

Town of

Sawmills

BICYCLE & PEDESTRIAN PLAN



Acknowledgements

Thank you to the citizens, stakeholders, and Town staff that contributed to the creation of the Sawmills Bicycle & Pedestrian Plan. Thank you specifically to the members of the steering committee, listed below.

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INTRODUCTION

“BIGGEST LITTLE TOWN”

The Town of Sawmills is a scenic and welcoming community situated in the Catawba River Valley and the North Carolina Foothills of the nearby Blue Ridge Mountains. The Town has been able to retain its rural character and small town charm, while also benefitting from a central location within a larger metropolitan area.

This Plan seeks to leverage opportunities to better connect area recreation, parks, schools, other institutions, and small businesses. Improved facilities for walking, running, cycling, and other forms of active transportation can further enhance the strong quality of life for Sawmills residents, businesses, and visitors.

ACTIVE TRANSPORTATION BENEFITS

Health

Possibly the category with the highest return to improved walkability is health. Multiple studies have connected increased walking with improved health outcomes. In recent years, research is also showing that walkable environments are correlated with increased physical activity. While transportation infrastructure is not the only contributor to walkability, it does provide residents with a means to travel and exercise safely. One study by Jacob Veerman and colleagues analyzed the cost-effectiveness of investing in sidewalks as a means of increasing physical activity, and found that medium- to high-density areas can help residents save money in the long run by investing in sidewalks (Veerman et al 2016).

Mobility

The simple definition of mobility is the ability to move or be moved freely and easily. Since the advent of the automobile, it seems that people are more mobile than ever. One can simply hop in a car and go wherever they want. However, doing so requires two things: access to a vehicle and the ability to drive a vehicle. Naturally, certain populations are more susceptible to limited mobility compared to others, such as children, the elderly, those living with disabilities, and individuals who do not own a car. One way to increase mobility in Sawmills is to provide alternatives to driving, such as sidewalks and multi-use paths, where residents can cycle, walk, and run, whether for leisure or active transport.

Economy

Transportation costs consume 13 percent of the average American’s budget. For people with limited incomes, the percentage can be much higher. For this reason, cutting transportation costs by providing alternatives to the car can help Sawmills residents save money, which they can then reinvest into the local economy. According to the Environmental Protection Agency, vehicle trips under a mile add up to around 10 billion miles per year (EPA 2020). That is a lot of money spent on trips that could be free by walking or cycling! The EPA estimates that if Americans walk or cycle half of the trips that are under one mile each year, the country will save \$900 million.

Safety

According to Watch for Me NC, North Carolina is one of the least safe states for walking and cycling. Each year more than 3,000 pedestrians and 850 cyclists are hit by vehicles, killing about 160 pedestrians and 20 cyclists (Watch for Me NC). Twelve pedestrians and cyclists have been hit by vehicles in Sawmills between 2007 and 2019, killing one pedestrian (NCDOT 2019). Many crashes occur because pedestrians and cyclists had nowhere to walk next to the roadway or because there was no location where one could safely cross.

Environment

Walking and cycling instead of driving is great for the environment for several reasons. These transportation modes reduce CO2 emissions given they produce basically none. The transportation sector is the second largest producer of CO2 emissions, which contribute to climate change. Mentioned previously, not only does walking distances less than a mile save money, it also greatly reduces CO2! If Americans walked distances of less than a mile half the time, the country would reduce its emissions by two million metric tons per year. Aside from this direct benefit, driving can also cause air pollution and runoff, harming ecosystems.

EXISTING CONDITIONS

Town Sidewalks

Existing sidewalks create a core system in the middle of Town, linking Sawmills Elementary and Baird Park. A significant barrier in the middle of this network is the crossing of the Caldwell County Railroad and Highway 321A at Sawmills School Road. The Downtown Hub section of this Plan address the recommended vision to complete this gap. The accessibility conditions of existing sidewalk are addressed in the ADA Compliance section of this Plan. Multiple new sidewalks and multi-use paths are recommended to build off this core network (see Proposed Pedestrian Network).

Town Bicycle Facilities

While there are no current on-road bicycle facilities in the Town, there are several recommendations (see Proposed Bicycle Network). There are two existing off-road multi-used paths, one each in Baird Park and Veterans Park. A key vision of the Plan seeks to connect the existing sidewalks at Sawmills Elementary with the off-road trail in Veterans Park via Sawmills School Road and Waterworks Road (see Veterans Park Connector).

DEMOGRAPHICS

The demographics below provide a partial look into Sawmills' current population and come from the U.S. Census Bureau.



5,165

2017 Population

While Sawmills is a small town, it still ranks second largest in terms of population in Caldwell County.

The median home value in Sawmills is \$108,300 and the median home value for the entirety of Caldwell County is \$115,700. Home values have overall been appreciating.

\$108,300

Median Home Value



11.4%

Adult population with a bachelor's degree or higher

The percentage of adults with a bachelor's degree or higher is 11.4% in Sawmills, slightly higher than Caldwell County as a whole, which is 10.7%.

The median household income for the town is \$52,951 whereas the median household income for the county is \$44,511. The median household income in North Carolina is \$57,341.

\$52,951

Median Household Income



55.7%

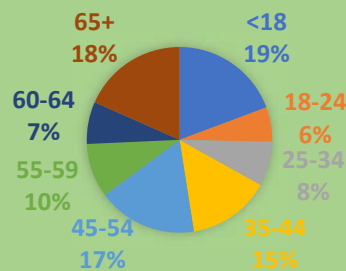
Labor Force Participation Rate

The labor force participation rate for Sawmills is close to that of North Carolina, which is 59.7%. Like the rest of the country, labor force participation is overall down since the 1990s. However, Caldwell County did see a slight increase from 2015 until the onset of the COVID-19 pandemic.

The median commute time for Sawmills' residents is slightly lower than the county's, which is 23.2 minutes. North Carolina's average commute time is 23.3 minutes.

22.4 minutes

Median Commute Time



The age distribution of Sawmills is like that of the United States. However, Sawmills does have a smaller youth population on average and a larger pre-retirement age bracket than average.

DESTINATIONS

Popular destinations include area schools (Sawmills Elementary, South Caldwell High), parks (Baird, Veterans), and the farmers market. There are opportunities to connect several of these destinations with new pedestrian and cycling infrastructure along key streets including Sawmills School Road, Water Works Road, Highway 321A, Mission Road, Spartan Drive, and Cahah Mountain Rd.

Sawmills has 1.13 existing sidewalk miles and several facilities that are popular among Sawmills residents. For optimal accessibility, these facilities, or local generators, should be connected via pedestrian facilities.

Access to many of the local generators listed below could be enhanced with an accessible pedestrian crossing across the railroad on Sawmills School Road. This crossing would link Sawmills School Road to existing sidewalk along US 321A (see also Downtown Hub).

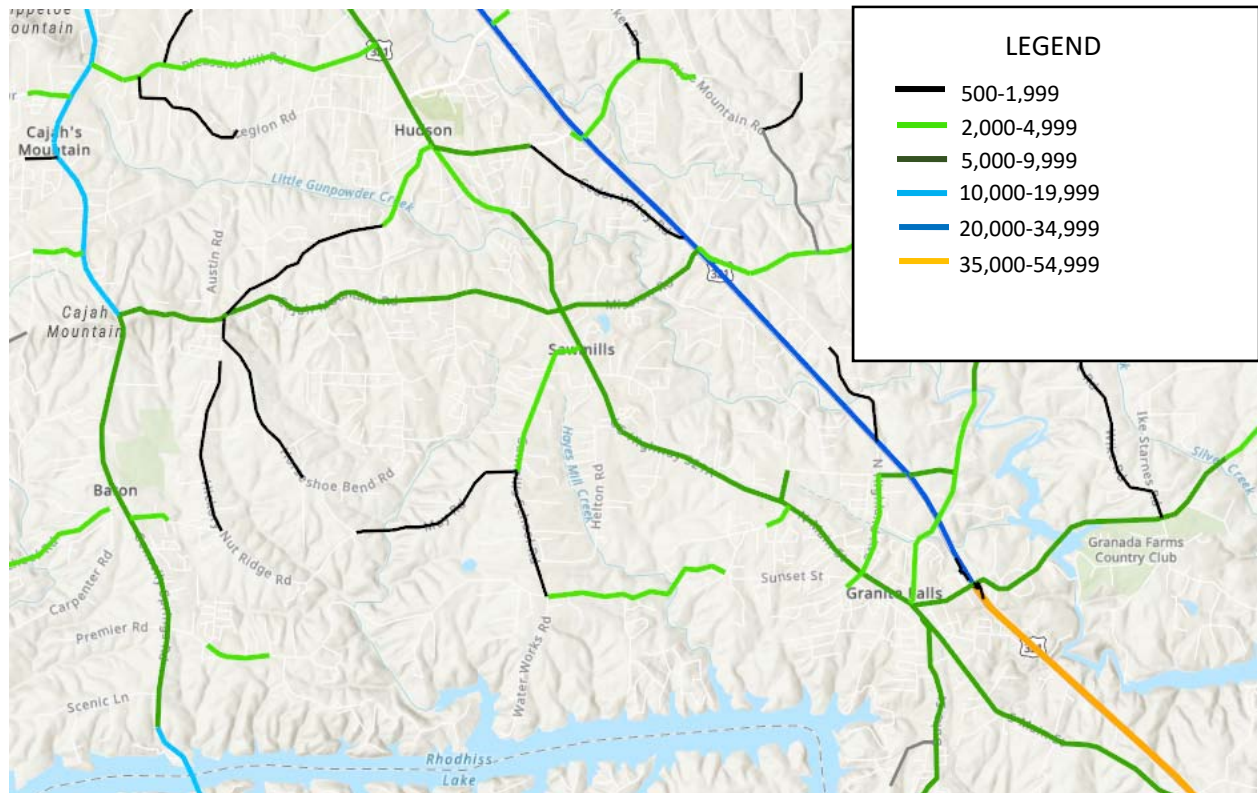
Town destinations along existing sidewalks:

- Baird Park – sidewalk connections start at the park and extend to meet the sidewalk on Mission Road.
- Veterans Park – multi-use path and sidewalk connections lead from Veterans Park to the soccer field along Waterworks Road. Additional pedestrian amenities are planned for Waterworks Road. Currently there is a gap in the sidewalk network from Sawmills Elementary School on Sawmills School Road to the soccer field at Waterworks Road.
- Sawmills Elementary School – sidewalk connections start at Sawmills Elementary School and extend down Sawmills School Road to the railroad crossing right before US 321A.
- Sawmills Fire Department – sidewalk connections along US 321A start at Sawmills Fire Department and extend to the sidewalk connections along Mission Road.

Town destinations lacking pedestrian facilities:

- Town Hall – sidewalk ends along US 321A at Sawmills Fire Department just before Town Hall. New sidewalk is recommended to extend farther along 321A to Spring Lake Mobile Home Park
- Sawmills Farmers Market – Sawmills Farmers Market, on Helena Street, does not have sidewalk connections. Helena Street intersects with Sawmills School Road. Sawmills School Road has sidewalk amenities along the opposite side of the intersection.
- Convenience and Grocery Store next to Farmers Market – P.D. Grocery and Deli is a convenience store located across the road from sidewalk along Sawmills School Road. As one of the only places to access food in Sawmills, this convenience store should be accessible to all pedestrians. Offering pedestrians a highly visual crosswalk and curb ramps at Helena Street would improve accessibility for the convenience store as well as the Farmers Market.
- Spartan Drive (leading to South Caldwell High School) – Spartan Drive connects South Caldwell High School to Mission Road. There are no pedestrian facilities along Spartan Drive, however, there are sidewalks along a portion of Mission Road. In addition to connecting South Caldwell High School, Mission Road as well as Spartan Drive have several residential neighborhoods and employment opportunities.

