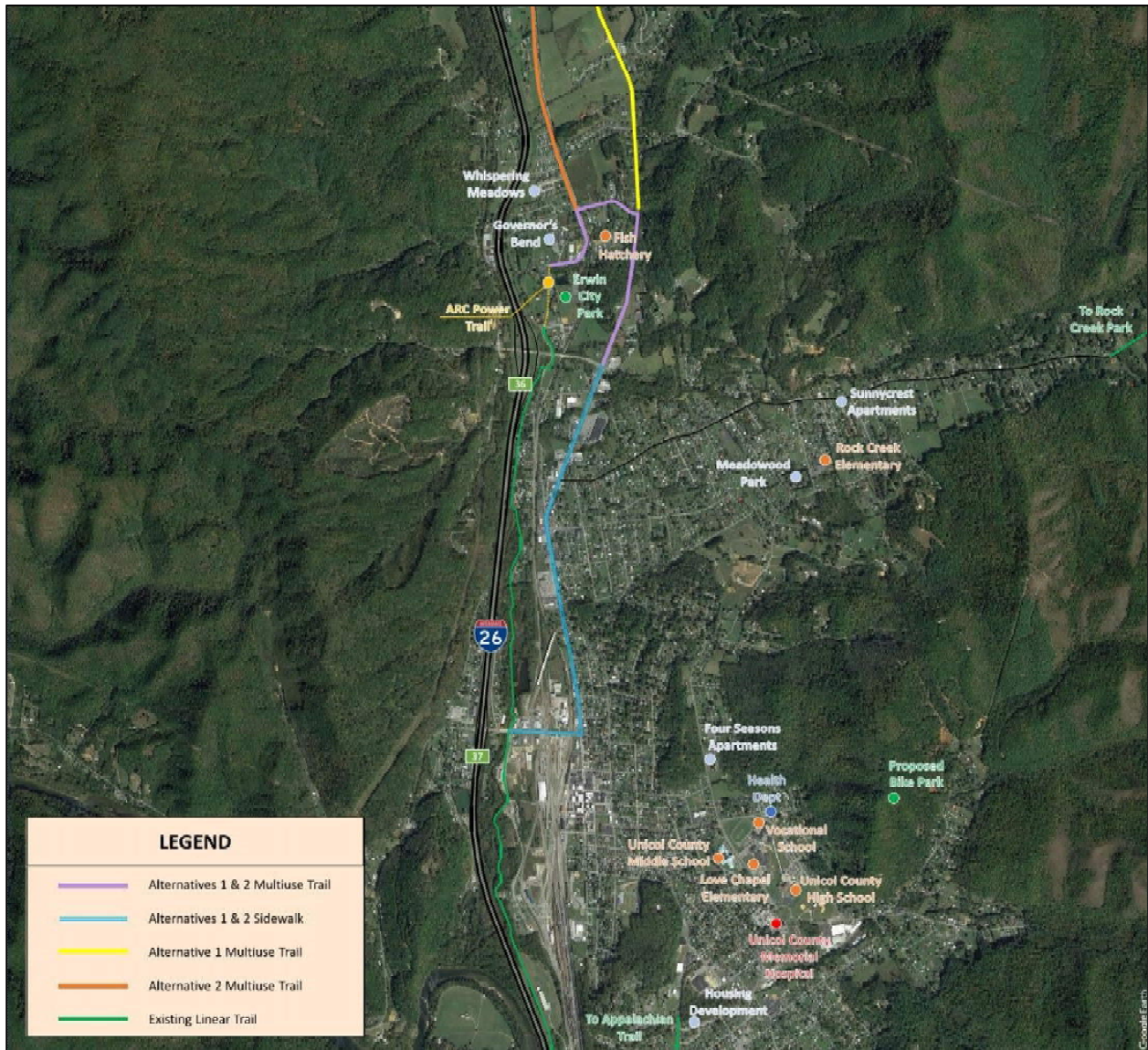
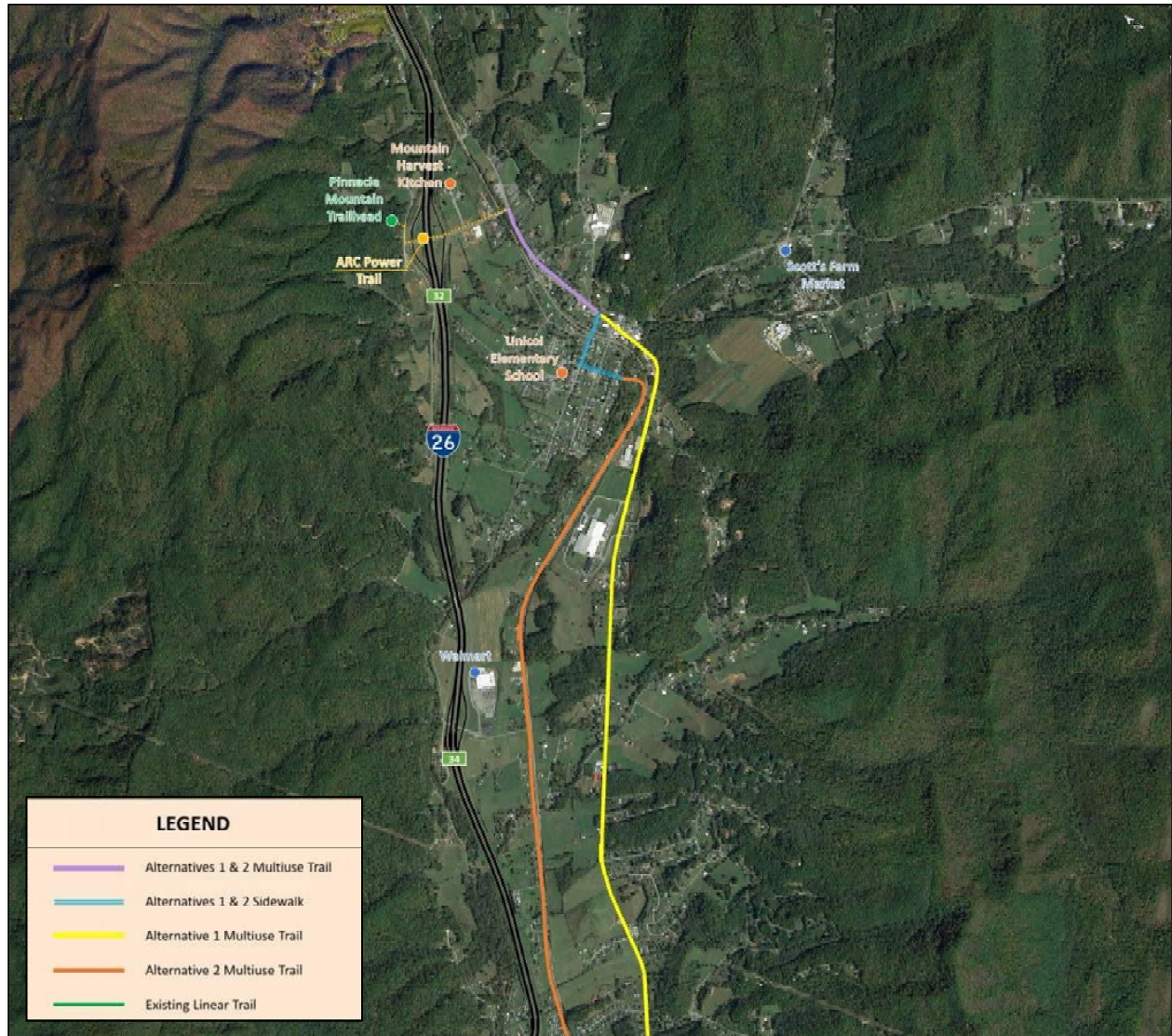


Figure 3-2 Erwin and Unicoi Recommended Alternatives (Part 2)

3.2 Facility Types

Paved Shoulders and Bike Lanes

Both paved shoulders and bike lanes provide a separate area of the roadway which bicyclists can use without competing with motor vehicle traffic. Both use striping to separate the modes. Bike lanes are designated for bicycle use. Unless speeds are very low, most bicyclists do not feel safe with only a strip of pavement marking between them and motor vehicles.

Shared Use Paths

A shared use path is a 10' to 12' two-way bicycle and pedestrian facility that is fully separated from traffic either by a raised curb and gutter much like a sidewalk or with a shoulder and drainage ditch. Shared use paths typically provide bicyclists and pedestrians the greatest sense of comfort out of the

various bicycle facility types. For them to be safe, there needs to be enough separation distance from the roadway and intersections with cross streets. Additionally, driveways should be kept to a minimum. Shared use paths require greater sight distances than sidewalks because bicycles travel at higher speed than pedestrians. As a result, they may not be ideal in all situations. This type of facility is recommended in most of the typical sections for the two alternatives because it requires fewer construction costs associated with drainage structures where there are no existing sidewalks and curbs and gutters.

Sidewalks

In urban areas along SR 107, sidewalks should be provided on both sides of the roadway where possible. A shared use path can substitute for sidewalks in areas with expected bicycle travel or in locations with no curb and gutter, such as north of Harris Hollow Road. In addition, sidewalks should connect commercial areas, restaurants, schools, libraries, medical facilities, universities, and other land uses, allowing residents and visitors a safe and inviting place to walk. Crosswalks, pedestrian signals and street lighting should be installed at roadway crossings with existing traffic signals. Lighting should be included at key crossings and should illuminate pedestrians in crosswalks. All roadway crossings should include ADA compliant curb ramps and follow TDOT standards.

3.3 Design Guidelines

TDOT provides design guidance for shared use paths, sidewalks and other nonmotorized facilities. This guidance specifies a minimum of two feet of separation with any physical barrier and provides other dimensions for roadway separation. This guidance is adhered to in the recommended typical sections provided later in this chapter.

3.4 Count Data

Vehicle counts at key intersections were taken in August of 2019 and show a need for providing pedestrian and bicycle crossing improvements on SR 107. These recommended intersection and geometric improvements are discussed further in Section 4.3 Additional Considerations. The SR 107 and Harris Hollow Rd intersection had the highest traffic volumes and is discussed below.

SR 107 and Harris Hollow Road

This intersection has the highest volume of vehicular traffic during the PM peak hour due to the interchange with Harris Hollow Road and I-26. Approximately 400 vehicles move between the interchange on Harris Hollow and SR 107 into Erwin. Another 400 vehicles utilize SR 107 towards Unicoi and into Erwin. Providing good signalized pedestrian crossings on all four legs of this intersection is critical to the success of implementing both shared use path alternatives on this portion of SR 107. Other key intersection PM peak hour turning movements are shown in Technical Memo 2 in the Appendix.

4 Alternative Benefits and Considerations

Each alternative in this study has specific benefits for the people that live within Unicoi and Erwin. Alternative 1 would provide more connectivity between the two cities by providing access along a main roadway while alternative 2 could be more beneficial by connecting to existing non-motorized trails and provide additional access for recreational activities. These alternatives also have additional considerations that must be noted in order for each of them to be understood in full. For example, there may more right-of-way considerations for Alternative 1 and more interactions with driveways, thus potentially complicating construction and design. These considerations are discussed later in this section and are related to the concepts that have been mentioned within Chapter 3 of this study.

