



CROSSNORE BICYCLE & PEDESTRIAN PLAN

Adopted January 12, 2010

Acknowledgements

Town of Crossnore Elected Officials

Tudor Vance, Mayor
Dale Henson
Billy Howard
Jesse Smith
Dan Vance

Stakeholder Planning Committee

Ann Baker
Rachel Deal
Phyllis Craine
Lander Heafner



NCDOT

Dean Ledbetter, NCDOT Division 11 Traffic Engineer
Michael Poe, NCDOT Division 11 District 2 Engineer
Ivan Dishman, NCDOT Division 11 Bridge Maintenance Engineer



NC Division of Forest Resources

Debbie DiPietrantonio, Corpening Training Facility Supervisor



Land Design

Stephanie Pankiewicz, Landscape Architect
Andy Cole, Intern Designer



NCSTEP

David Quinn



Technical Assistance Provided By:

High Country Council of Governments

Purpose:

The purpose of this plan is to improve safety, make walking and biking a viable transportation option, and provide a basis for future Town decisions and funding requests related to pedestrian and cycling needs.

Need:

The Town expressed a desire to enhance the transportation network as well as the community by planning a series of sidewalks and trails between key origins and destinations. Connections to the Post Office, Crossnore Elementary School and various locations at The Crossnore School will benefit the community as a whole by providing an alternate transportation mode to these high traffic areas. A lack of sidewalks and designated walking and biking areas limits opportunities for citizens to enjoy walking, jogging, or cycling. By providing accessible, inviting facilities, the Town can provide opportunities for everyone to improve their health through exercise. Finally, a well planned pedestrian and bicycle network not only enhances the community but meets a transportation need.

Background:

The Town of Crossnore has been seeking to improve conditions for residents and visitors within and around the town limits for many years. Many planning efforts have been undertaken that address aesthetics, mobility, and community development, including:

- STEP Master Plan
- NCSU Crossnore Design Charrette
- NCDOT Design of Sidewalk along Crossnore Drive
- High Country Regional Trail Plan
- Crossnore Enhancement Committee
- Crossnore School Master Plan

This plan will take key elements of the previous planning efforts, along with stakeholder and public input, and incorporate findings from those efforts into a plan that will provide the Town with a guide to achieving many of the goals and objectives that were developed in those planning efforts.

Process:

The Crossnore Alternative Transportation Plan was developed utilizing the following process:

- Scoping meeting with Town of Crossnore
- Presentation of Draft Plan to Town
- Posting of Plan for Public Comment
- Initial Stakeholder Meeting
(Property owners along major roads or near origins and destinations from preliminary list attended the meeting)
- Public Workshop
- Stakeholder review
- Consideration and Public Hearing

Meetings were held with citizens to gather their input about what characteristics should be included in a pedestrian and bicycle transportation network and to develop a list of desirable origins and destinations along with potential routes. Owners of properties where potential routes could be located were contacted to determine the feasibility of locating a trail or path on that property.

After identifying potential routes and destinations, accident data, traffic volumes, and future road improvement data were examined to identify potential conflicts and solutions. Routes were then mapped along with the origins and destinations that would be served. A map along with supporting documentation was then prepared for public comment and Council consideration.

EXISTING CONDITIONS

This section is intended to provide information on the road network, safety, landscape and existing pedestrian and bicycle transportation system in Crossnore. This information will be used to make specific recommendations for pedestrian and bicycle improvements.

Road Network:

Four state roads are located in the plan area: Crossnore Drive, Dellinger Road, US Highway 221, and Walt Clark Road.

NCDOT claims only maintained areas for right-of-way along these routes. Local streets have a right of way based on the maintenance area as well. The typical maintained right-of-way is between 25 and 30 ft.

Right-of-way or easements will need to be acquired before any sidewalk or path is constructed along a local or state road.

Traffic Counts:

- Crossnore Drive = 1500 AADT
- Dellinger Road = 476 AADT
- Walt Clark Road = 790 AADT
- US 221 = 6700 AADT

Posted Speed Limits:

- Crossnore Drive: 25 mph
- Dellinger Road: 25 mph
- Walt Clark Road: 55 mph (35 mph school zone)
- US 221: 35 mph

(AADT = Annual Average Daily Traffic)

Accidents:

Accident analyses were prepared for Crossnore Drive, Dellinger Road, US Highway 221 and Walt Clark Road for the time period January 1, 2006 through December 31, 2008. Crash rates along these facilities did not exceed statewide crash rates for these types of facilities. There were a total of 6 accidents within the study area and none involved pedestrian or cyclists during the study period.

Existing Bicycle Facilities:

There are some families utilizing the Crossnore Town Park Trail. There are some local cyclists using Walt Clark Road and Crossnore Drive.

Existing Pedestrian Facilities:



Sidewalk along Crossnore Drive from the Meeting House to Crossnore Baptist Church entrance (Concrete).