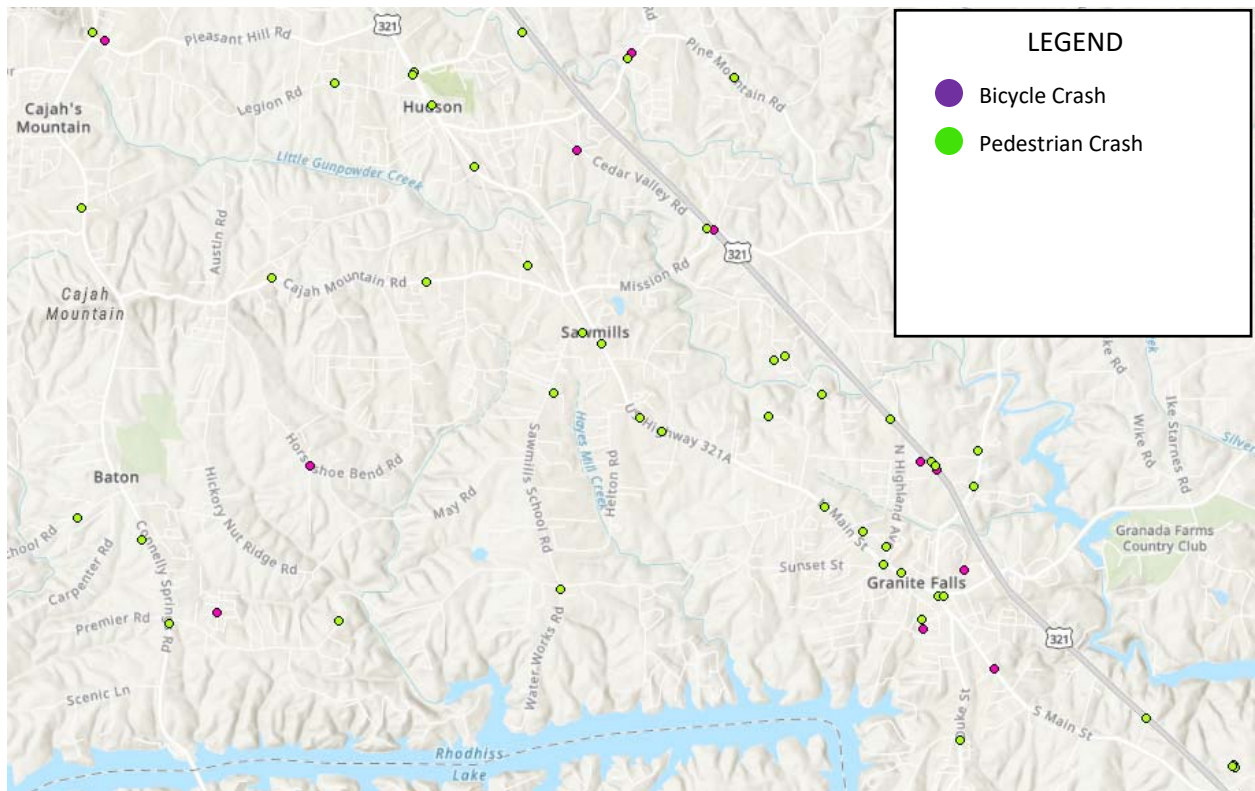
TRAFFIC VOLUMES



The above map comes from the NCDOT’s interactive traffic volume map. By far the busiest road is Highway 321, with an average of 31,500 vehicles passing through each day. The rest of the roads in Sawmills receive far less traffic. The next busiest roads in Sawmills are 321A and Cajah Mountain Road; however, Sawmills School Road and Dry Ponds Road also accommodate, on average, 2,800 and 2,400 vehicles per day, respectively.

Roadways with higher volumes typically have recommendations for pedestrian and bicycle facilities to help users have comfortable separation from traffic. These include paved shoulders in more rural areas to combined sidewalk and bicycle lanes in more developed areas.

SAFETY CONCERNS



Pedestrian safety is an important consideration when designing new transportation facilities. The above data extends from 2007 to 2019, revealing the prevalence of bicycle and pedestrian crashes in Sawmills. While most crashes have not been fatal, every single accident on this map injured the pedestrian/cyclist involved, and over half of the injured required an ambulance. Further, one accident near Sawmills’ jurisdiction did result in a fatality in 2014. Only one accident happened where an intersection was present. Most of the crashes occurred during clear weather and in the evening or at night. Alcohol was not a factor in most crashes. Based on this data, the top areas of concern for pedestrian safety are Highway 312A and Cajah Mountain Road.

RELATED PLANS

The recommendations of this bicycle and pedestrian plan are complementary to those of previous plans. The below list classifies shared recommendations of this Plan by past planning document.

DOCUMENT	RECOMMENDATIONS
Western Piedmont Council of Governments 2045 Metropolitan Transportation Plan (2019)	<ul style="list-style-type: none"> ✓ Mission Rd./321A Intersection Improvements ✓ Dry Ponds Road Recommended Modernization ✓ Cajah Mountain Road Modernization
Town of Sawmills Comprehensive Plan (2017)	<ul style="list-style-type: none"> ✓ 321A Recommended Sidewalk ✓ Keith Ave. Recommended Sidewalk ✓ Cajah Mountain Rd. Recommended Sidewalk ✓ Sawmills Elementary Recommended Sidewalk ✓ Water Works Rd. Recommended Sidewalk
Western Piedmont Bicycle Plan (2014)	<ul style="list-style-type: none"> ✓ 321A Recommended Sharrows and Shoulders

ACCESSIBILITY

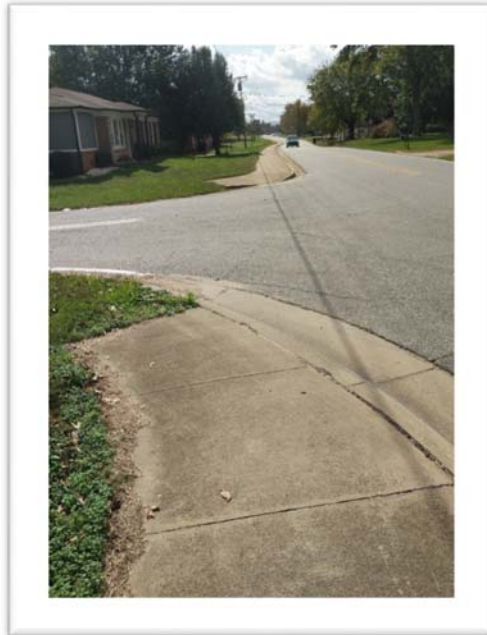
Pedestrian infrastructure is found throughout the Town of Sawmills. Sidewalks connect several surrounding neighborhoods to popular destinations within Sawmills. The study team conducted a walking audit of the existing pedestrian infrastructure within Sawmills. Walking audits note mobility barriers and determine the safety and accessibility of pedestrian infrastructure for all ability levels. Many, such as those living with disabilities or residents with lower incomes, rely on a fully established pedestrian network for safe transportation. Pedestrian networks that are not well connected or have unsafe amenities could result in pedestrian accidents and fatalities. While most pedestrian infrastructure in Sawmills is in overall good condition, the study team noted specific areas that could use improvement or better connectivity for mobility. The following serve to display more hazardous examples found during the walking audit and do not represent a comprehensive review of the current pedestrian network.

Curb Ramps

The following is an example of an ADA accessible curb ramp. The visually contrasting yellow mats, called detectable warnings, have raised domes that warn visually impaired pedestrians about to enter roadways. The top of the curb ramp has a level resting area for those waiting to cross the roadway.



The curb ramps pictured below are found along Sawmills School Road, however, similar curb ramps can be found throughout Town of Sawmills. Curb ramps should be properly aligned and curb ramps, as well as sidewalk, should have detectable warnings at road crossings. Some of the following curb ramp examples could lead visually impaired pedestrians into the roadway due to improper alignment. Curb ramps should also offer level resting areas for those in wheelchairs while waiting to cross roadways. Level resting areas could be improved in the first two examples.



Curb Ramps – U.S. Access Board Standards

- Detectable warning – detectable warnings, or truncated dome mats, are what warns visually impaired individuals that they are about to enter a roadway with vehicular traffic. These mats must visually contrast with the surrounding pavement and be placed at the back of the curb, right before the gutter. There are exceptions where back of curb is not always feasible, however, detectable warnings must be present when entering roadways. Detectable warnings must cover the entire depressed segment of curb and must be 24 inches wide. There should be a smooth surface around detectable warnings so that mats are more easily noticed. Detectable warnings are not necessary at residential driveway cuts. They are recommended at busy commercial driveway cuts.
- The depressed curb must be at least 48 inches wide to allow for wheelchair accessibility (this does not include flares found on certain types of curb ramps).
- If one curb ramp serves two adjoining crosswalks at two adjoining streets, there must be a space 48 inches wide and 48 inches deep that is outside of vehicle travel lanes and within the crosswalks. This space must be as level as possible. This is known as a diagonal curb ramp. While diagonal curb ramps are allowed, they are not recommended. New construction is advised against using diagonal curb ramps.
- The cross slope of each curb ramp is measured parallel to the back of each detectable warning. The cross slope must not exceed 2%.
- The running slope, or running grade, is measured perpendicular to the back of the detectable warning, where the ramp slopes downward towards the gutter. The running slope of curb ramps cannot exceed 8.33%.
- The cross slope at the gutter, or foot, of the curb ramp cannot exceed 5%. The cross slope in this location is measured parallel to the front of each detectable warning.
- If the curb ramp has flares that encroach on the pedestrian path of travel, the slope of each flare must measure 10% or less. This is measured parallel to the curb.
- Curb ramps must have a level turning space that is 48 inches wide and 48 inches deep. Most turning spaces are at the top of the curb ramp. Turning spaces cannot exceed a 2% slope in all directions. If the turning space is constrained, the level turning space must be 48 inches wide by 60 inches deep. Turning spaces are considered constrained if taller curbs or other items block the area needed for proper foot space while turning in a wheelchair.
- The transition between the ramp and walkway or street must be smooth and flush with the adjacent pavement or asphalt. There cannot be abrupt level changes or obstructions.
- Curb ramps should have proper alignment. Curb ramps should align on either side of the intersection and/ or roadway and lead pedestrians in the proper direction. In some cases, due to drainage or other issues, this is not always feasible. These instances should be noted in the pedestrian right of way application.

Driveways

The following is an example of an ADA accessible driveway cut. There is a level, accessible path of travel that does not interfere with the sloped area of the driveway cut.

The following are examples of common driveway cuts found within Town of Sawmills. The flares and cross slope are within the pedestrian path of travel and creates hazardous mobility barriers.



Driveway Cuts – U.S. Access Board Standards

Driveways must maintain a 4 foot wide, level pedestrian path of travel surface for the entire driveway cut.

- Driveway cuts cannot exceed a 2% cross slope. The cross slope is measured perpendicular to the pedestrian path of travel.
- Driveway cuts cannot have a rapid grade change at the flare. Flares at the beginning and end of each driveway cut should be out of the 4 foot wide pedestrian path of travel.

Sidewalks

The following is an example of an ADA accessible rural sidewalk network with a buffer next to the road. While buffers are not required, they enhance a pedestrian's sense of safety.

Overall, Sawmills has a very well maintained sidewalk network. Only minor issues were noted in the walking audit. The picture below displays a segment of sidewalk with a rough travel surface.



Multi-Use Paths

Multi-use paths are also an ADA accessible alternative to sidewalks. Multi-use paths offer a path of travel for both bicyclists and pedestrians with a buffer to separate the facility from the roadway. Below is an example of a multi-use path.



Sidewalks – U.S. Access Board Standards

- Sidewalks must be at least 4 feet wide for the pedestrian path of travel.
- There cannot be vertical discontinuities exceeding ½ inches. Vertical discontinuities include cracks, height differences in concrete slabs, etc.
- Walkway joints, grate openings, and cracks cannot exceed ½ inches wide. If grate openings exceed ½ inches wide, they should be turned perpendicular to the pedestrian path of travel.
- Objects measuring 2.25-6.7 feet high cannot protrude more than 4 inches into the pedestrian path of travel. Certain signage and other fixtures are marked within the collector application.
- Guardrails or barriers must be 2.25 feet maximum above the surface.
- The pedestrian path of travel cannot exceed a 2% cross slope. The cross slope is measured perpendicular to the pedestrian path of travel.
- If the sidewalk is NOT following a roadway, the running slope cannot exceed 5%. The running slope is measured parallel to the pedestrian path of travel. Sidewalks following roadways can have the same running grade as the roadway.
- There must be a smooth travel surface with solid, compliant surface material such as concrete.
- Sidewalks cannot be buckled or cracked. As stated above, cracks that do not exceed ½ inches in width are permissible but still noted in the collector application.
- Sidewalks should not have uneven or depressed segments. Depressed segments do not meet proper slope requirements and can cause drainage issues.
- Sidewalks should not have overgrown vegetation. Any vegetation encroaching on the pedestrian path of travel should be removed. This includes trees or foliage protruding more than 4 inches into the pedestrian path of travel.
- Sidewalks should not have noticeable drainage issues. Pooled water can create mobility barriers.
- Trees incorporated into the sidewalk design should be covered by grates. As noted above, grate openings cannot exceed ½ inches in width. If wider than ½ inches, grate openings must be perpendicular to the pedestrian path of travel.
- Sidewalks should have a designated furniture zone in areas with benches, trash bins, light poles, etc. The furniture zone should be placed on the same side of the sidewalk throughout the municipality for consistency.

Railroad Crossings

ADA accessible railroad crossings offer pedestrians a smooth transition across railroad tracks. The picture below displays an example of a compliant railroad crossing.



Although there are currently no sidewalk or pedestrian amenities at the railroad crossing below, pedestrian amenities are recommended for better connectivity throughout Town. There is currently no safe or convenient way to access the existing sidewalk along U.S. 321A.