4.1 Alternatives and Plan Sheets

For each alternative, plan sheets were developed which are meant to provide a more detailed view of the study corridor and the recommendations for each of the portions of roadway. For example, in Figure 4-1, this plan sheet contains the recommendations for 2nd Street and a portion of SR 107 for Alternative 1. Also included in each figure are “typical sections” which show what each portion of the roadway is recommended to have. These typical sections can be found in Exhibit A. Figure 4-1 through Figure 4-8 are the plan sheets for Alternative 1, which utilizes SR 107 as the main route. Figure 4-9 through Figure 4-16 are the plan sheets for Alternative 2, which utilizes Zane Whitson Drive as the main route.

Figure 4-1 Erwin and Unicoi Recommended Alternatives 1 – Plan Sheets Page 1

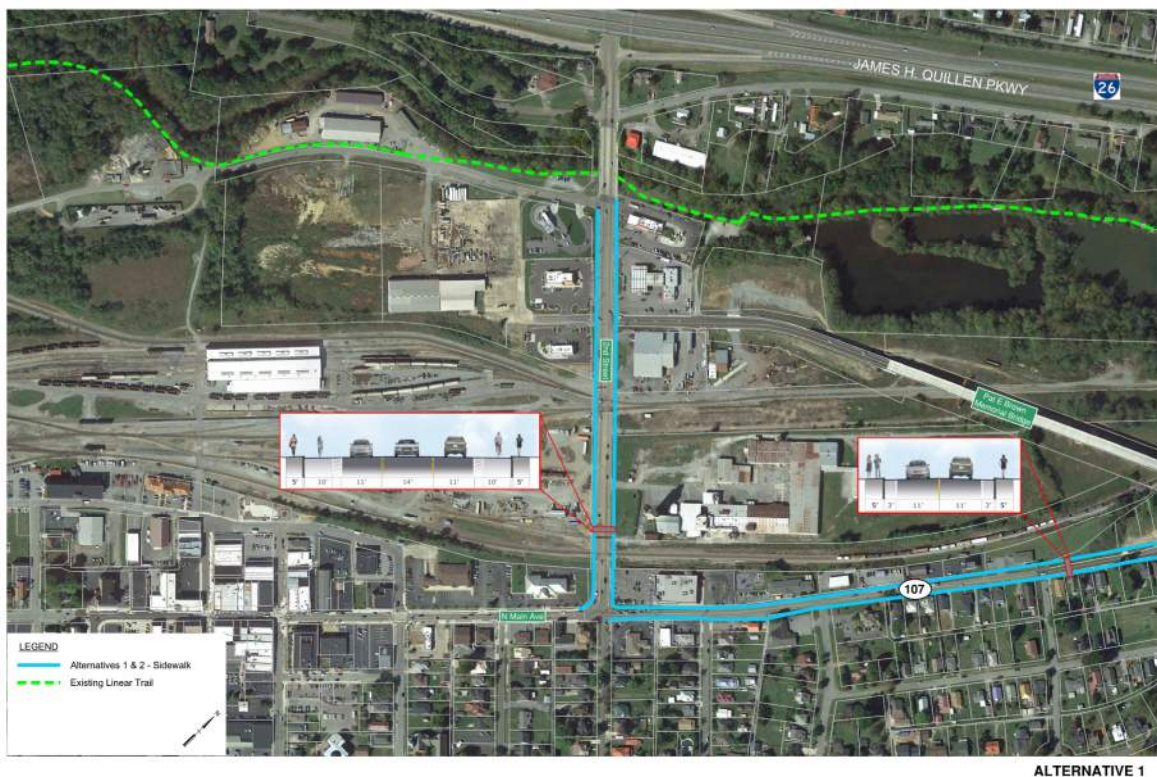


Figure 4-2 Erwin and Unicoi Recommended Alternatives 1 – Plan Sheets Page 2

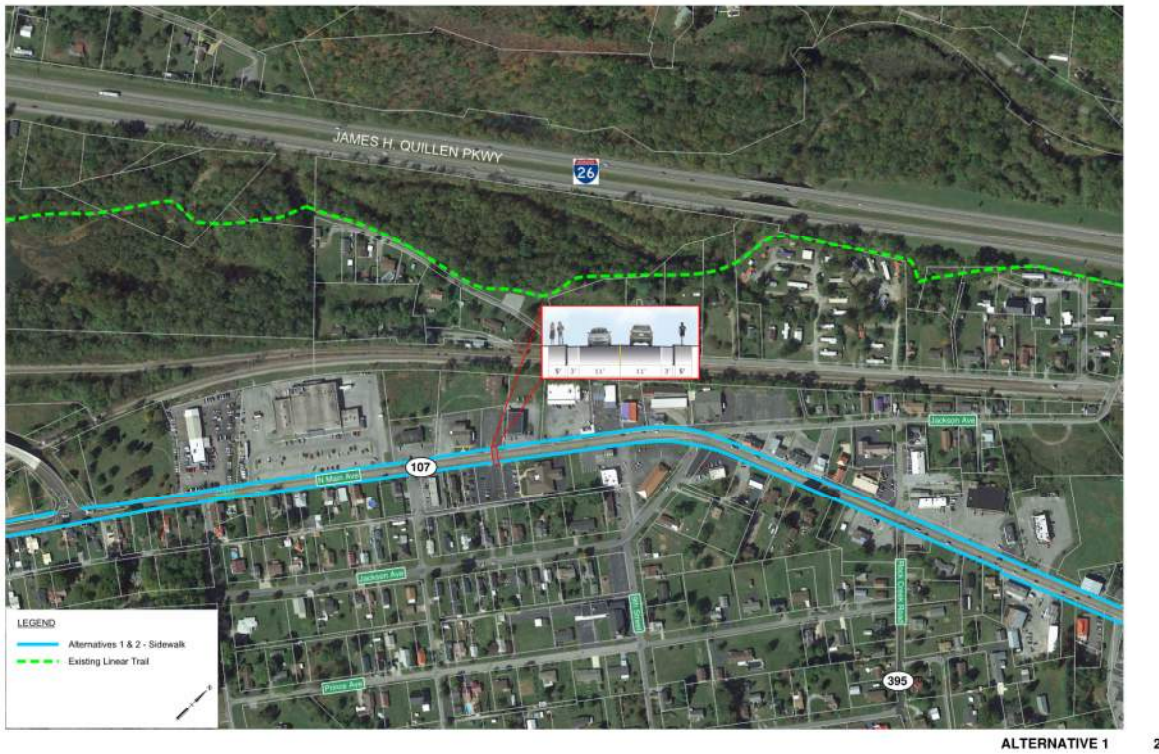


Figure 4-3 Erwin and Unicoi Recommended Alternatives 1 – Plan Sheets Page 3

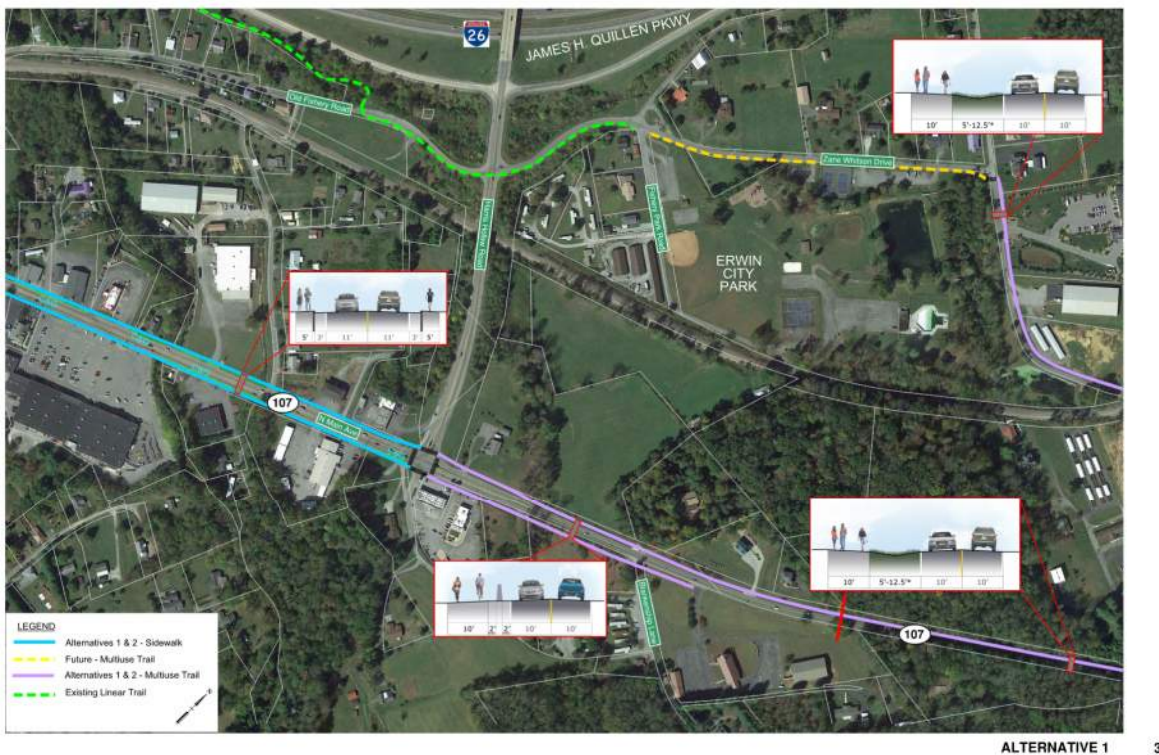


Figure 4-4 Erwin and Unicoi Recommended Alternatives 1 – Plan Sheets Page 4



Figure 4-5 Erwin and Unicoi Recommended Alternatives 1 – Plan Sheets Page 5



Figure 4-6 Erwin and Unicoi Recommended Alternatives 1 - Plan Sheets Page 6



Figure 4-7 Erwin and Unicoi Recommended Alternatives 1 - Plan Sheets Page 7

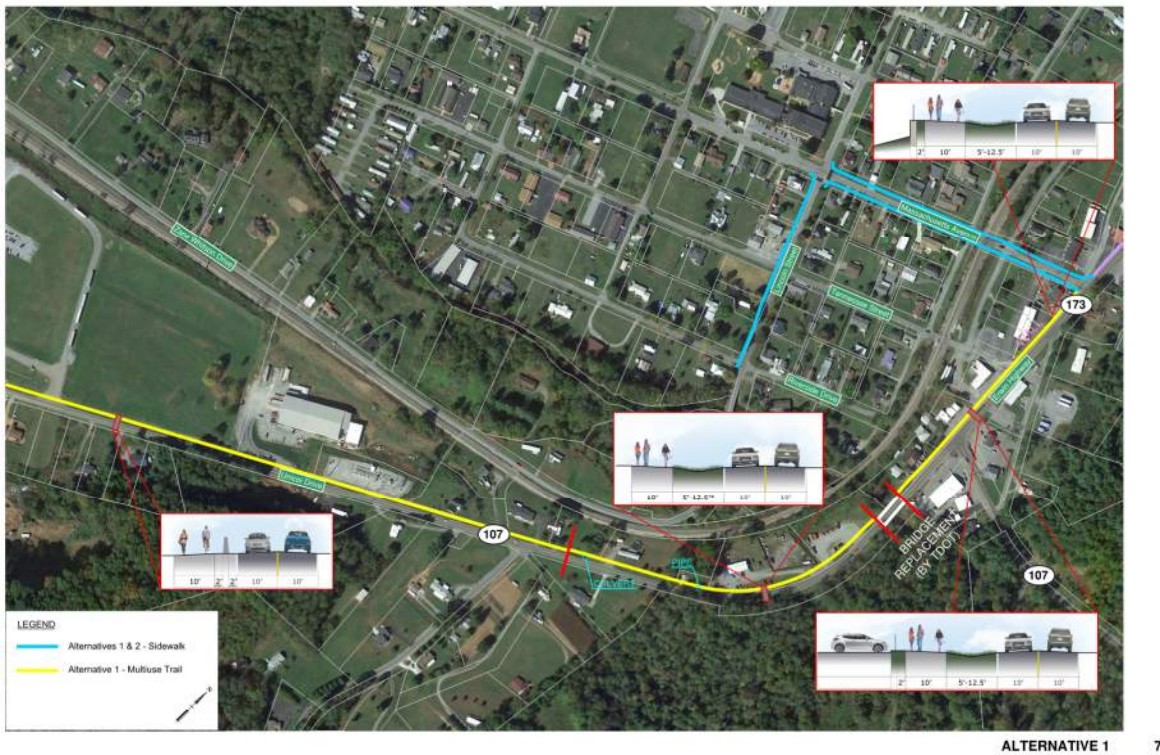


Figure 4-8 Erwin and Unicoi Recommended Alternatives 1 – Plan Sheets Page 8



Figure 4-9 Erwin and Unicoi Recommended Alternatives 2 – Plan Sheets Page 1

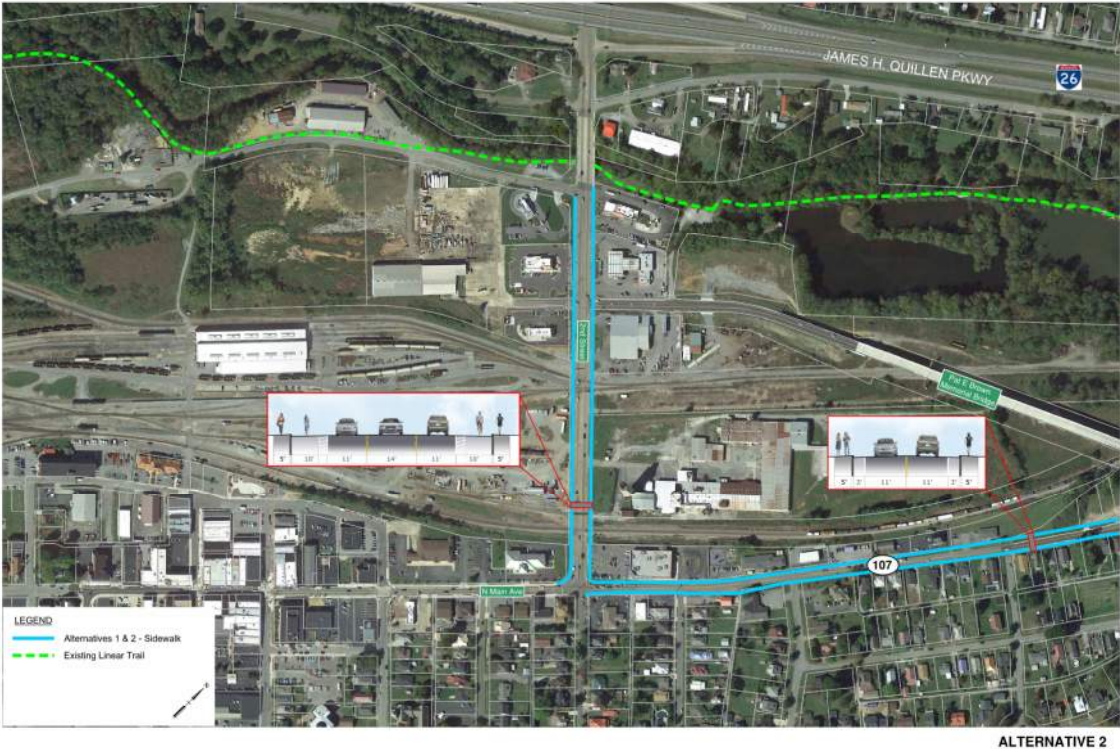


Figure 4-10 Erwin and Unicoi Recommended Alternatives 2 - Plan Sheets Page 2

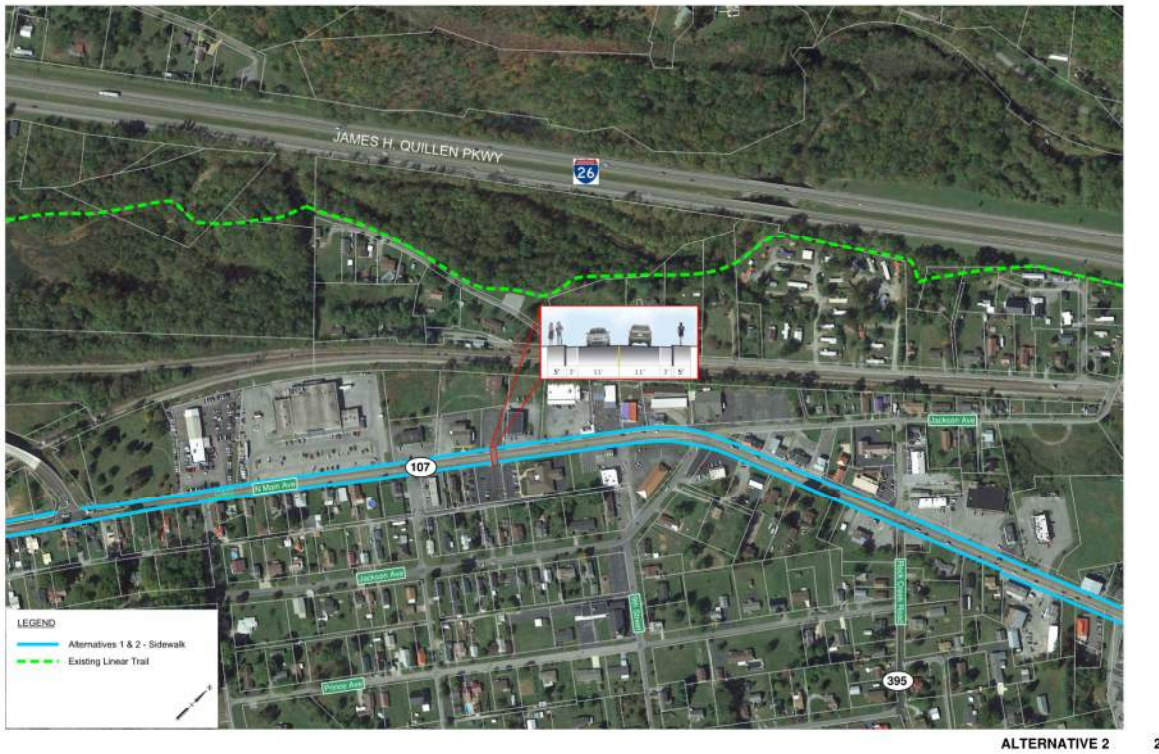


Figure 4-11 Erwin and Unicoi Recommended Alternatives 2 - Plan Sheets Page 3

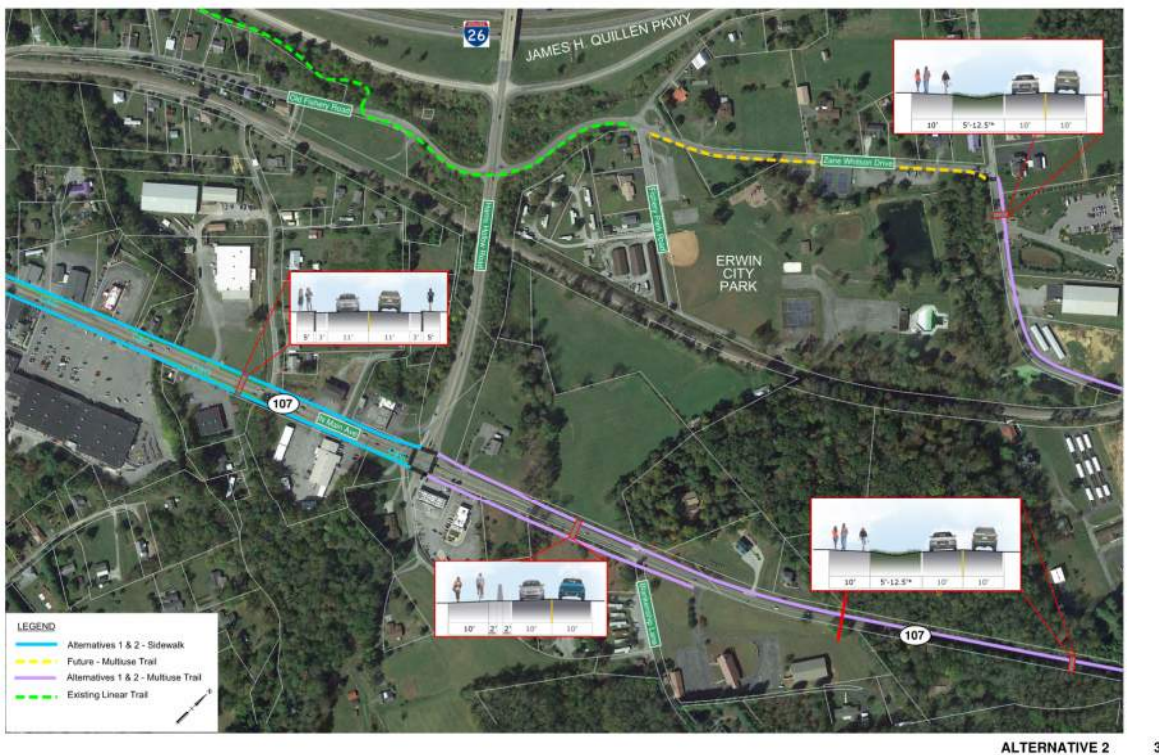


Figure 4-12 Erwin and Unicoi Recommended Alternatives 2 – Plan Sheets Page 4



Figure 4-13 Erwin and Unicoi Recommended Alternatives 2 – Plan Sheets Page 5



Figure 4-14 Erwin and Unicoi Recommended Alternatives 2 - Plan Sheets Page 6



Figure 4-15 Erwin and Unicoi Recommended Alternatives 2 - Plan Sheets Page 7

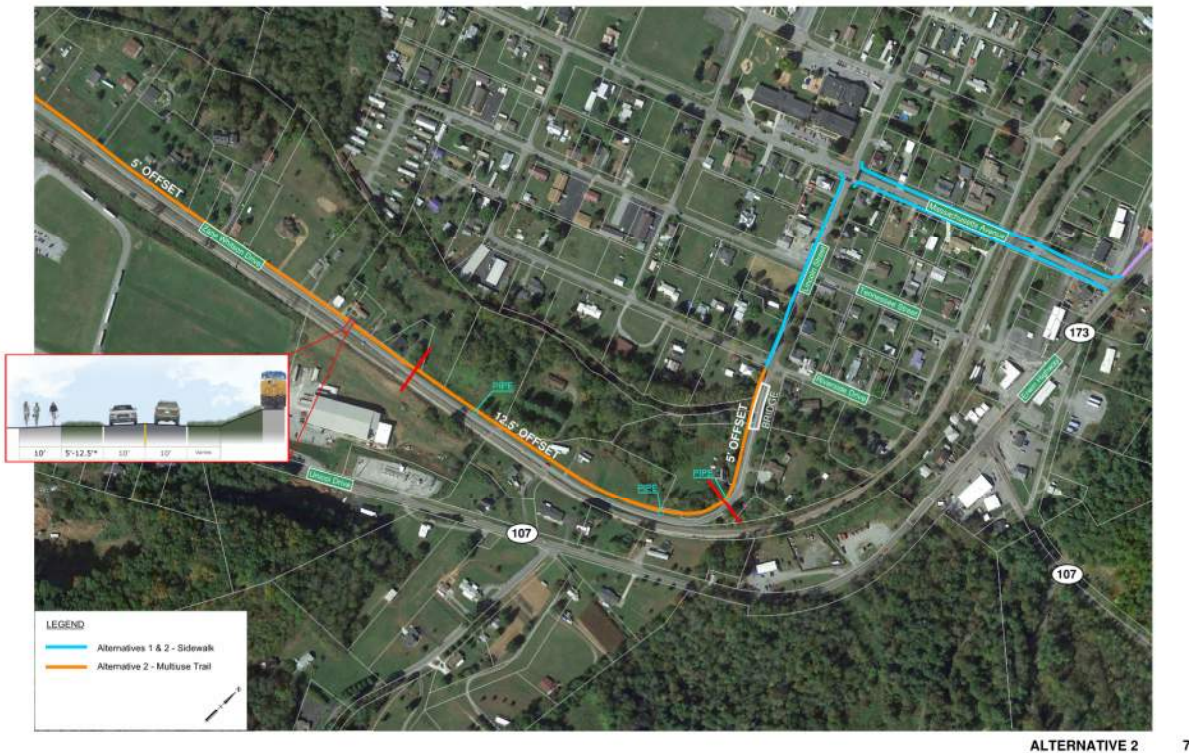
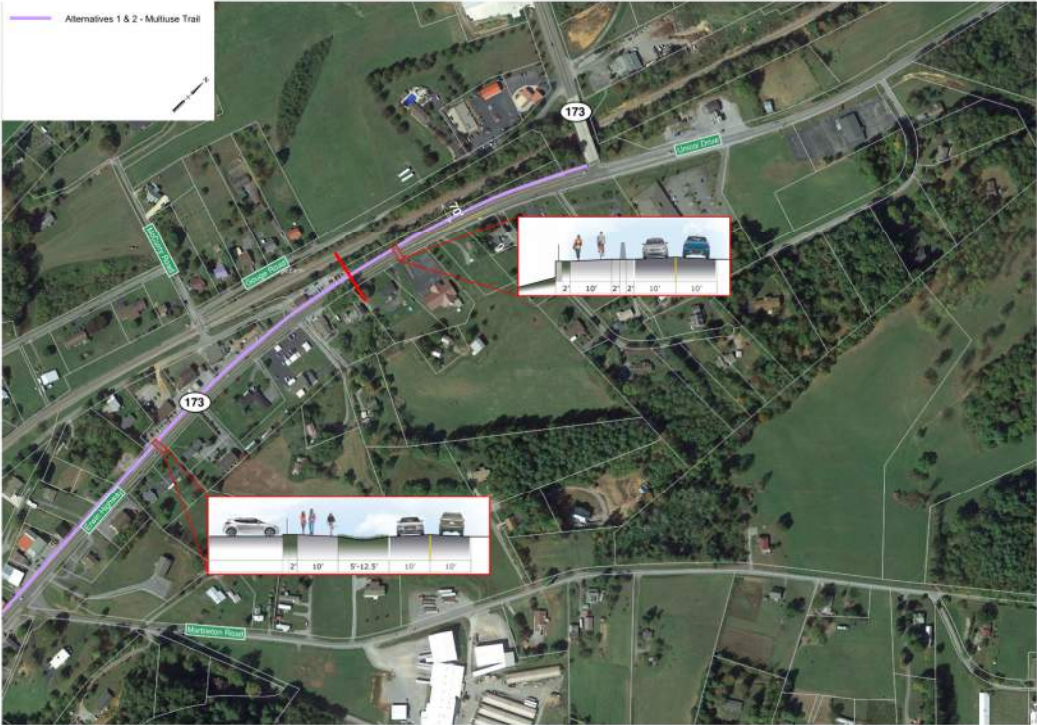


Figure 4-16 Erwin and Unicoi Recommended Alternatives 2 - Plan Sheets Page 8



ALTERNATIVE 2 8

4.2 Alternative Benefits

There are benefits and drawbacks from each of the proposed alternative corridors. The table below identifies some of them.

Considerations:	SR 107 Benefit	SR 107 Drawback	Zane Whitson Benefit	Zane Whitson Drawback
Volume of Traffic	-	Higher traffic volume	Lower traffic volume	-
Length of connection required	-	Longer distance	Shorter distance	-
Cost	-	Higher cost	Lower cost	-
Ease in meeting TDOT funding requirements	On state highway system	-	-	May not be eligible
Accessibility to key destinations	Connects more destinations	-	-	Connects to fewer destinations
Driveway and Cross street Conflicts	-	Greater number of conflicts	Fewer conflicts	-
Impacts to Private Property	Fewer number of conflicts	-	-	Greater number of conflicts
Connectivity to Erwin Linear Trail	-	Requires additional infrastructure	More direct connection	-
Available Right of Way	Less constrained	-	-	Constrained by railroad tracks

4.3 Additional Considerations

Street Intersection Geometrics