The trail extending from Crossnore Elementary School to Crossnore Park along Walt Clark Road (Asphalt)



There is a section of 3 ft sidewalk located between the Crossnore School's Sales Store and the Weaving Room. This sidewalk does not appear to be designed for the general public.



There are trails located within the property of the Crossnore School, but access to those trails is limited to staff and residents.



A gravel path along the east side of Crossnore Drive from a point across the road from the parking lot at Crossnore Baptist Church extending to the Crossnore School Amphitheatre.

Barriers / Obstacles:

The following barriers / obstacles exist and were considered when recommendations were prepared:

No crossing of the Crossnore School Property. This property is located between the Town Center and the Town Park and also the Elementary School. The Crossnore School has granted access to areas around the perimeter of the property for pedestrian and/or bicycle improvements.

Access to the Sloop Dam. The area on the north side of the Linville River is privately owned and a trail would need to cross the privately owned land to follow an existing trail or to go directly to the dam from either Crossnore Presbyterian Church or the Town of Crossnore Wastewater Treatment Facility. Access

on the south side of the river would require trails through an area currently being used by the NC Division of Forest Resources for research, and the introduction of the general public to these areas could introduce contaminants into the research area.

Safely crossing US 221.

Lack of publicly owned right of way. Any sidewalk or trail construction will require the acquisition of right of way or easements which can delay construction and increase project costs.

Topography

The elevation of Crossnore is 3,369 ft above sea level. Topography in the area consists of steep slopes with many streams in the lower lying areas. Areas immediately adjacent to many of the roads have steep slopes, which will increase the cost of sidewalk/path construction along many of the roads in town. While the speed limit in Crossnore is 35 mph or less, sight distances are very limited due to the topography of the area.

Origins, Destinations and Points of Interests:

The following are origins, destinations, and points of interest of pedestrians and cyclists in Crossnore, or destinations that residents would like to be able to walk to:

- Crossnore Presbyterian Church
- Pool Site
- Post Office
- Weaving Room
- Mercantile
- Crossnore Sloop Chapel
- Crossnore Elementary School
- Art Gallery
- Sales Store
- Crossnore Town Park
- Benfield Rd
- Old US 221 Pedestrian Bridge Site
- Crossnore School Amphitheatre
- Sloop Dam
- NC Division of Forest Resources Corpening Training Facility (River Access)

We use the term “point of interest” because while these may be destinations for some, official access has not been granted to the general public at the time this plan was prepared. However, these were points that were identified as places that cyclists and pedestrians may be interested in visiting.

Public Parking:

Public Parking is available at the following locations:

- Crossnore Meeting House: 19 spaces
- Post Office: 6 spaces and 2 handicap
- Coffee Shop: 15 spaces and 1 handicap
- NC Division of Forest Resources Corpening Training Facility River Access: 8 spaces
- Crossnore Presbyterian Church: 52 spaces in the lower parking lot
- Sales Store: 25 spaces and 2 handicap
- Crossnore Town Park: 10 spaces
- Linville River Mercantile: 7 spaces
- Crossnore Baptist Church: 76 spaces and 3 handicap
- Crossnore Elementary School: 63 spaces and 4 handicap

Parking is not recommended at Crossnore Fellowship Presbyterian Church due to the proximity of the home located on the northern edge of the parking lot.

PEDESTRIAN RECOMMENDATIONS

Trails and Sidewalks

Recommendations for trails and sidewalks were developed analyzing public input, deficiencies in the current pedestrian system, growth patterns, and input from the key stakeholders. Recommendations were then prioritized in an order that would facilitate expansion of the network in a logical manner.

Cost estimates are included as guidance for making recommendations. Prices can change over time, and will vary significantly based on terrain, necessary utility relocation, soil condition, etc. The facility estimates below do not include any right-of-way acquisition or engineering services.



1 Johnson Lane: Sales Store to Weaving Room

This trail would connect the Sales Store, Art Gallery, Labyrinth, and Weaving Room. An offroad trail facility is recommended to maintain the character of the trail systems located on campus. The offroad trail would draw visitors away from the road and draw attention to the Labyrinth and sculptures that may otherwise go unnoticed if pedestrian facilities are constructed adjacent to the roadway.