Railroad Crossings – U.S. Access Board Standards

- The pedestrian path must be at least 4 feet wide for the entire crossing. The surface between and on either side of the rails must be aligned with the top of the rails.
- The flangeway gap can be a maximum of 2.5 inches. Flangeway gaps can be 3 inches wide on freight rail tracks.
- A detectable warning (or truncated dome) must be located 6-15 feet from the centerline of the nearest rail. The detectable warning must extend the full width of the pedestrian crossing.

PUBLIC OUTREACH

Developing this Plan during the Coronavirus pandemic had its challenges, especially in terms of holding public events. Both the launch in October 2020, and the draft release in May 2021, corresponded with the last and first Farmers Markets, where a table was setup and staffed. In late 2020, a survey was promoted via the Town Facebook page, which generated 29 responses. A Steering Committee of seven Town residents was formed and met three times at key milestones throughout the Plan development process. A public hearing for Plan adoption is scheduled at Town Hall on June 15, 2021.

STEERING COMMITTEE

The steering committee consists of community leaders, planners, and residents to guide the planning process and gauge multiple perspectives to create a plan which aligns with Sawmills' goals. The steering committee met a total of three times to launch the plan, discuss community input, and review the draft plan. There is further description of each meeting provided below.

October 13th, 2020

The launch meeting was held in October 2020 to affirm the goals of the community when it comes to biking and walking. A project timeline was established, aiming to create a draft plan by spring 2021. Further, members revisited past plans relevant to the bicycle and pedestrian plan. The committee also discussed project constraints such as right-of-way availability as well as pinpointed important locations to determine where more connectivity should exist. The ending of this meeting marked the beginning of the survey process, where the committee reached out to the local community for input.

December 8th, 2020

The December meeting met to analyze input from residents to determine project priorities for the community. Planners also shared their findings from their field work, revealing ADA compliance concerns; they also shared project visualizations. Committee members once again discussed project constraints like setback requirements in addition to right-of-way availability.

March 9th, 2021

The final Steering Committee meeting focused on draft recommendations. Committee members discussed the overall recommended network, with special attention to the Signature Projects on Cahah Mountain Road, Downtown Hub, and Veterans Park Connector.

COMMUNITY SURVEY

Following the first steering committee, a survey was published to gain input from Sawmills' residents. The survey was online and allowed residents to rank their values concerning pedestrian and bicycle planning as well as pinpoint key destinations on a map. The results are on the following page.

3 Rank Your Values

VALUES

Order your top 5 items above this line

- Sidewalks
- Bicycle lanes
- Safer road crossings
- Shared-use paths
- Connect homes to schools
- Connect homes to parks
- Connect business areas
- Off-road trails

Rank what's important to you. You may also add comments to any of the choices listed, plus suggest another item.

Please drag 5 of the items above the line in your preferred order.

Suggest another

4 Map Your Priorities

DESTINATIONS

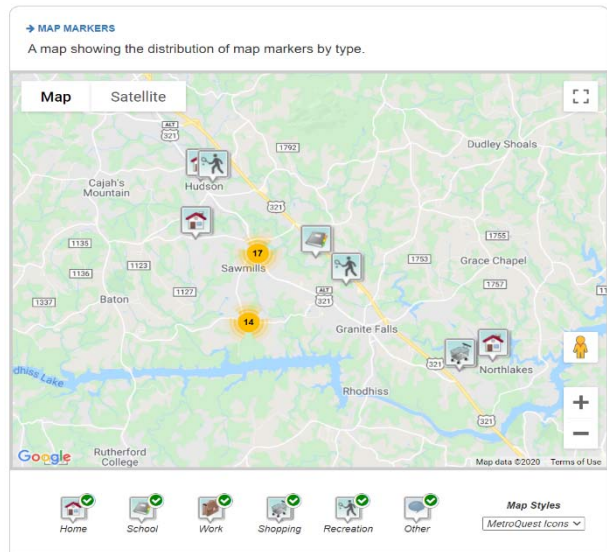
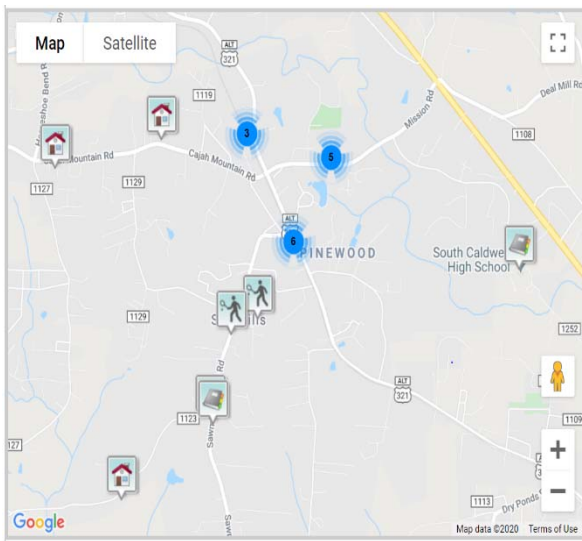
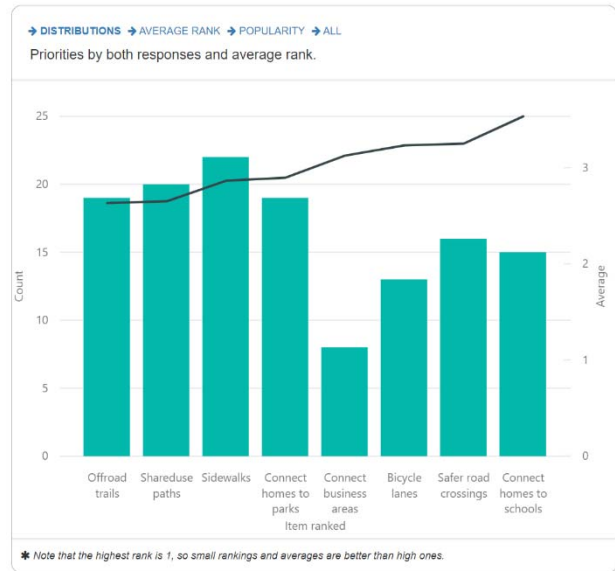
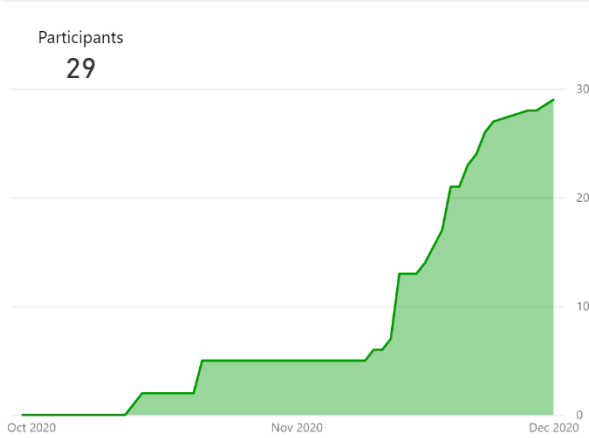
Please drag and drop at least 1 marker on the map.

- Home
- School
- Work
- Shopping
- Recreation
- Other

Zoom to: [Dropdown]

Map data ©2020 Terms of Use Report a map error

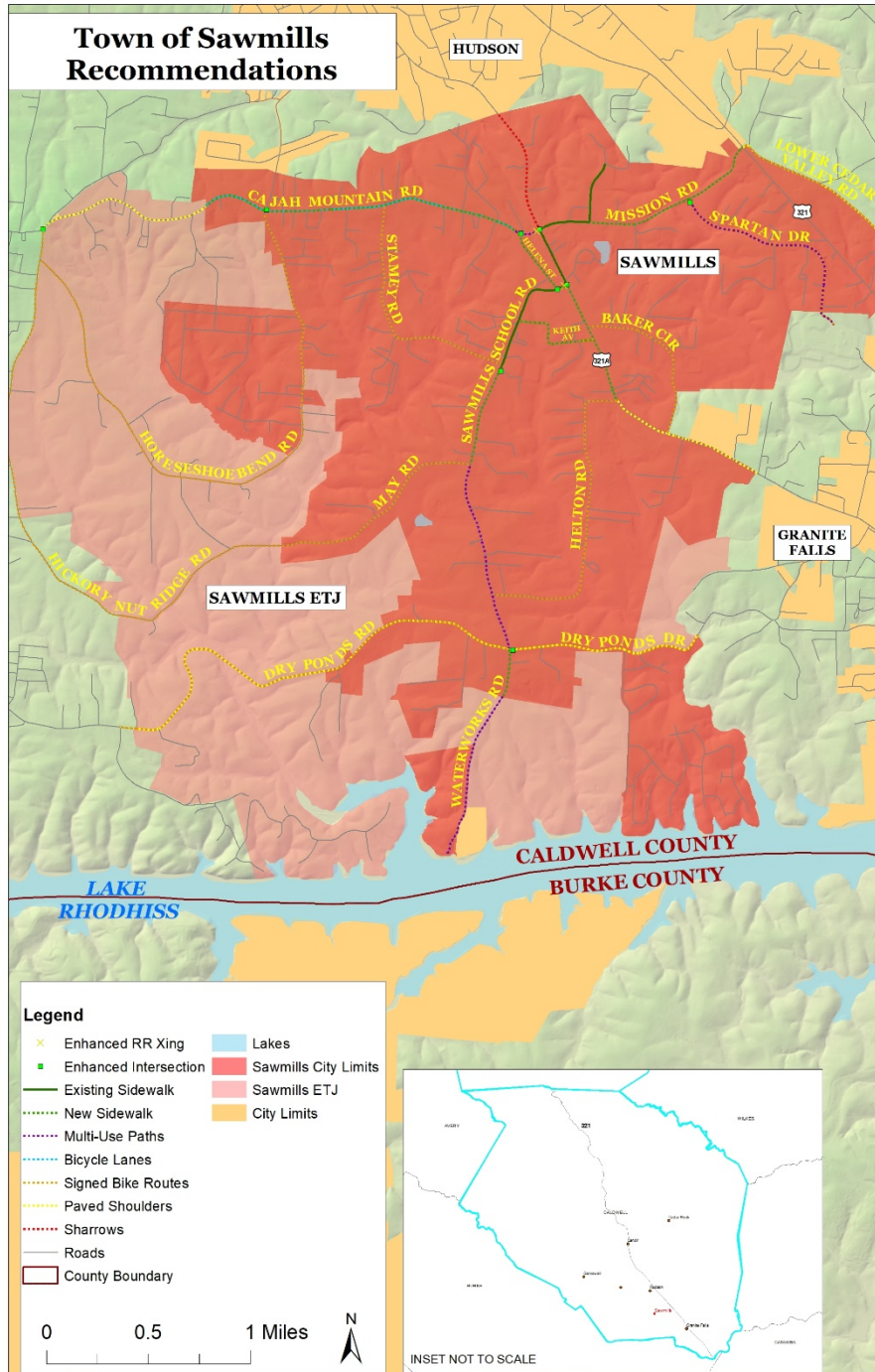
Total number of participants over time.



A total of 29 people participated in the online survey, a good turnout for a town as small as Sawmills. Ranked important by the most people were sidewalks, shared-use paths, and off-road trails. When it came to which improvements were the most important to people, these three answers emerged once again. Off-road trails ranked first, with shared-use paths and sidewalks coming in second and third. This indicates that while more people want sidewalks, the people who want off-road trails want them more. Concerning the pinpoint locations, many participants engage in activities along Sawmills School Rd., Cahaj Mountain Rd., and Highway 321A.

RECOMMENDATIONS

This Plan recommends an expansion of the existing core system between Baird Park and Sawmills Elementary. Recommended facilities include those focused on pedestrians (sidewalks), for cyclists (bike routes, “sharrows,” bicycle lanes), or both (paved shoulders, multi-use paths). The following sections detail these facility types and their recommended locations.



FACILITY TYPES

Below are descriptions and cost estimates of the recommended facilities in this plan. The cost estimates come from the UNC Highway Safety Research Center.



Sidewalk

A paved path for pedestrians on the side of the road typically constructed with five-foot panels of concrete.

The median cost of a concrete sidewalk is \$27 per linear foot. The minimum in the HSRC’s research was \$2.09 whereas the maximum was \$410.



Multi-Use Path

A multi-use path supports multiple recreation and transportation opportunities, such as walking and cycling. They can either be built in highway right-of-ways or independent right-of-ways.

The median cost of a paved shared-use path is \$261,000 per mile. The minimum in the HSRC’s research was \$64,710 and the maximum was \$4,288,520.



Sharrow

A pavement marking in the form of two inverted V-shapes above a bicycle, indicating which part of a road should be used by cyclists when the roadway is shared with motor vehicles.

The median cost of a “sharrow” is \$160 each, with the minimum being \$22 and the maximum being \$600.



Shoulder

The shoulder is the part of the road that is adjacent to the section traveled by cars and allows cyclists to safely share the road.

The median cost of a paved shoulder is \$5.56 per square foot. The minimum in HSRC's research was \$2.96 and the maximum was \$7.65.



Signage

The cost of pedestrian and bicyclist-friendly signage varies depending on the signage. The average bike route sign costs \$160.