Many of the roadway intersections in Unicoi and Erwin are currently not amenable to pedestrians or bicyclists who wish to cross them. The main issue is that they are wide due to the widths of the roadway, exclusive turn lanes, and the radii of the turns and curbs. For example, the turn radius for the northwest quadrant at the intersection of SR 107 and 2nd Ave is wide to allow for vehicular traffic and trucks to make turns without needing to slow down significantly. This creates longer crossing distances for pedestrians who may want to cross the intersection. They must wait for no vehicles to turn in order to safely cross. If curb radii were reevaluated at the major intersections in Erwin and Unicoi, it could yield significant benefits for pedestrians and bicyclists with shorter crossing distances and slower vehicle speeds. The radii would need to be calculated based on the speed of the roadway and the amount and type of traffic in the area.

The northern intersection quadrants at Harris Hollow Road and SR 107 have wide radius curves which facilitate truck movement and higher speed vehicular movements. Combined with the fact that Harris Hollow Road connects Erwin to I-26, there is potential for high speed turns which could prove dangerous for nonmotorized users.

Intersection Improvements for Pedestrians

Pedestrian crosswalks and signals should be installed at all signalized intersections where sidewalks are installed. These crossings should also include lighting and ADA compliant curb ramps.

These intersections include:

- Harris Hollow and SR 107
- Rock Creek Rd. and SR 107
- 2nd Street and SR 107

In addition, an at-grade railroad shared use path crossing is needed along Brown Rd.

Driveway Access

When developing bicycle and pedestrian infrastructure, driveway access along a corridor can oftentimes become a concern. This is because too many driveways can lead to a hostile environment forcing bicyclists and pedestrians to constantly look for traffic along the corridor and driveways. Within the Towns of Unicoi and Erwin, there are some driveways that could become safety hazards and should be modified or moved during shared-use path construction.

Driveway Issues

The first shared use path alternative runs from SR 173 in Unicoi following SR 107 to 2nd Street in Erwin. The second shared use path alternative runs from SR 107 in Unicoi following Zane Whitson Drive to Fishery Park Road. On the SR 107 alternative shared use path there are many local businesses and homes which have private driveways, which can be reconfigured during the construction of the shared use path to lessen the impact on nonmotorized users. Figure 4-17 and Figure 4-18 are examples of driveways that could create safety concerns for bicyclists and pedestrians on SR 107. These driveways have very wide openings with little guidance for where automobiles or nonmotorized users should traverse. This lack of space definition exposes bicyclists and pedestrians to a longer distance of greater risk.

An example of recommended changes for an open driveway can be seen in Figure 4-19, which shows a sample driveway that was modified to allow for a sidewalk and bicycle lane to be built on the shoulder of the roadway, but also to continue to allow for cars to enter the property. Similar changes may help improve the safety along SR 107 for bicyclists and pedestrians. These improvements would also improve safety for motorists and improve the appearance of the roadway and businesses

Figure 4-17 Example Driveway Safety Issues. 1212 SR 107 South Bound