Pedestrian Crossing

Striped crosswalks indicate a legal crossing for pedestrians.

The median cost of a high visibility crosswalk is 2,540 each, with the minimum being \$600 and the maximum being \$5,710. The median cost of a striped crosswalk is \$340 each, with the minimum being \$110 and the maximum being \$2,090.

Curb Ramp



According to the HRSC, “curb ramps provide access between the sidewalk and roadway for people using wheelchairs, strollers, walkers, crutches, handcars, bicycles, or who have mobility impairments that make it difficult to step up and down high curbs.” Curb ramps with a detectable warning/truncated dome are required at all intersections with sidewalks by the Americans with Disabilities Act of 1990.

Curb ramp costs vary by the type of improvement. The median cost of a curb ramp with a detectable warning is \$37 per square foot, with the minimum being \$6.18 and the maximum being \$260. The median cost of a wheelchair ramp is \$740 each, with the minimum being \$89 and the maximum being \$3600.



Bicycle Lanes

Bike lanes provide dedicated on-road space for cyclists in each direction at the edges of a road. The lanes are typically added when a roadway project can include the space in overall improvements, or when a roadway is resurfaced and existing lanes may be reconfigured to create such space. As such, bicycle lanes are recommended where another improvement, like sidewalks or a larger roadway project, was already planned.

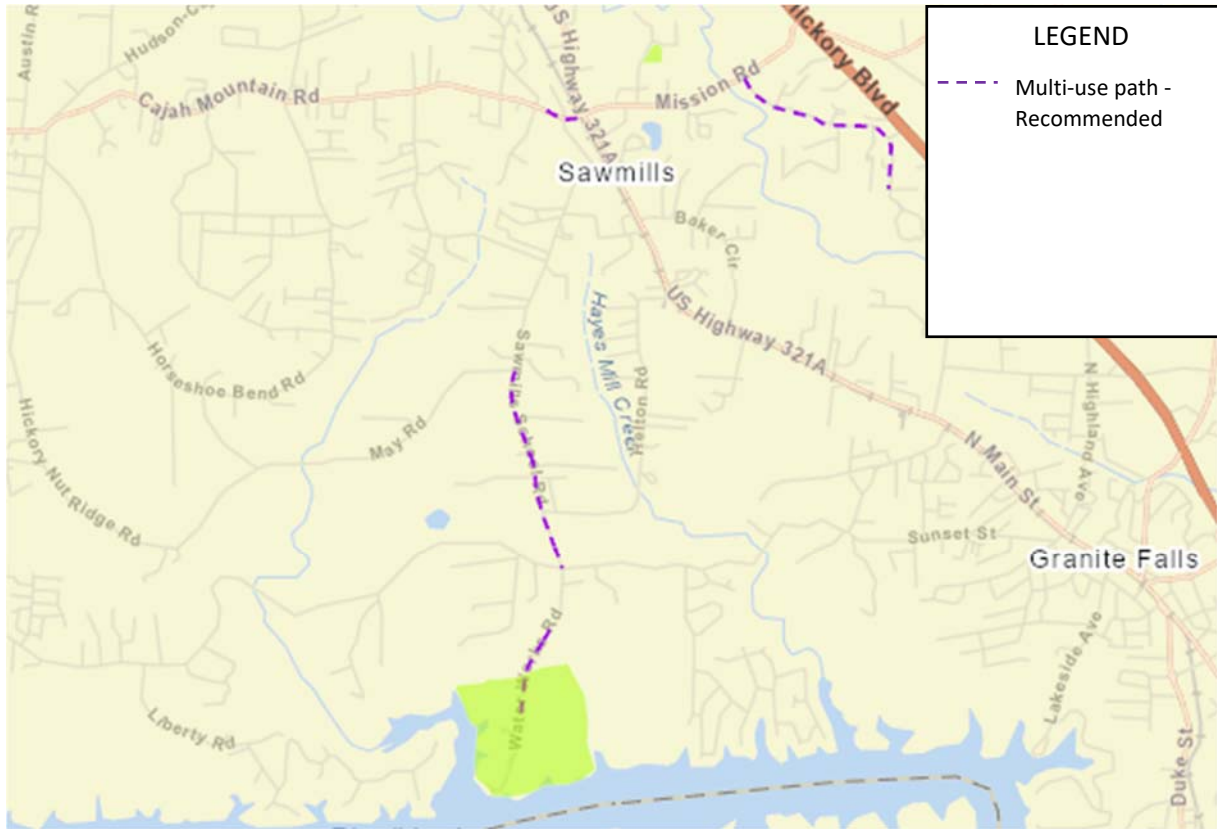
Sidewalks



Sidewalks serve as a dedicated pedestrian space outside of the travel lanes of a road or street. A sidewalk may follow a road immediately at the curb or have some separation from the edge of the roadway. While intended largely for pedestrian travel, sidewalks can also be used by young or inexperienced cyclists.

The Town of Sawmills currently has sidewalk facilities on Sawmills School Rd., Mission Rd., and Baird Rd. Altogether, there are approximately 1.17 miles of sidewalks.

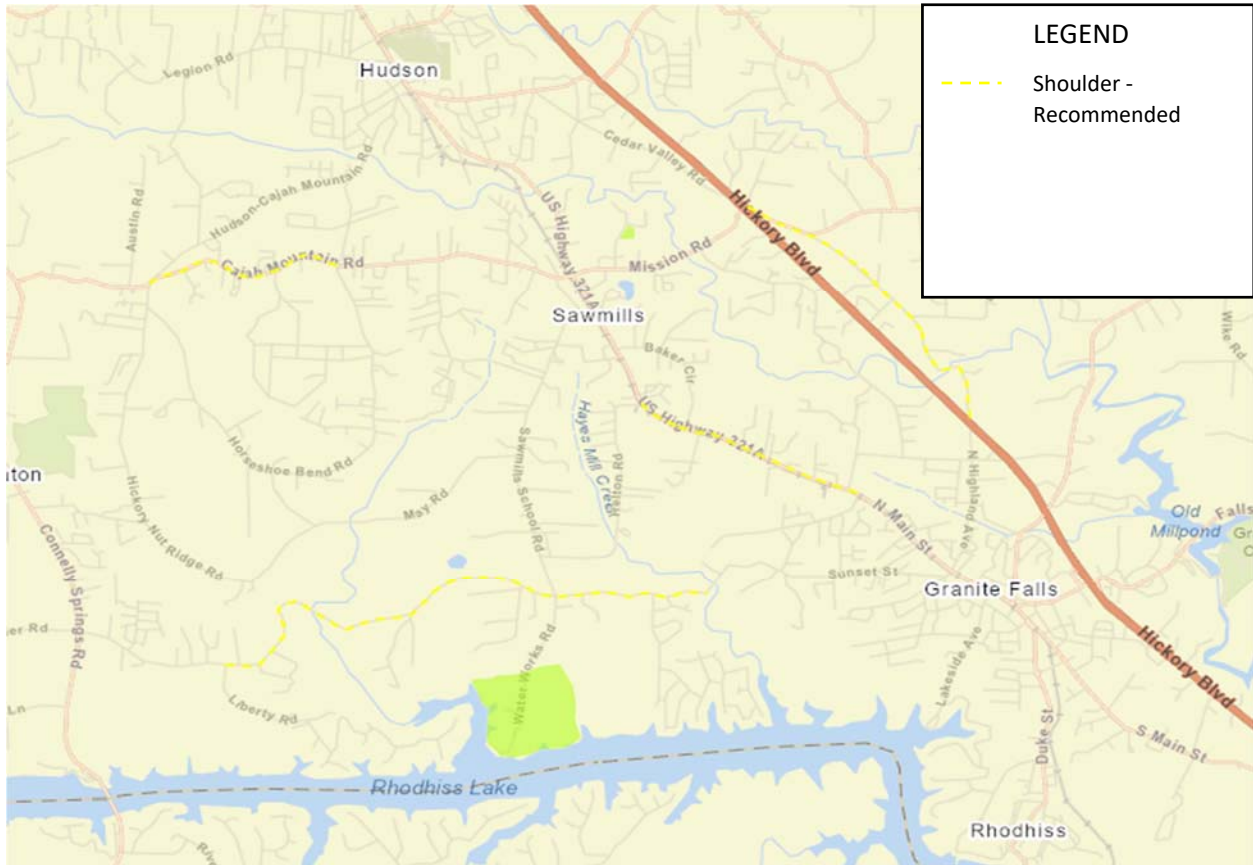
Multi-Use Paths



Multi-use paths function as a shared facility for pedestrians and cyclists. Unlike sidewalks, multi-use paths tend to be wider and typically constructed with asphalt, instead of concrete. This design is intended for a higher use of runners, joggers, and cyclists than a sidewalk.

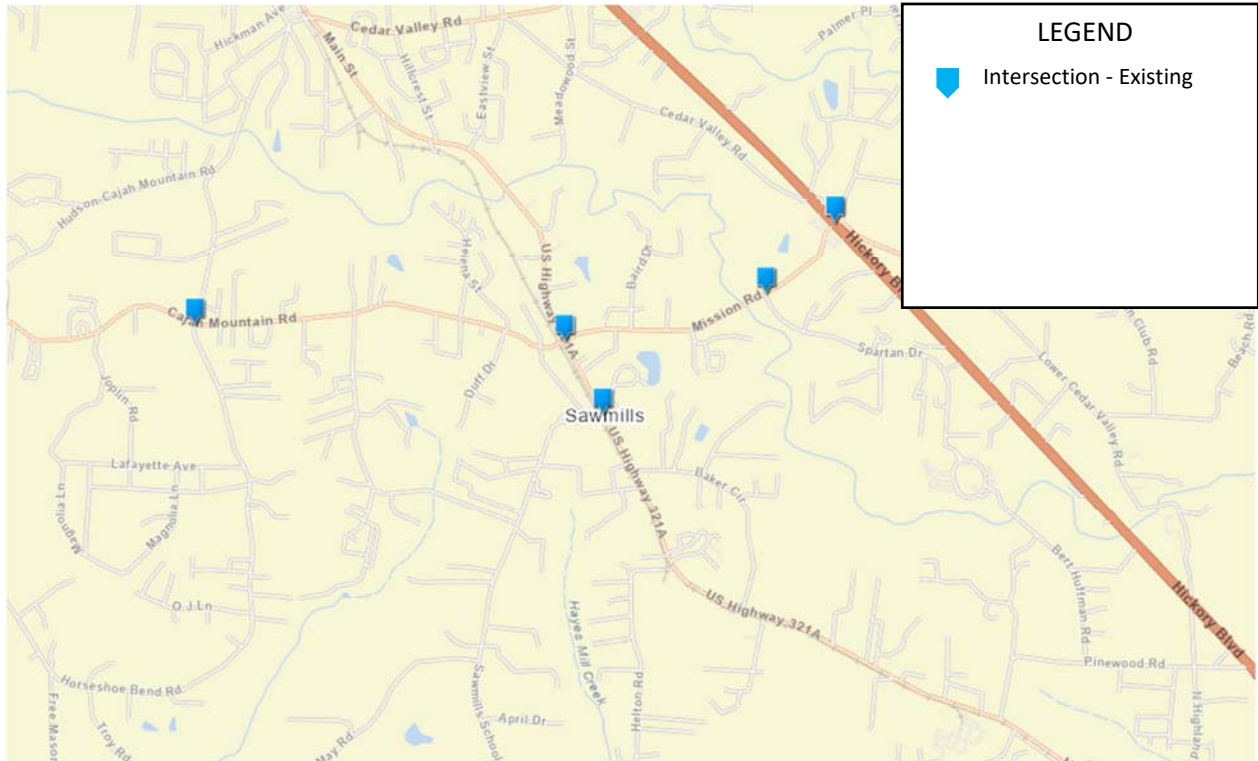
This plan recommends multi-use paths along Sawmills School Road from May Road to Veterans Park, Cahaj Mountain Road from Mount Zion Baptist Church to Highway 321A, and Spartan Drive from Mission Road to South Caldwell High School.

Paved Shoulders



Paved shoulders create shared space for pedestrians and cyclists at the edge of a roadway. This facility type is well suited for more rural areas, where traffic volumes reduce the comfort of walking or cycling on the road. The Regional Bicycle Plan recommended four-foot shoulders along Highway 321A. This new Plan retains that recommendation, but also adds the corridors of Cajah Mountain Road west of Town Limits, Dry Ponds Road, and Lower Cedar Valley Road.

Intersections

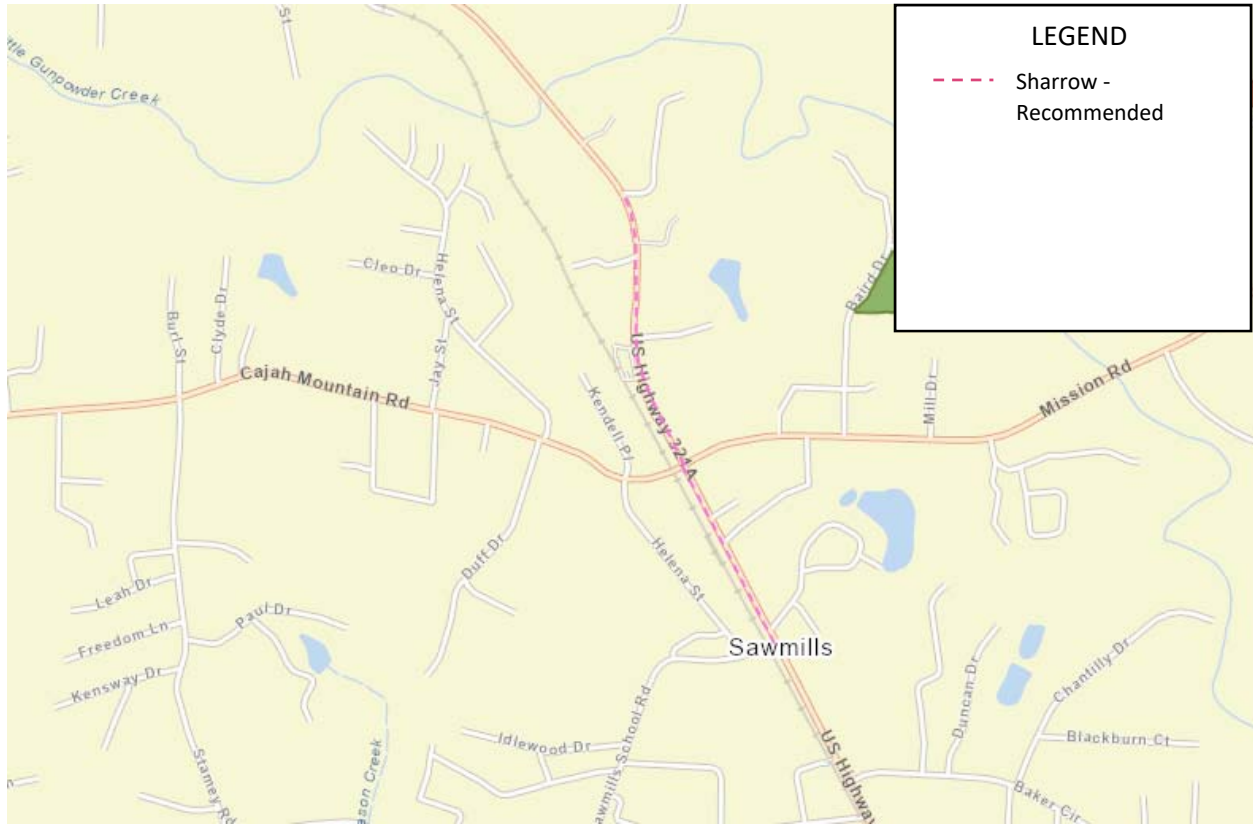


The Greater Hickory 2045 Metropolitan Transportation Plan recommended improving the Mission Road and US 321 intersection. That project (U-4700CC) would utilize a reduced-conflict intersection design. The project cost is estimated to be \$2.2 million.

This plan additionally recommends pedestrian crossing improvements to the intersections of Cajah Mountain Road at Horseshoe Bend Road, at Helena Street, and at US 321. A funded \$16 million modernization project (U-6157) of Cajah Mountain Road from Connelly Springs Road to Highway 321A would include all three of these recommended intersections.

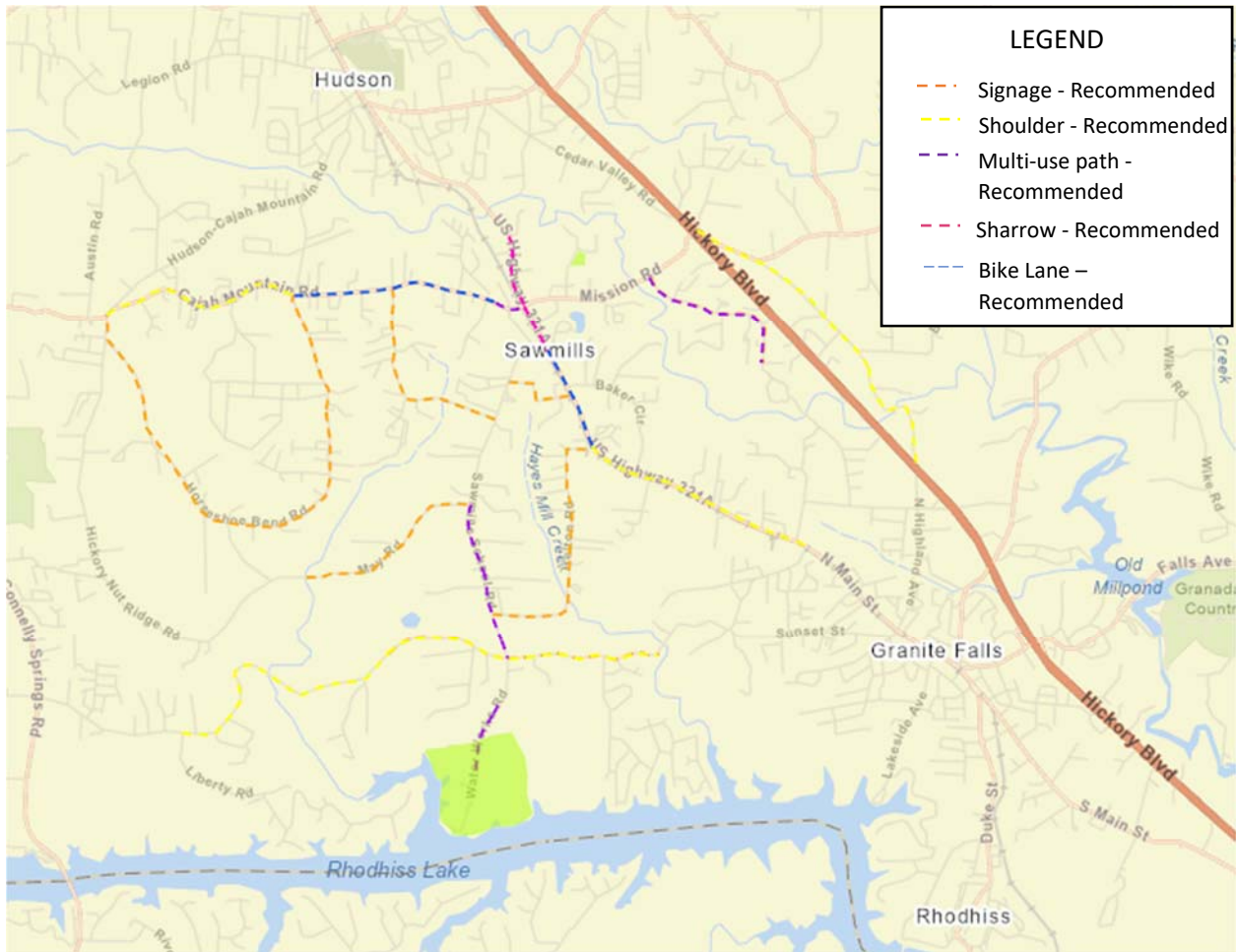
Additional intersections not yet funded but still recommended for enhanced pedestrian crossings include Sawmills School Road at both Sawmills Elementary and at Dry Ponds Road (see also Veterans Park Connector) and at Mission Road and Spartan Drive, which could be included in the recommended Spartan Drive Multi-Use Path.

“Sharrows”



The 2014 Western Piedmont Bicycle Plan recommends share-the-road bicycle arrow pavement markings, or “sharrows,” from Sawmills School Road to Holden Place. “Sharrows” are typically recommended where existing pavement is expected to remain the same width and speeds are lower for adult cyclists to share the road with traffic. This Plan recommends retaining the same recommendation for Highway 321A north of Sawmills School Road.

PROPOSED BICYCLE NETWORK



Signed Bicycle Routes

Helton Rd
 Horseshoe Bend Rd
 May Rd
 Stamey Rd

Paved Shoulders

Cajah Mountain Rd (ETJ)*
 Dry Ponds Rd
 Highway 321A
 -Helton Rd to Granite Falls

Multi-Use Paths

Cajah Mountain Rd*
 -Mt Zion Church to Highway 321A
 Sawmills School Rd*
 -May Rd to Veterans Park

Bicycle Lanes

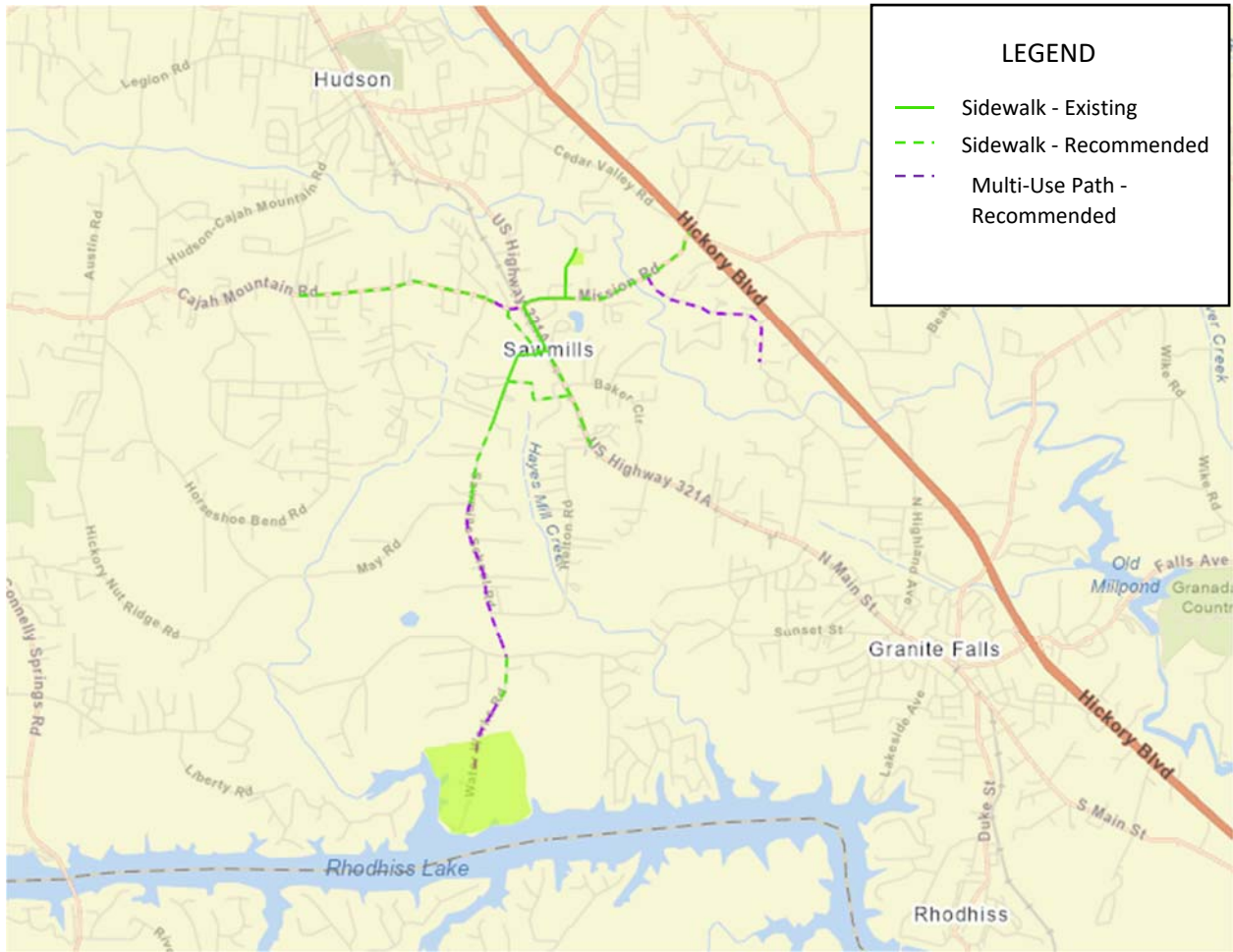
Cajah Mountain Rd (Town Limits)*
 Highway 321A
 -Sawmills School Rd to Helton