Figure 4-18 Example driveway safety issues. 3601 State Highway 173



Figure 4-19 Example Driveway Changes

The second alternative, a shared use path on Zane Whitson Drive, is in a more residential area and not near local businesses. Due to this, there are fewer safety concerns with open driveways without channelization.

Sight Distance Issues

Not only can driveways cause issues for pedestrians and bicyclists, but they can cause issues for drivers if they are not designed and placed correctly. Proper sight distance is important so exiting drivers can see far enough away to ensure that vehicles traveling on the road do not hit them. For example, along SR 107, for the portion connecting downtown Unicoi and Erwin, there are areas that may need to be evaluated for people to see properly at driveways.

5 Implementation

While planning for all transportation modes is important, Unicoi and Erwin both need to develop strategies in order to fund and construct the recommendations that have been discussed in this document. Reviewing federal programs, partnering with local stakeholders and working together are critical for successful implementation.

5.1 Supportive Strategies, Policies, and Programs

One of the important first steps that Unicoi and Erwin can take is to implement potential strategies or policies that would focus on funding or constructing non-motorized infrastructure or promoting these modes throughout their municipalities.

For example, one simple strategy to engage children and families would be the Safe Routes to Schools program. While there is no funding available for this, if the local schools were to implement the program and have children either walk or bicycle to school one day a year, it would likely show the need for more infrastructure.

Another group to engage and partner with are senior adults. Within the Town of Erwin, there is the Clinchfield Senior Adult center which provides recreational activities, transportation, and educational programs to senior citizens. This group and others with less access to automobiles have a great need for continuous sidewalk connections to key destinations and the Erwin Linear Trail. Staying physically active is critical to maintain both physical and mental health.

Mentioned briefly in Section 0

Funding Strategies are the partnerships with public health agencies. This is another strategy for cities to utilize when looking to build non-motorized infrastructure or promote these transportation modes. Partnering with these types of agencies benefits both groups as it encourages people to live more active lifestyles and can assist with providing the necessary infrastructure.

5.2 Cost Estimates

Transportation infrastructure costs often differ depending on the intensity of the development, materials used and how much is planning to be built. Multimodal infrastructure often costs less than other types of roadway infrastructure while still yielding significant benefits. After reviewing the improvements that are recommended in this section, a planning-level cost analysis was completed. The costs for each alternative were developed and can be found in Table 5-1 and

Table 5-2.

Alternative 1 refers to SR 107, while Alternative 2 refers to Zane Whitson Road. The cost for implementing the recommendations in Alternative 1 is significantly more than Alternative 2, but this is to be expected as this section is longer and requires more infrastructure overall.