Sharrows

Highway 321A
 -Sawmills School Rd to Hudson

*See also **Signature Projects**

PROPOSED PEDESTRIAN NETWORK



Sidewalks

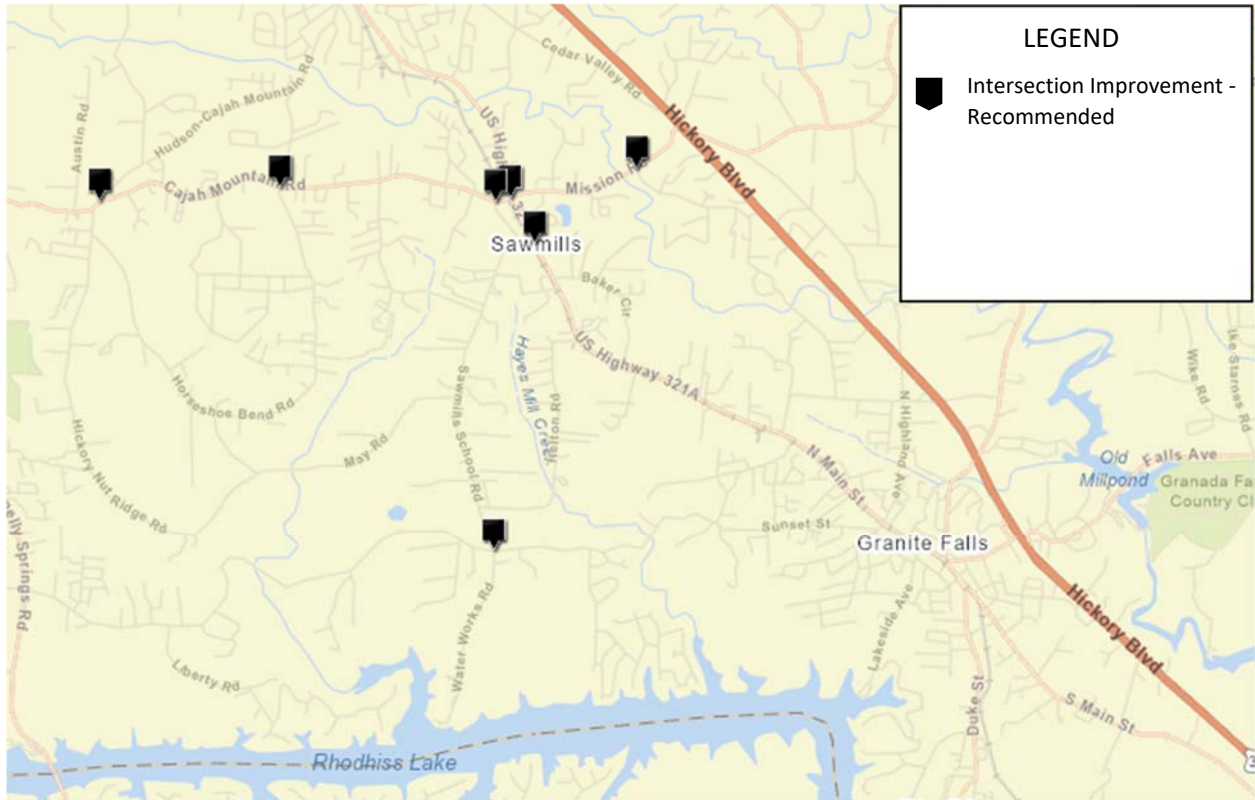
- Cajah Mountain Rd*
 - Town Limits to Mt Zion Church
- Helena St
- Keith Ave
- Sawmills School Rd*
 - Elementary to May Rd

Multi-Use Paths

- Cajah Mountain Rd*
 - Mt Zion Church to Hwy 321A
- Sawmills School Rd*
 - May Rd to Veterans Park

*See also **Signature Projects**

INTERSECTION IMPROVEMENTS



Intersections

- Cajah Mountain Rd*
- Horseshoe Bend Rd
- Helena St / Kendell Pl
- Highway 321A
- Sawmills School Rd*
- Helena St
- Elementary School
- Dry Ponds Rd

Railroad Crossings

- Caldwell County Railroad*
- Cajah Mountain Rd
- Sawmills School Rd

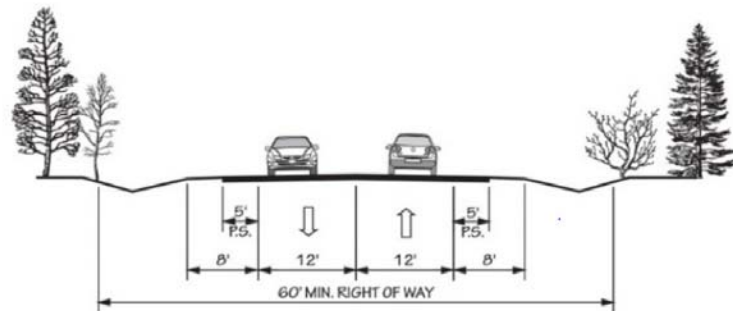
*See also **Signature Projects**

SIGNATURE PROJECTS

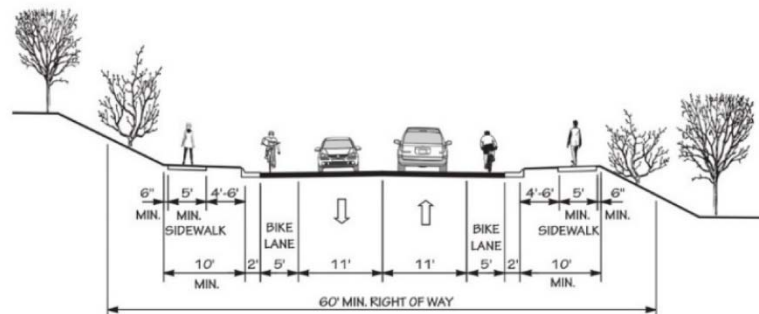
Cajah Mountain Road

North Carolina Department of Transportation (NCDOT) plans to modernize Cajah Mountain Road between Highway 321A and Connelly Springs Road. This funded NCDOT project will straighten curves and add five-foot shoulders with construction expected in 2025. This Plan recommends adding sidewalks and bicycle lanes inside Town limits as part of the NCDOT project, transitioning to a multi-use path between Mount Zion Church and Highway 321A. The recommended multi-use path would accommodate a shared space for cyclists and pedestrians, create a new accessible crossing of the Caldwell County Railroad, and connect to existing Mission Road sidewalks with a marked crossing of Highway 321A.

West of Town limits to Connelly Springs Road, the NCDOT project would widen travel lanes to 12 feet and add 5-foot paved shoulders on 8-foot berms.

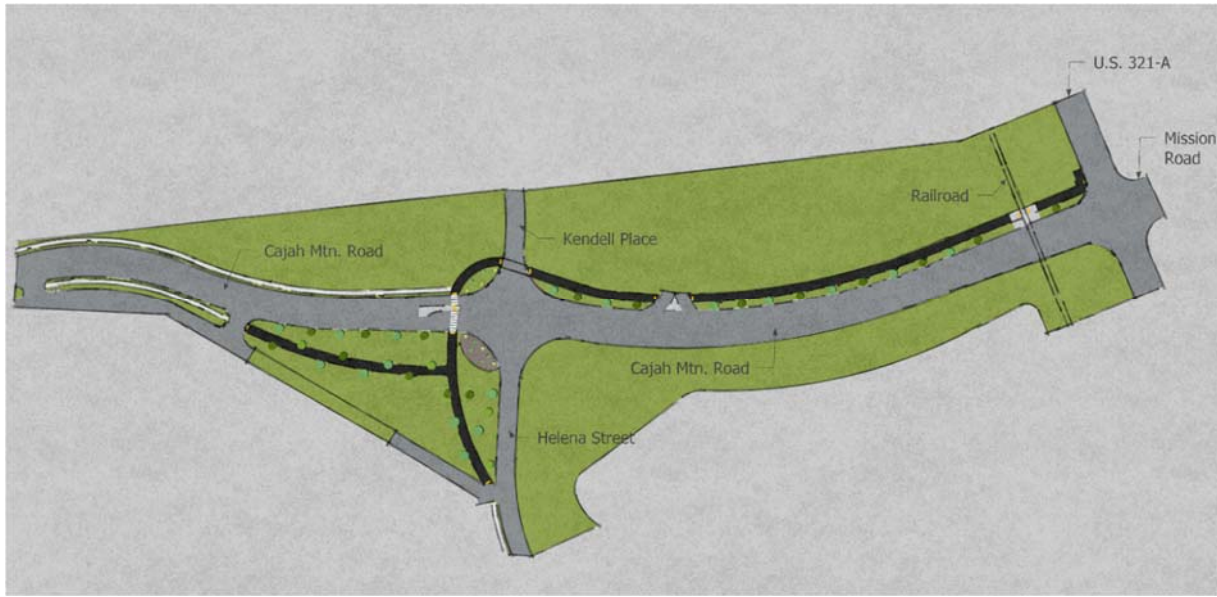


Inside Town limits to Mount Zion Church, the NCDOT project would include this Plan's recommendations of 5-foot sidewalks and bicycle lanes. The sidewalks could be built without planting strip and instead at the curb, depending on homeowner preferences.

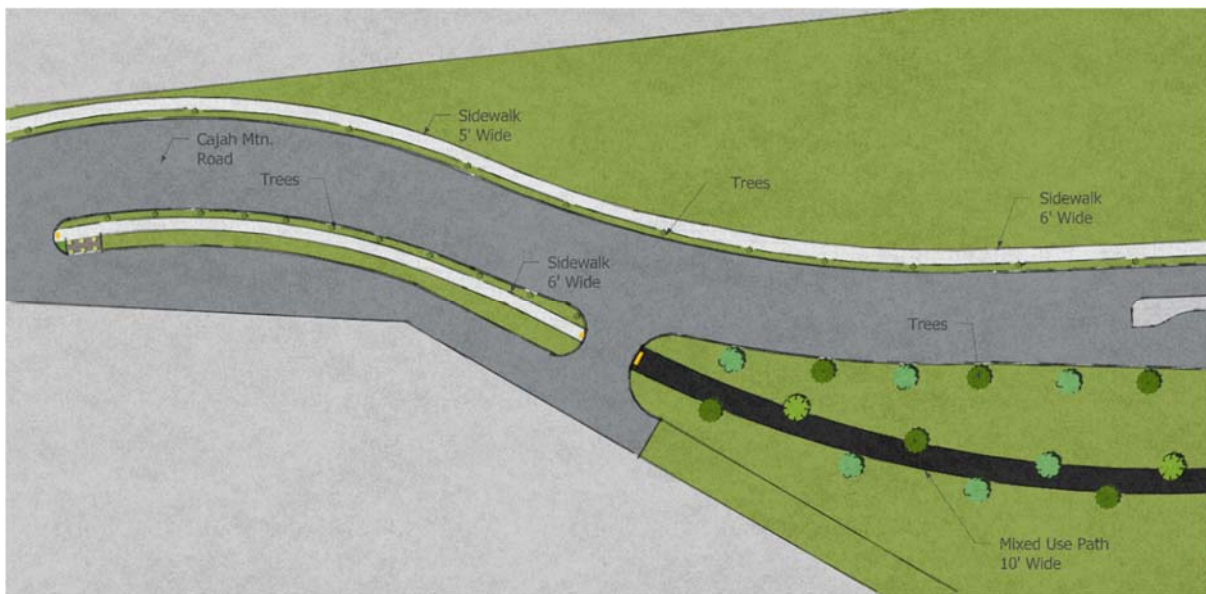


Between Mount Zion Church and Highway 321A, there is opportunity to consider a 10-foot multi-use path on the north side of Cajah Mountain Road linking existing sidewalks on Mission Road. The following pages share renderings of this concept.

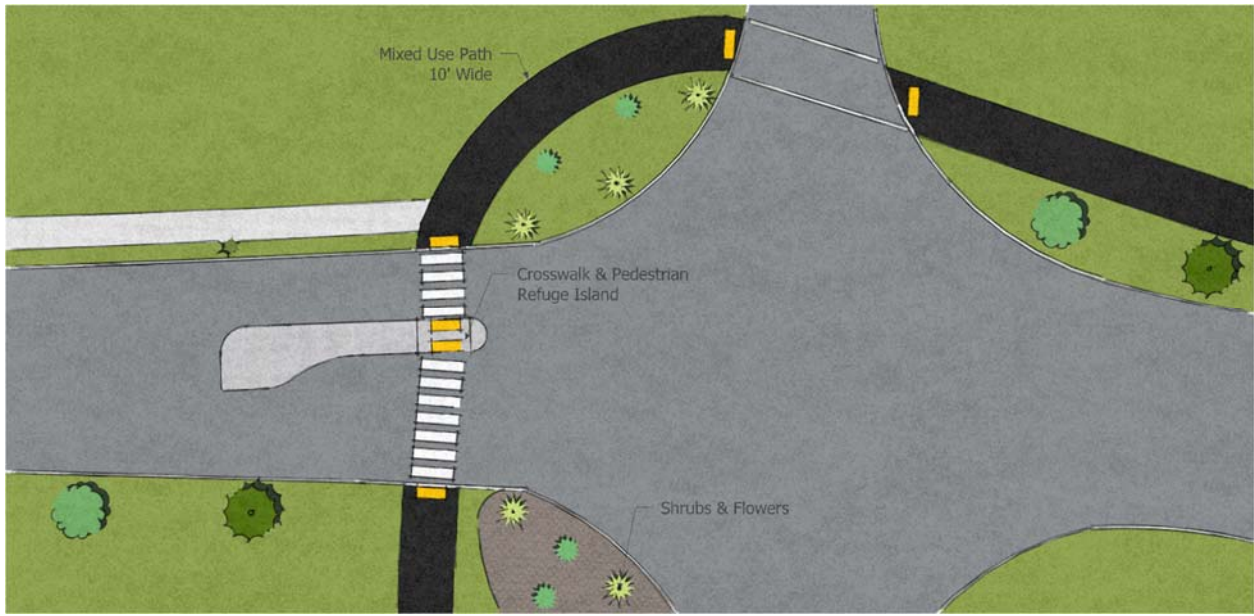
Conceptual Drawings: Cajah Mountain Road



This bird's eye view drawing shows a sidewalk (in white) extending along Cajah Mountain Road to the west of the Kendell Place/Helena Street intersection and along the west side of Helena Street, a crosswalk with a pedestrian refuge island at the Kendell Place/Helena Street intersection, and a mixed-use path (in black) on the north and south sides of Cajah Mountain Road. The mixed-use path also extends along the west side of Helena Street and Kendell Place. The mixed use path then continues along the north side of Cajah Mountain Road, crosses the railroad tracks, and ends at US 321-A.



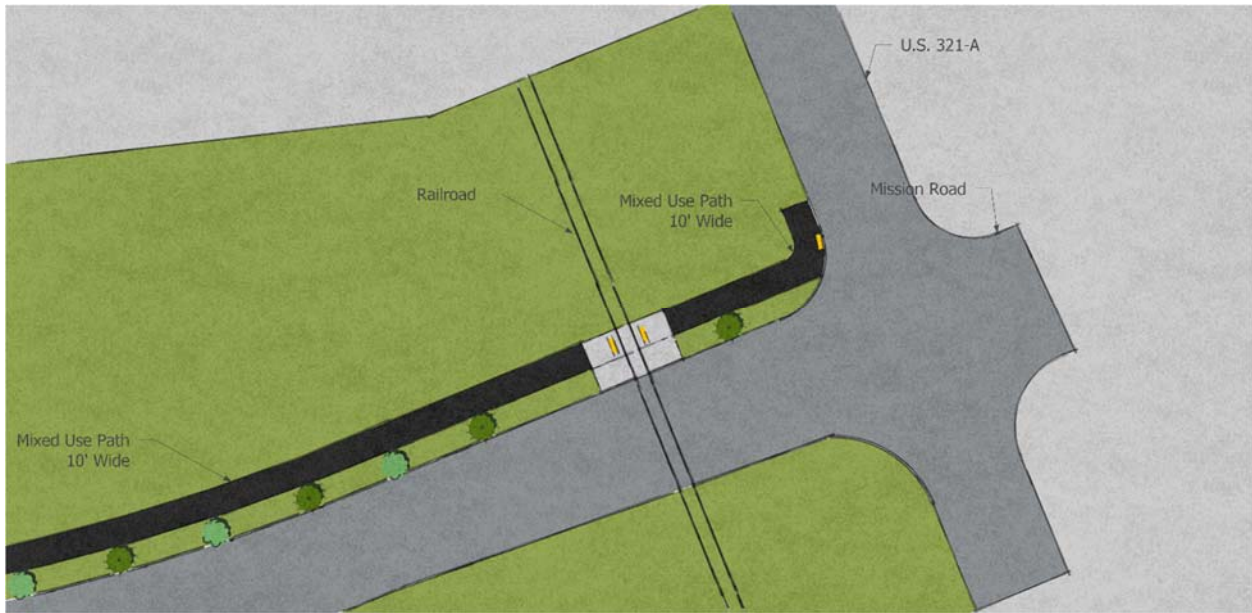
This close-up drawing shows a sidewalk on the north and south sides of Cajah Mountain Road, in the area west of the Kendell Place/Helena Street intersection. As the sidewalk on the south side of Cajah Mountain Road approaches the vacant land on the south side, it transitions into a 10-foot wide mixed-use path. Trees have been planted to create a pleasant experience for pedestrians and motorists.



This close-up view shows a mixed-use path extending across the vacant land on the south side of Cahaj Mountain Road and continuing to the north and south along Helena Street. Trees have been planted to create a pleasant experience for pedestrians and motorists. The mixed-use path transitions to a sidewalk as it continues to the south along Helena Street.



This close-up drawing shows a pedestrian crosswalk and a pedestrian refuge island at the Cahaj Mountain Road/Kendell Place/Helena Street intersection. A mixed-use path connects to a sidewalk on the north side of Cahaj Mountain Road, and continues to the east, via a pedestrian crosswalk extending across Kendell Place. Shrubs have been planted to encourage motorists to slow down and for visual appeal.



This close-up view shows a mixed-use path extending to the east along the north side of Cahaj Mountain Road, crossing the railroad tracks, and ending at US 321-A. Trees have been planted to create a pleasant experience for pedestrians and motorists. An existing sidewalk continues on the north side of Mission Road to Baird Drive, and then to Baird Park.

Downtown Hub

Currently, Sawmills has a core sidewalk network linking Sawmills Elementary and Baird Park. However, a key gap in this sidewalk network occurs at Highway 321A and the Caldwell County Railroad. This Plan recommends completing this gap by creating new accessible crossings of both Highway 321A and the Caldwell County Railroad. This connection provides access to the Sawmills Farmers Market. New sidewalk along the eastern side of Highway 321A is also recommended from the Fire Station to the Spring Lake Mobile Home Park.

Conceptual Drawings: Sawmills Downtown Hub



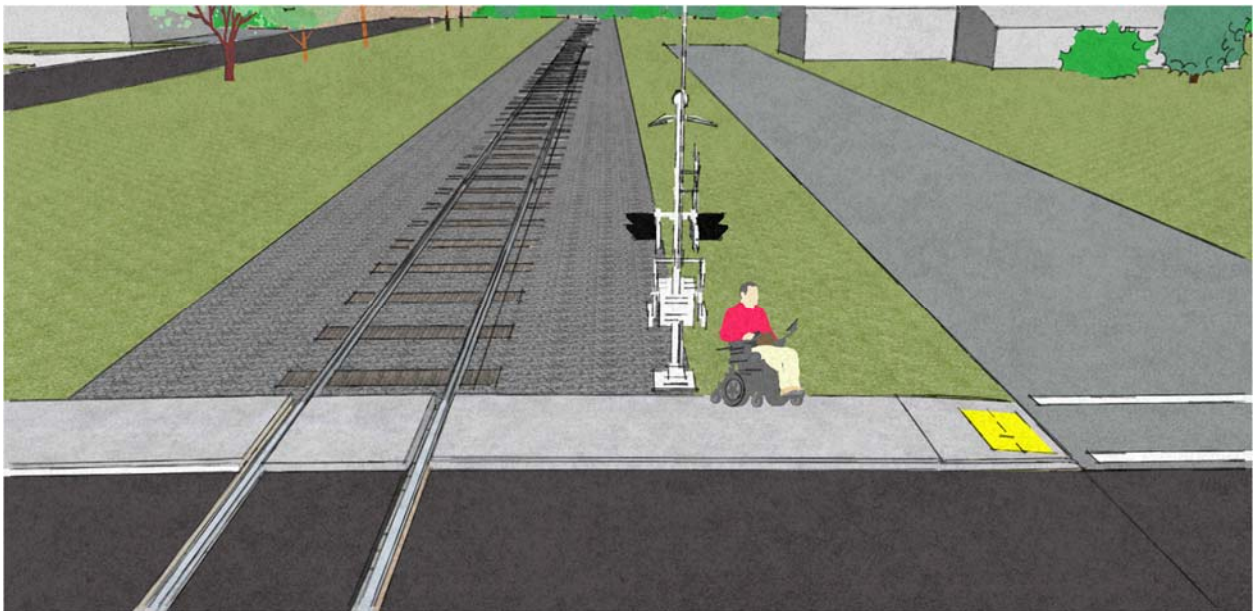
This bird's eye view drawing shows a sidewalk that would allow pedestrians to safely cross US 321-A, the railroad tracks and Sawmills School Road. Pedestrians would be able to safely walk to and from the fire station and the Farmers Market. A short sidewalk extension to Sawmills Town Hall (not shown) could also be included at the time this project were implemented, setting up future sidewalk extension to Spring Lake Mobile Home Park.



This drawing shows a sidewalk and crosswalk located on US 321-A (next to the fire station). The sidewalk features ADA-compliant pedestrian ramps and crossing signals. In addition, signage warns drivers that they are approaching a pedestrian crossing.



This view shows a sidewalk extending around the corner of US 321A and Sawmills School Road toward the railroad tracks and the Farmers Market. Shrubs have been planted to create a pleasant experience for pedestrians and motorists.



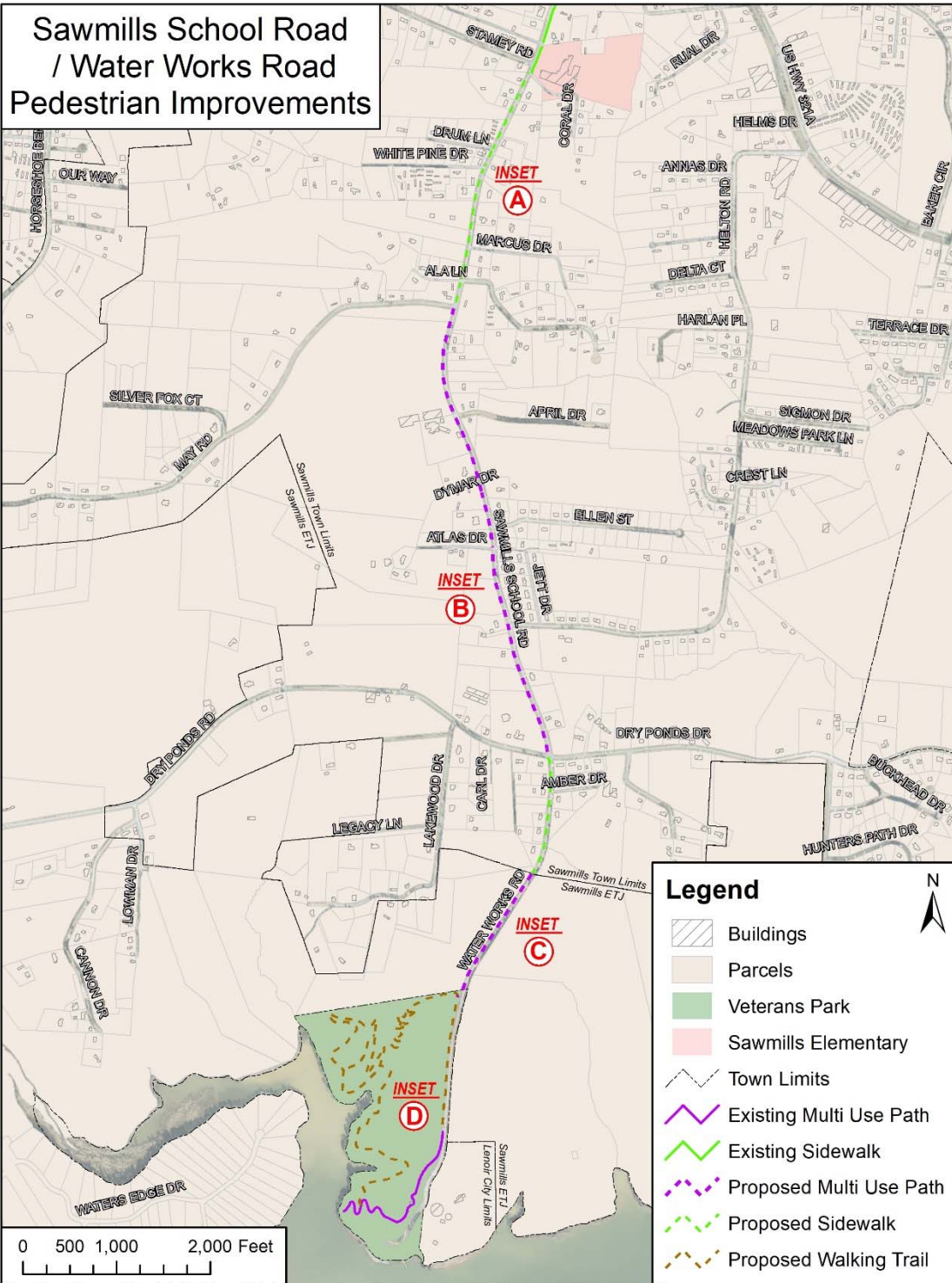
This drawing shows a sidewalk, with an ADA-compliant railroad crossing and pedestrian ramp, extending along Sawmills School Road toward the Farmers Market.



This view shows a sidewalk running along Sawmills School Road and a crosswalk connecting to the Farmers Market. The sidewalk features ADA-compliant pedestrian ramps, and trees have been planted near the Farmers Market to create a pleasant experience for pedestrians and motorists.