Table 5-1 Planning Level Costs – Alternative 1

Elements:	Cost (In Dollars)
Unicoi Sidewalks	\$ 420,383.33
SR 107 Shared Use Path	\$ 7,983,904.00
Erwin Sidewalks	\$ 925,933.33
2nd Street Sidewalks	\$ 152,444.44
Brown Road Trail	\$ 408,000.00
Zane Whitson Connection Shared Use Path	\$ 119,000.00
TOTAL	\$ 10,009,663.89

Table 5-2 Planning Level Costs – Alternative 2

Elements:	Cost (In Dollars)
Unicoi Sidewalks	\$ 420,383.33
SR 107 Shared Use Path (North)	\$ 634,944.44
Zane Whitson Shared Use Path	\$ 1,998,222.00
SR 107 Shared Use Path (South)	\$ 1,140,737.00
Erwin Sidewalks	\$ 925,933.33
2nd Street Sidewalks	\$ 152,444.44
Brown Road Trail	\$ 408,000.00

Zane Whitson Connection Shared Use Path	\$ 119,000.00
TOTAL	\$ 5,799,663.89

5.3 Funding Strategies

One of the most difficult challenges today when planning any transportation project is finding sufficient funding to complete them in a timely manner. This section contains a review of the various federal, state and local funding sources that are available for implementing transportation and multimodal improvements within the Town of Erwin and Unicoi. The focus has mainly been around funding that can allow for multimodal improvements such as sidewalks, bicycle lanes, shared-use paths and other similar infrastructure.

Table 5-3 Funding Strategies

Program Name/ Administering Agency	Examples of Eligible Activities	Funding	Program Information
TDOT Multimodal Division - Multimodal Access Grant Program	Eligible projects include pedestrian crossing improvements, shoulders, bicycle lanes, shared use paths within transportation corridor, road diets, or traffic calming measures, and utility relocation.	95 percent state with a 5 percent local match. Total project costs must not exceed \$1 million.	https://www.tn.gov/tdot/multimodal-transportation-resources/multimodal-access-grant.html These projects must be along a state route or within 0.25 mile of a state route and provide a direct connection to a state route.
TDOT Multimodal Division - Highway-Railroad Grade Crossing Program (Section 130 Program)	Intended to improve safety and reduce crash risk at public highway-railroad grade crossings. Funds may be used for the installation of warning devices as well as various other safety improvements at existing crossings.	Requires a 10% local match, but some projects can be 100% federally funded.	https://www.tn.gov/tdot/multimodal-transportation-resources/highway-railroad-grade-crossing-program.html
TDOT Local Programs - Transportation Alternatives Program (TAP)	Typical programs and projects include pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation.	20% local match for construction. Preliminary engineering, design, and ROW is the responsibility of the local government.	https://www.tn.gov/tdot/program-development-and-administration-home/local-programs/tap.html
TDEC Recreational Education Services - Recreational Trails Program (RTP)	Designed to enhance both motorized and non-motorized recreation trail opportunities and to provide and maintain recreational trails. The goal is to produce sustainable trails that are well designed, properly constructed and will require minimum future maintenance.	Requires a 20% local match, with a maximum award - \$200,000.	https://www.tn.gov/environment/about-tdec/grants/grants-recreation-grants/grants-recreation-educational-trail-program.html
TDEC Recreational Education Services - Local Parks and Recreation Fund (LPRF)	Intended to help improve greenspaces while making outdoor activities more accessible for all to enjoy. For the purchase of lands for parks, natural areas, greenways, and recreation facilities. Funds may also be used for trail development and capital projects in parks, natural areas, or greenways.	Requires a 50% state, 50% non-LPRF.	https://www.tn.gov/environment/about-tdec/grants/grants-recreation-grants/grants-local-parks-and-recreation-fund-lprf-grants.html

TDOT Safety Office - Spot Safety Improvement Program	Intended to improve the integrity and safety of the state roadway system, targeted towards locales of fewer than 50,000 with special emphasis on those with fewer than 5,000. Federal funding for projects on state routes or intersections with state routes. Work may include signalization, intersection modification without signalization, sight distance modifications, adding turn lanes, school flashing signals, flashing beacons, acquisition of land.	Requires a 20% non-federal match or 0% non-federal match depending on activity.	https://www.tn.gov/tdot/strategic-transportation-investments/project-safety-office.html
TDOT Safety Office - Highway Safety Improvement Program (HSIP)	Intended for the reduction of traffic fatalities and serious injuries on public roads. Includes improvements for pedestrian/bicycle safety; construction of yellow-green signs at pedestrian/bicycle crossings and in school zones. Correction of hazardous locations include roadside obstacles, railway-highway crossing needs, and poorly marked roads that constitute a danger to bicyclists/pedestrians.	Requires a 10% local match.	https://www.tn.gov/tdot/strategic-transportation-investments/project-safety-office.html
Tennessee Department of Economic & Community Development – ThreeStar Program	Designed to help communities build a healthy and educated workforce supported by a strong and stable local government that provides security and safety and promotes county progress in the areas of economic development, responsible fiscal management, public safety, health and education.	Grant amounts of \$10,000 for smaller projects such as bicycle racks, signs or other small infrastructure improvements.	https://www.tn.gov/ecd/rural-development/threestar.html
Tennessee Department of Economic and Community Development - Community Development Block Grant (CDBG)	Funding to cities and towns for projects with community-wide benefits. Activities must benefit low to moderate income persons. Includes sidewalks, greenways, trails, and bicycle facilities that provide increase safety, access, and transportation options.	100% federal funded	https://www.tn.gov/ecd/community-development-block-grant/cdbg.html

Public Health Agency Partnerships

Another potential funding source could come from partnerships or grants from public health agencies. It's becoming more common for these departments to assist with funding of multimodal transportation projects like sidewalks or bicycle lanes as it allows for people to more easily use these modes instead of vehicles. This increased usage allows for people to become more active and thus fits with their overall department goals.

Project Diabetes Funding

The Tennessee Department of Health has a grant funding program called Project Diabetes that can allow for funding of some infrastructure. It's awarded on a three-year cycle and the next round of projects will be held in 2020. The program is designed to fund "innovative primary prevention

projects to halt the increasing rate of obesity in Tennessee”. The Town of Unicoi or Erwin could apply for funding from this program in order to assist with building infrastructure for pedestrians and bicyclists if it were to show that a significant amount of people would use the newly built facilities.

Access to Health through Healthy Built Environments Funding

The Department of Health also has another program, Access to Health through Healthy Built Environments, which can allow for funding of greenways, trailhead signs, sidewalks, bikeways, crosswalks, and pedestrian/bicycle traffic signs/signals. It is 100% state funded, maximum award of \$85,000 with max \$80,000 for design/construction.

6 Summary

Both Unicoi and Erwin have already taken steps to improve the community's quality of life by building the Erwin Linear Trail and maintaining robust mountain biking and hiking networks. This Pedestrian and Bicycle Plan builds on those efforts and defines a multimodal connection between the cities to amplify the benefits of green tourism. Linking the proposed shared use path to the Erwin Linear Trail and providing sidewalks to the shopping area on SR 107 in Erwin create additional needed nonmotorized connections. This will make these areas more attractive for walking and bicycling and help strengthen the local economy and allow Unicoi County to sustain its long-term vision as a great place to live and visit.

The recommendations in this plan are the first step in achieving some of these benefits and provide a springboard for Unicoi and Erwin to fully benefit from the bicycle/pedestrian infrastructure in the surrounding area. When these are combined, there is an even greater draw for active travel and tourism.

7 References

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8 Exhibit A: Typical Sections – Recommendations

This exhibit contains the “typical sections” that are shown in Section 4:Alternative Benefits and Considerations. The purpose of these are to provide even more detail of the recommendations for each of the portions of roadway. For example, shows the typical configuration for this roadway, which calls for 5’ sidewalks and 10’ bicycle lanes on each side of the roadway, as well as 11’ travel lanes and a 14’ left turn lane.