Veterans Park Connector

In addition to providing direction on NCDOT projects and state-maintained roads, this Plan also recommends concepts that may pursue other future grant opportunities. One such opportunity is the top local priority to complete the connection between Sawmills Elementary and Veterans Park. This Plan recommends extending sidewalk in the more residentially developed areas of Sawmills north of May Road and immediately south of Dry Ponds Road. Between May Road and Dry Ponds Road, as well as approaching Veterans Park, a multi-use path is recommended. The trail system in Veterans Park has recently been paved, and a loop trail already in design to be completed by Duke Energy. Enhanced crossings of Dry Ponds Road and at the Elementary School would complete the corridor as a trail-like facility.

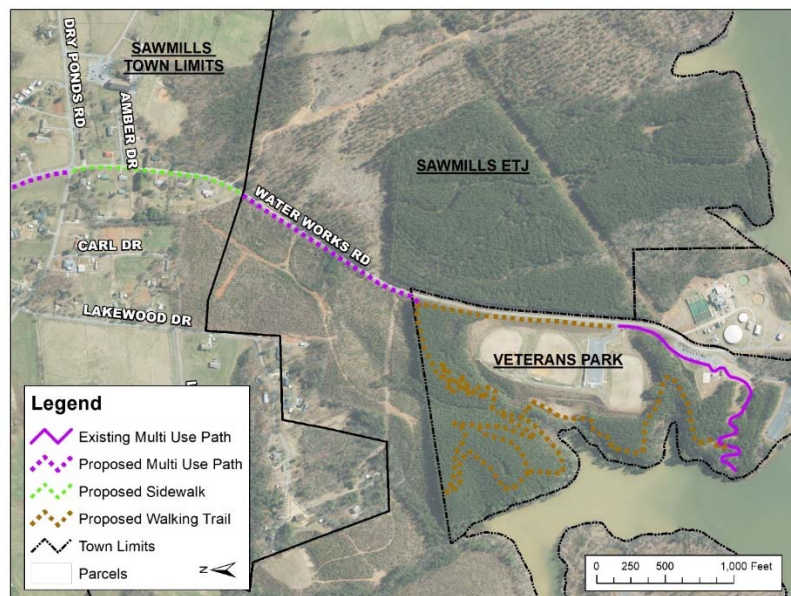


This map is a graphic representation and should only be used for illustrative purpose. Map created with data provided by Town of Sawmills Caldwell County GIS and ESRI.
 Document Path: Q:\Planning\Transportation Planning\Sawmills Ped Plan_2020\GIS Maps\SawmillsSchoolRoad_Recommend.mxd



Along Sawmills School Road, the Connector would extend the existing sidewalk now ending at Coral Drive to May Road. The new sidewalk could switch to the west side of Sawmills School Road with a crossing that would also serve Sawmills Elementary School. Between May Road and Dry Ponds Road, land development patterns is much more rural with typically larger setbacks, providing an opportunity for a 10-foot multi-use path along the west side.

Along Water Works Road, the residential area immediately south of Dry Ponds Road has limited setbacks. As such, a back-of-curb path or sidewalk may better suited here. South of current Town limits, undeveloped land again provides opportunity for a multi-use path. Duke Energy already plans to expand the walking trail in Veterans Park. This includes a multi-use path along the road.



IMPLEMENTATION

While this Plan sets out a grand vision for an expanded Town network of paths and sidewalks, it is important to assess strategies and opportunities to implement key components of that overall vision. The following two sections look at potential timing, cost, roles, and funding sources.

PRIORITIZATION

The below table prioritizes the timing of Plan recommendations. Since already funded, the NCDOT project to modernize Cajah Mountain Road would also facilitate that corridor's recommendations within the same timeframe. Other unfunded projects range in timing and include larger local costs.

Project(s)	Lead	Timing	Cost
Cajah Mountain Rd -Shoulders / bike lanes -Sidewalk and paths -Intersections / RR Xing	NCDOT	Next 5 years	DOT builds sidewalks and maintains bike lanes; Town responsible for sidewalk maintenance (\$225 per panel)
Dry Ponds Rd -Paved shoulders -School Rd intersection	NCDOT	15-20 years	DOT builds and maintains shoulders; No cost to Town
Signed Bike Routes -Various collectors	Town	Next 5 years	\$25-75 per sign \$35-70 per post
Veterans Park Connector -Sidewalk to May Rd -Path to Veterans Park	Town	5-10 years	\$4.7M (\$600K for sidewalk and \$4.1M for multi-use path)
321A sidewalk	Town	5-10 years	\$850K (\$170K local match)
Sawmills School Rd / 321A / RR Xing	Town	10-15 years	\$1M (\$200K local match)
Mission Rd / Spartan Dr	NCDOT / Town	15-20 years	\$3M (\$600K to \$1.5M match)

The below table summarizes common funding sources and their applicability to recommended facilities in this Plan. The following Funding Sources details these and other potential funds.

Grant Program	Lead	Local Match	Applicability
NCDOT Roadway Projects	NCDOT	0% if an adopted plan, 5% if no plan, 100% for maintenance of behind-the-curb elements	Cajah Mountain Rd - RR crossing - 4 intersections - side path / sidewalk - bike lanes / shoulder Dry Ponds Rd - paved shoulders - Sawmills School Rd intersection
Locally Administered Project Program (LAPP)	Town, GHMPO	20% match, 80% Fed reimbursed	321A sidewalk Spartan Dr side path Sawmills School Rd at RR
Strategic Transportation Investments	NCDOT, Town, GHMPO	0% intersections, 20% bike-ped	321A modernization Veterans Park Connector Spartan Dr Path Sawmills School Rd at RR
Parks and Recreation Trust Fund (PARTF)	Town	50% or matching	Veterans Park Connector
Powell Bill Funding	Town	100%	Sidewalk maintenance Curb ramps on local roads
NCDOT Resurfacing	NCDOT	0% for standard pavement markings, but maintenance agreement for unique markings and cost-share for unique betterments	Curb ramps on state roads

FUNDING SOURCES

Various funding and technical assistance sources are available to the Town of Sawmills. Several options are available for assistance through foundations, and state and federal governments. Each agency specifies certain types of projects that they will fund and requires different obligations from the Town. More information on each agency’s goals and interests can be found below.

Greater Hickory Metropolitan Planning Organization (GHMPO) & North Carolina Department of Transportation (NCDOT)

Local Administered Project Program (LAPP)

The Locally Administered Projects Program (LAPP) prioritizes and programs local transportation projects in the region that utilize federal transportation funding. This process involves regular calls for projects, and results in new projects added to the GHMPO’s Transportation Improvement Program (TIP). The GHMPO generally receives \$3,335,000 annually in Surface Transportation Block Grant Direct Attributable (STBG-DA) that municipalities can apply for during project submissions.

Strategic Transportation Investments (STI) Funds – Bicycle and Pedestrian Projects

The State Transportation Investments (STI) law allocates available revenues based on data-driven scoring and local input for new transportation projects throughout the state of North Carolina. It is used to develop the State Transportation Improvement Program (STIP), which identifies the projects that will receive funding during a 10-year period. NCDOT updates the STIP every two years. Bicycle and Pedestrian projects are included in the STIP, however, funding is competitive as only 5% of overall STI funds are dedicated to bicycle and pedestrian projects.

Complete Streets Policy

The N.C. Department of Transportation’s “Complete Streets” policy directs the department to consider and incorporate several modes of transportation when building new projects or making improvements to existing infrastructure.

The table below illustrates the funding responsibilities for Complete Streets incorporating bicycle and pedestrian and roadway public transportation facilities.

Complete Street Cost Share			
Facility Type	In Plan	Not in Plan, but Need Identified	Betterment
Pedestrian Facility	NCDOT pays full	Cost Share	Local
Bicycle Facility	NCDOT pays full	NCDOT pays full	Local
Side Path	NCDOT pays full	Cost Share	Local
Greenway Crossing	NCDOT pays full	Cost Share	Local
Bus Pull Out	NCDOT pays full	Cost Share	Local
Bus Stop (pad only)	NCDOT pays full	Cost Share	Local

Bicycle and pedestrian improvements within a municipal boundary are subject to local maintenance. A local maintenance agreement will be executed prior to the completion of a construction project.

Other State and Federal Funding Sources

Many of the below sources require a local match. In many cases, the match could be through local governments and/or private foundations.

- **NC Parks and Recreation Trust Fund (PARTF)** - the North Carolina Parks and Recreation Trust Fund (PARTF) awards dollar-for-dollar matching grants to local governments for parks, public beach access, and improvements in state parks. The statewide program helps local governments reach their park and public access goals to improve the quality of life in their communities.
- **North Carolina Land and Water Fund** - previously North Carolina's Clean Water Management Trust Fund (CWMTF), the Fund was established by the General Assembly in 1996 as a non-regulatory organization with a focus on protecting and restoring the State's land and water resources. This Fund awards grants to non-profit and governmental organizations to protect land for natural, historical and cultural benefit, limit encroachment on military installations, restore degraded streams, and develop and improve stormwater treatment technology.
- **Water Resources Development Grant Program** – Department of Environmental Quality (DEQ)'s water-based recreation funding program provides cost-share grants and technical assistance to local governments throughout the state. Applications for grants are accepted for seven eligible project types: general navigation, recreational navigation, water management, stream restoration, water-based recreation, Natural Resources Conservation Service Environmental Quality Incentives Program (EQIP) stream restoration projects and feasibility/engineering studies. The non-navigation projects are collectively referred to as state and local projects.
- **NC Recreational Trails Program (RTP)** – This program works with Trails Program staff as well as the NC Trails Committee to enable volunteers, nonprofit organizations and government agencies to develop trail plans, preserve land and manage trails for all trail users. RTP is funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. Its intent is to meet the trail and trail-related recreational needs identified by the Statewide Comprehensive Outdoor Recreation Plan (SCORP). RTP is a reimbursement grant program. Safety and Education grants are also available through the RTP.
- **Federal Lands Access Program (FLAP)** –The Federal Lands Access Program (Access Program) was established in 23 U.S.C. 204 to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The Access Program supplements State and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators.
- **Rivers, Trails, and Conservation Assistance Program (NPS Planning Grant)** - RTCA helps create local, regional and state networks of parks, rivers, trails, greenways and open spaces by collaborating with community partners and National Park areas in every state. Applications for support from the Rivers, Trails, and Conservation Assistance program are competitively evaluated based on the following criteria:

- The project has specific goals and results for conservation and outdoor recreation expected in the near future.
- Roles and contributions of project partners are significant and well-defined.
- There is evidence of broad community support for the project.
- The project fits within RTCA focus areas (although proposals falling outside these areas are considered).

Programs for Parks, Open Space, and Land Preservation

NC Department of Environmental and Natural Resources

Extensive list of funding and tax credit resources

NC Department of Commerce Rural Economic Development Division

Economic statistics and funding opportunities in areas such as Heritage Tourism, Economic Impact/Tourism Research and Community Development. The Rural Economic Development Division is over an increasing number of grant programs. This division also provides planning services, analysis and identification of resources needed to strengthen rural economic and community development projects.

Urban & Community Forestry Grant Program

This is a federally funded cost share program to encourage citizen involvement in creating and sustaining urban and community forestry programs. Municipalities, counties, regional agencies, interest groups, educational facilities and private organizations are eligible to apply for funding for projects that enhance and promote the urban forest.

NC Resource Conservation & Development

Provides leadership in a partnership effort to help people conserve, improve, and sustain our natural resources and environment. There are nine regional offices serving North Carolina counties.

The Trust for Public Land

TPL helps conserve land for recreation to improve the health and quality of life of American communities. Several grant opportunities are available through this program, including equitable opportunities grants.

Kate B. Reynolds Charitable Trust

Grant funding with an emphasis on improving the health of North Carolina communities.

- **Rural Forward NC** - Funded by Kate B. Reynolds Charitable Trust, the Rural Forward NC program offers technical assistance and capacity building to amplify the impact of rural leaders, organizations, and coalitions to improve major health indicators in rural North Carolina.

Other Resources

Eat Smart, Move More NC Funding Opportunities

This program is sponsored by the Division of Health and Human Services, and Department of Public Health.

Blue Cross Blue Shield Foundation of North Carolina

The foundation supports programs that increase access to health services for the uninsured, provides health education, promotes healthy lifestyles and supports health initiatives that target children, older adults and minorities

Shade Structure Grant Program

Grant opportunity for common areas without shade trees.

NC Cooperative Extension Offices

Extension offices offer technical assistance in many areas including forest health and stormwater management. Extension agents develop partnerships with local groups and should be considered for local funding source opportunities. Some offices may offer funding opportunities in sustainability planning and educational outreach programming.

CONCLUSION

The key purpose of this Plan is to guide Town policy decisions concerning the network, prioritization, and implementation of bicycle and pedestrian facilities. With a locally adopted plan, NCDOT projects can incorporate local recommendations into their design without any construction cost-share required of the Town. Plan adoption also allows the Town to pursue and partner on future grant opportunities. Ultimately, the Plan seeks an expanded network that supports active lifestyles to access and enjoy many of the area's attractive qualities.