Figure 8-1 2nd Street Typical Section

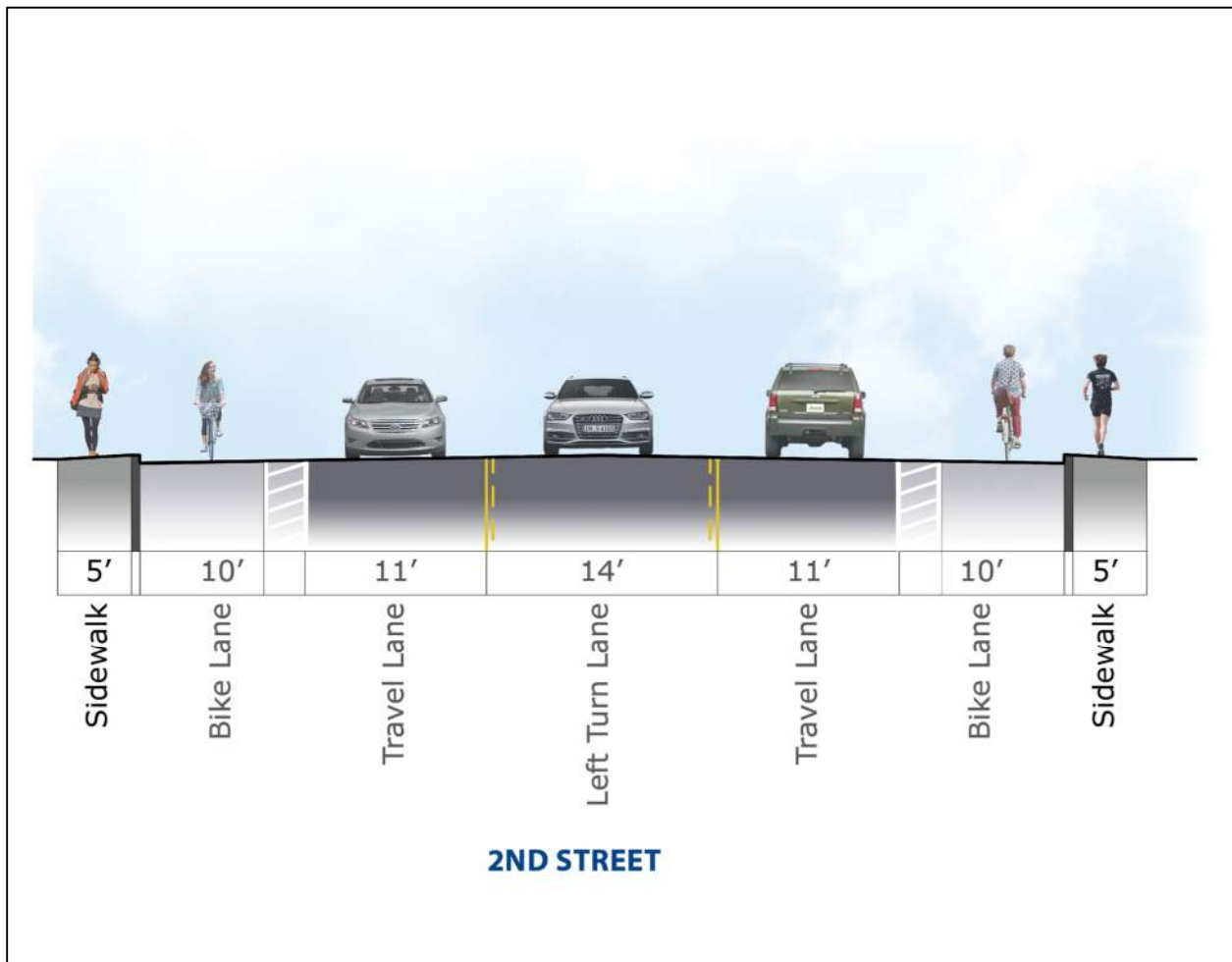


Figure 8-2 SR 107 - Alternate A with Parking Typical Section

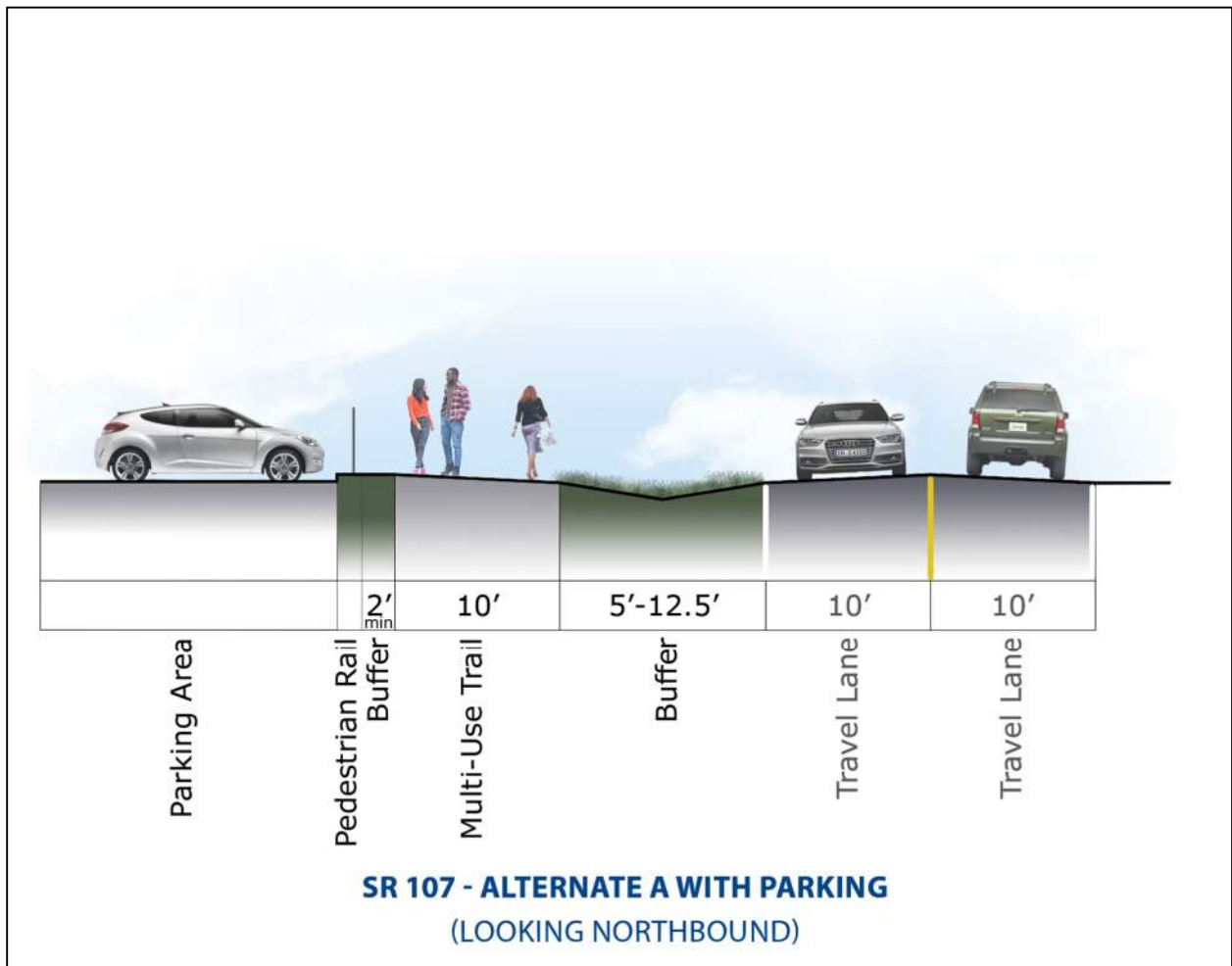


Figure 8-3 SR 107 - Alternate A with Wall Typical Section

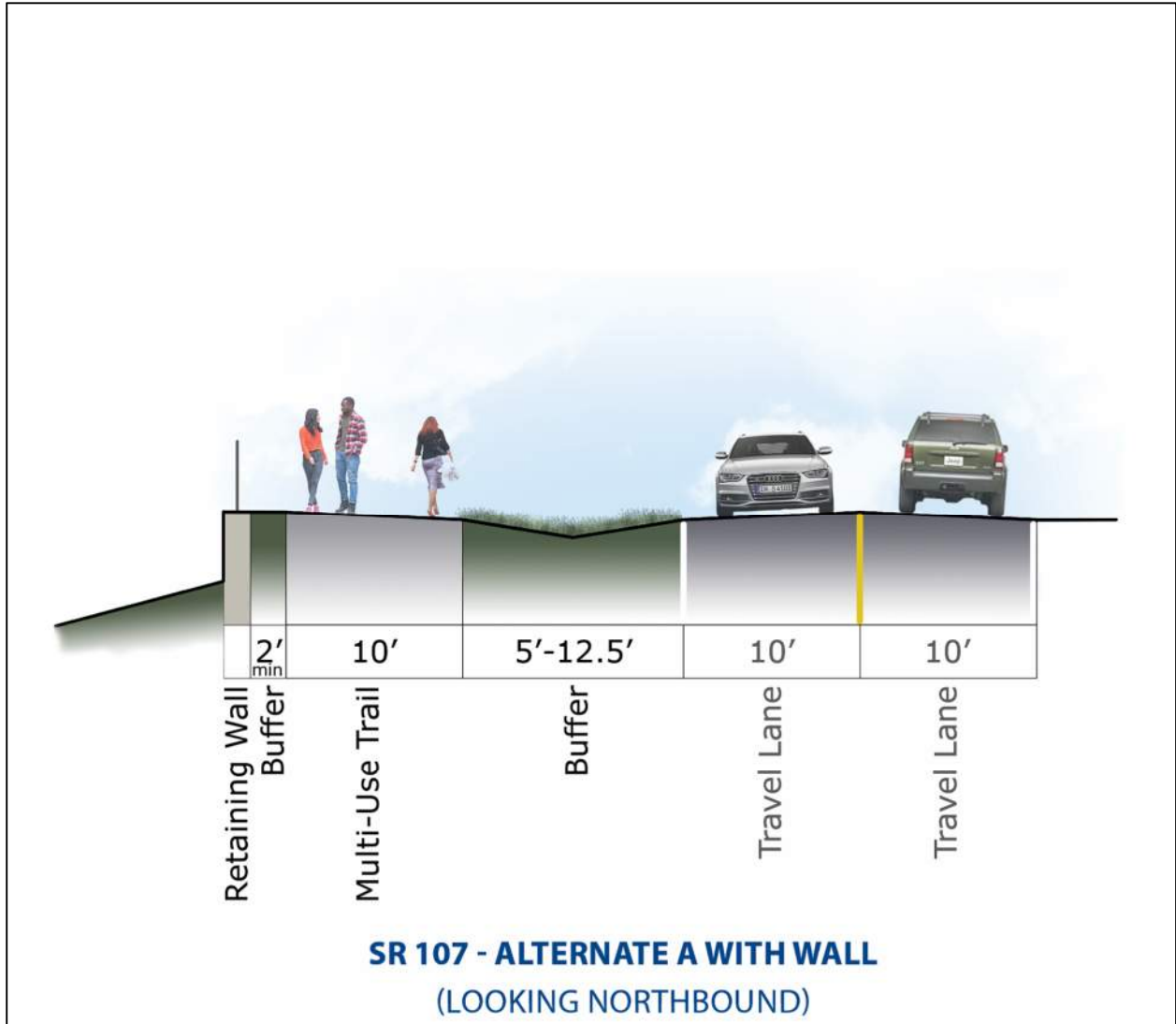


Figure 8-4 SR 107 - Alternate A Typical Section

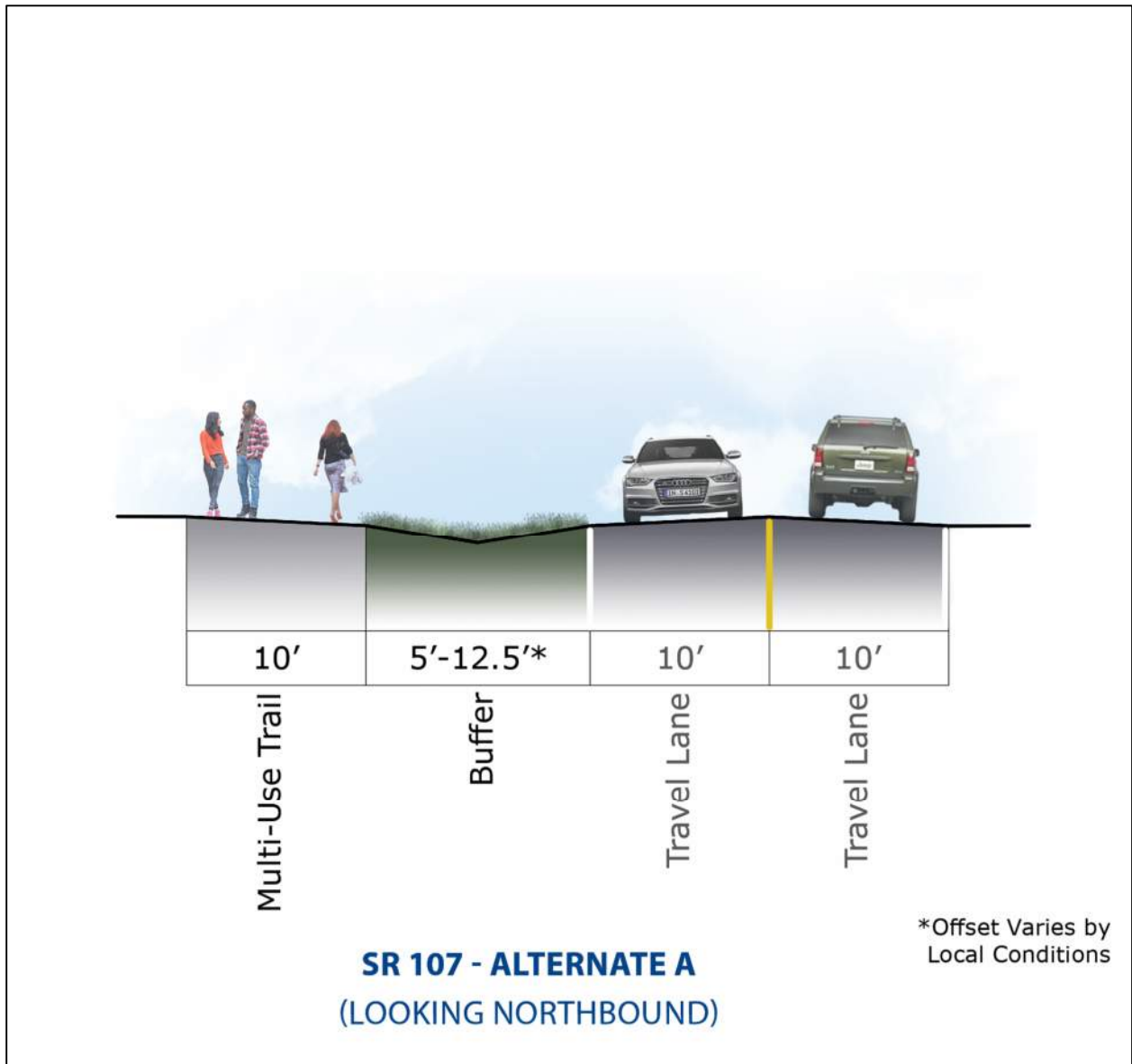


Figure 8-5 SR 107 - Alternate B with Wall (Cut) Typical Section

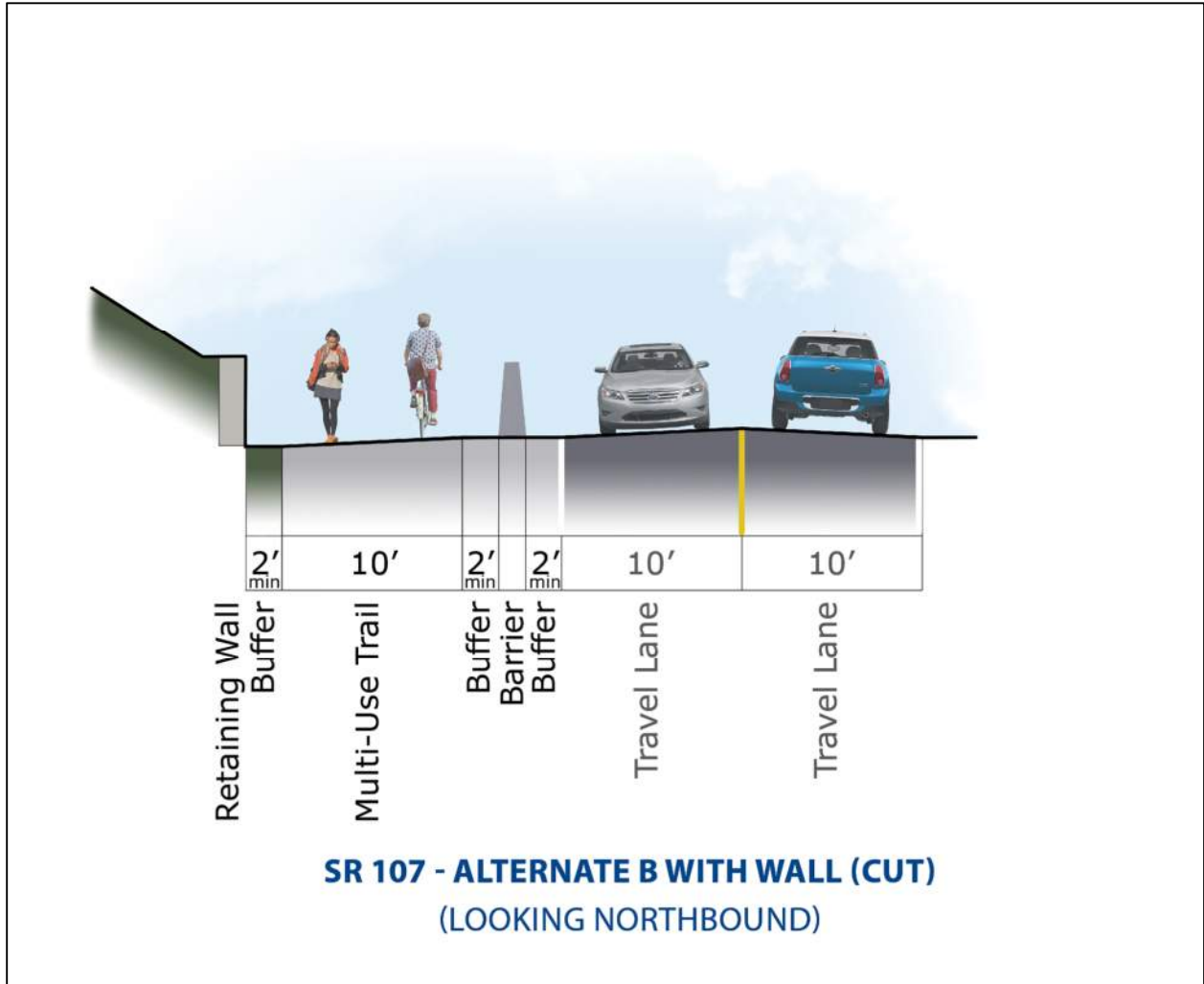


Figure 8-6 SR 107 - Alternate B with Wall (Fill) Typical Section

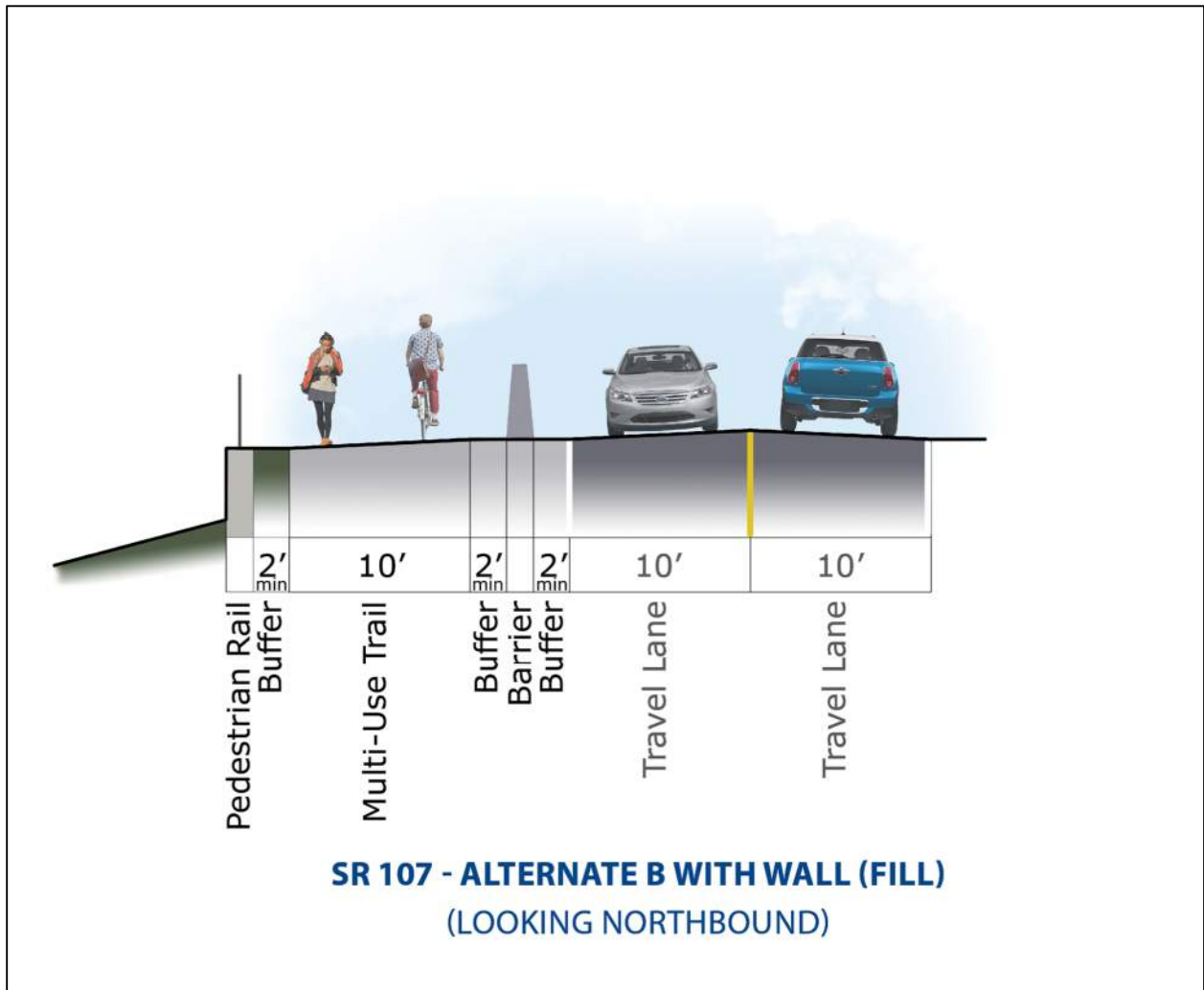


Figure 8-7 SR 107 - Alternate B Typical Section

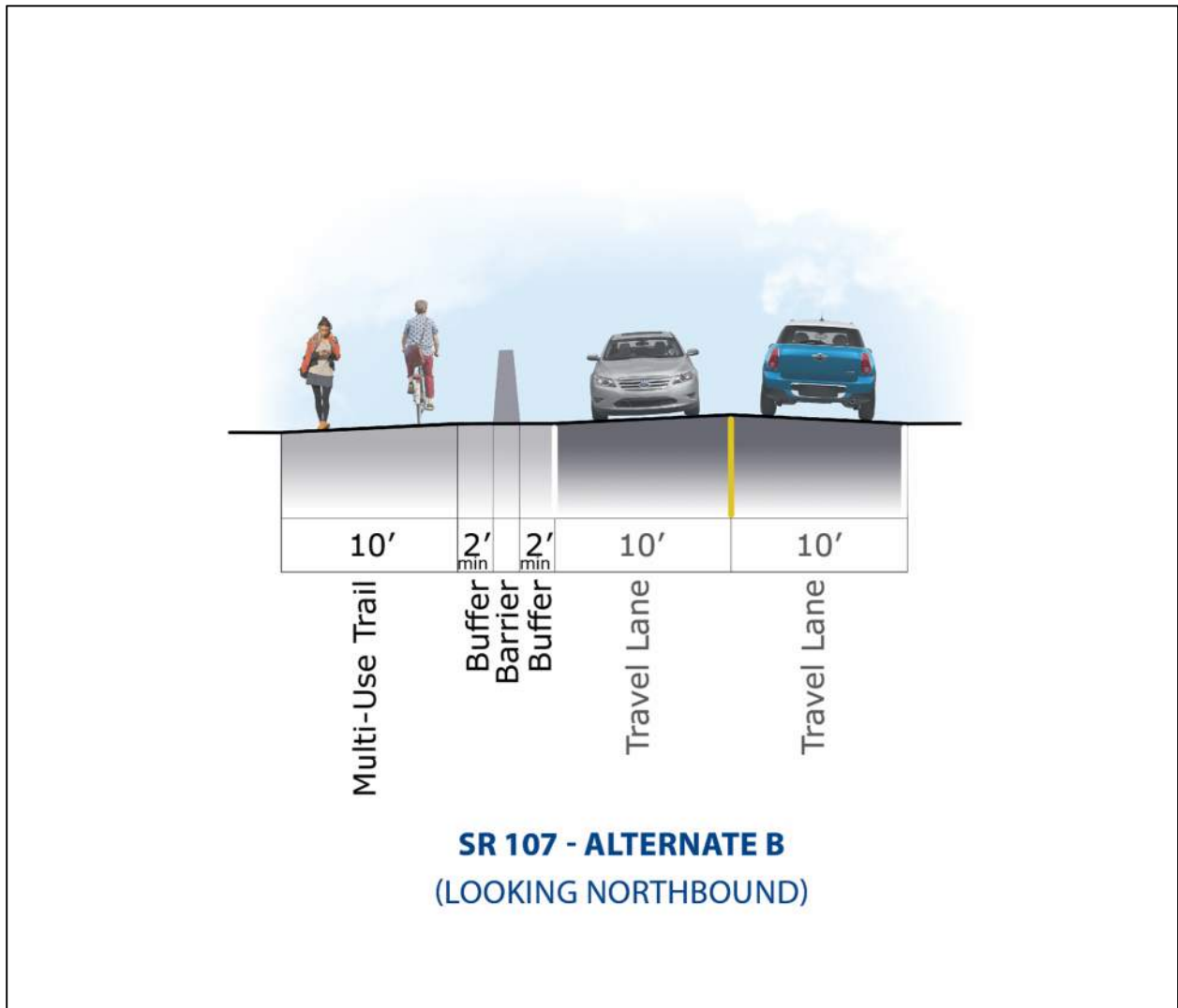


Figure 8-8 SR 107 - Alternate C Typical Section

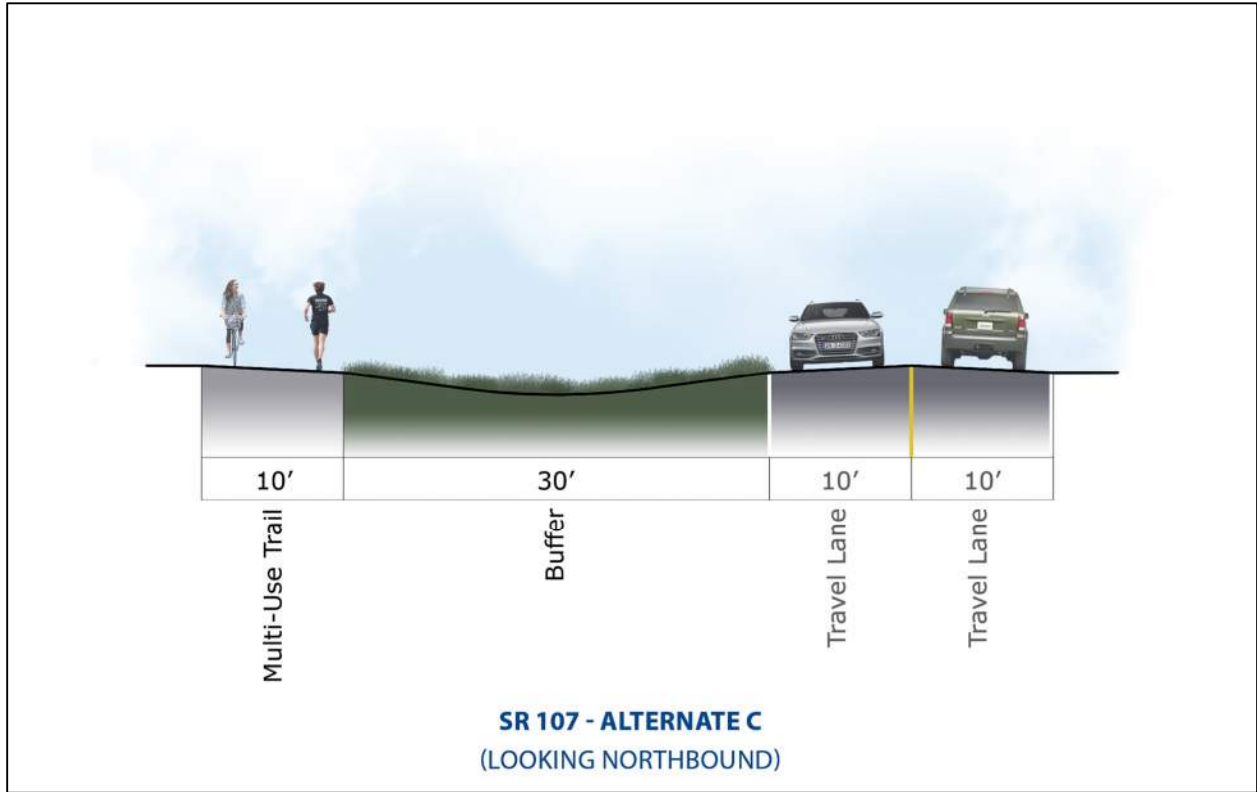


Figure 8-9 Brown Road Typical Section

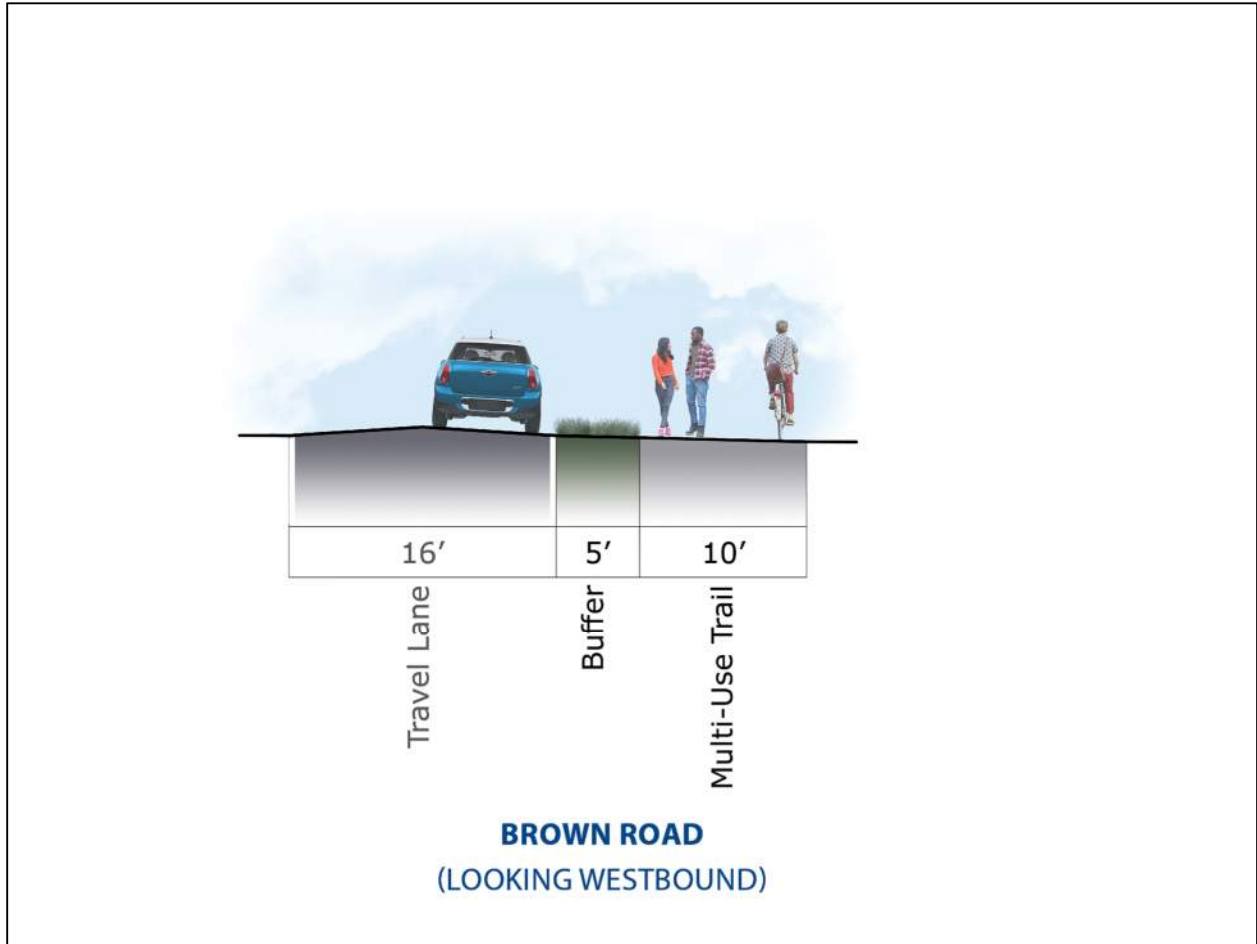


Figure 8-10 SR 107 Typical Section

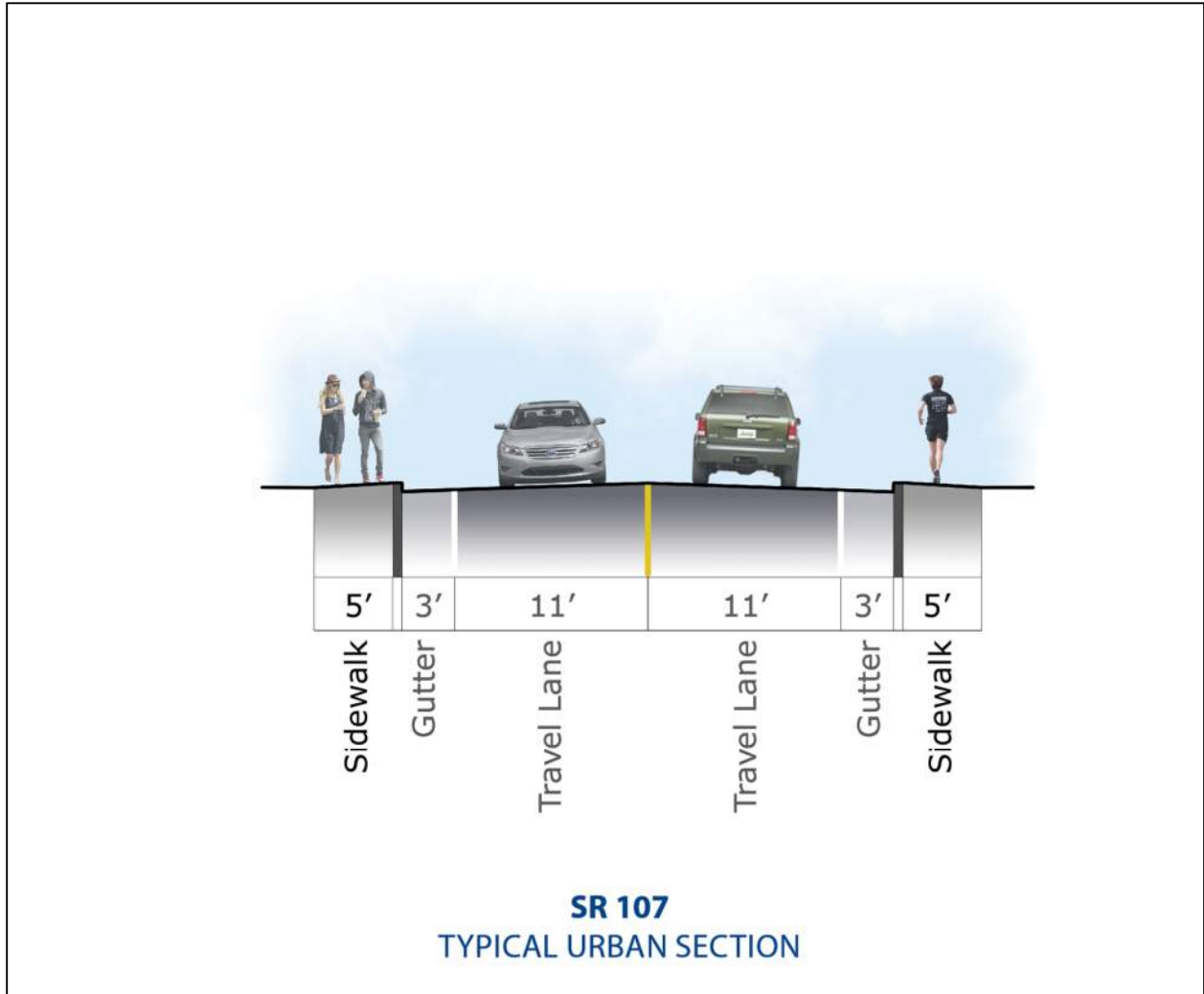


Figure 8-11 Zane Whitson Drive Typical Section