Cost Estimate: 930 ft. x \$10 (5 ft. trail) = \$9,300



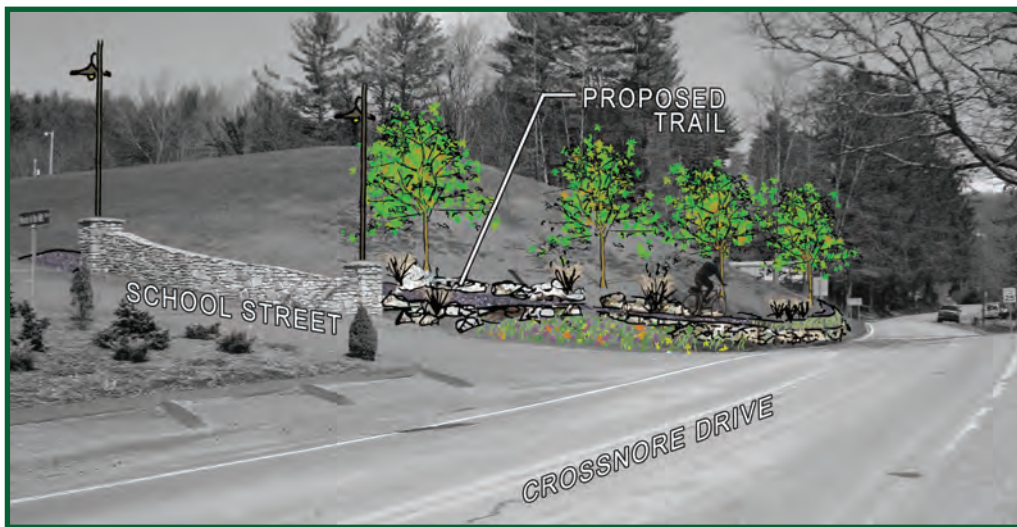
2 Crossnore Drive: Benfield Road to the Crossnore School entrance

A preliminary estimate was completed in February, 2007 for this section by NCDOT. This section would provide pedestrian access to the core of the Town of Crossnore: The Post Office, Town Hall, Meeting House, Sales Store, Coffee Shop, Volunteer Fire Department, the Crossnore School, and Crossnore Baptist Church. The sidewalk would also provide a connection to the center of Town for a blind resident who is very active in the community and frequently walks in this area. If funds are not available, this section could be split into two sections: Benfield Rd to Dellinger Rd and Dellinger Rd to the entrance to the Crossnore School. A crosswalk should be considered at the intersection of Dellinger Road/Johnson Lane with Crossnore Drive. The crosswalk should be installed in conjunction with appropriate signage and a traffic calming device such as neck down or center island to slow speeding motorists.

Cost Estimate: 1455 ft. (Per NCDOT Division 11 District 2) = \$215,000



Visualizations of proposed pedestrian improvements:



3 Crossnore Drive: Crossnore School entrance to Walt Clark Road

This would serve as a connection between the center of Town and some outlying pedestrian generators such as the Crossnore Fellowship Presbyterian Church and Loaves and Fishes Restaurant. This would also serve as a link connecting to the Crossnore Town Park. A trail section is recommended through here to maintain the natural character of the environment as this is a steep and wooded area.

Cost Estimate: 1806 ft. x \$20 (10 ft. trail) = \$36,120



4 Walt Clark Road: Town of Crossnore Park to Crossnore Fellowship Presbyterian Church parking lot

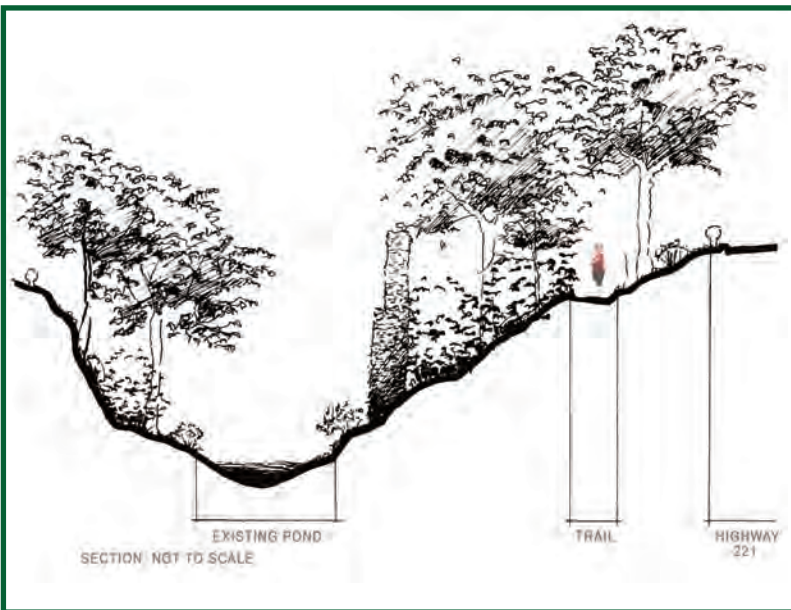
Extend a trail from the Crossnore Town Park to the parking lot of Crossnore Fellowship Presbyterian Church. An asphalt trail is recommended along this section to maintain the character of the trail connecting the park to Crossnore Elementary School. Users can walk across the parking lot to continue on future sections of trail and/or sidewalk along Crossnore Drive.

Cost Estimate: 330 ft. x \$35 (5 ft. asphalt trail) = \$11,480

5 Maple Street: Crossnore Drive to US 221

The preferred route would be on the west side to connect to the restaurant parking lot which would reduce the length of the project, however, if an easement or right of way is not available, the east side can be utilized. A sidewalk or asphalt trail is recommended through this section because of potential drainage issues and to transition from the restaurant's asphalt parking lot to the proposed trail along Crossnore Drive.

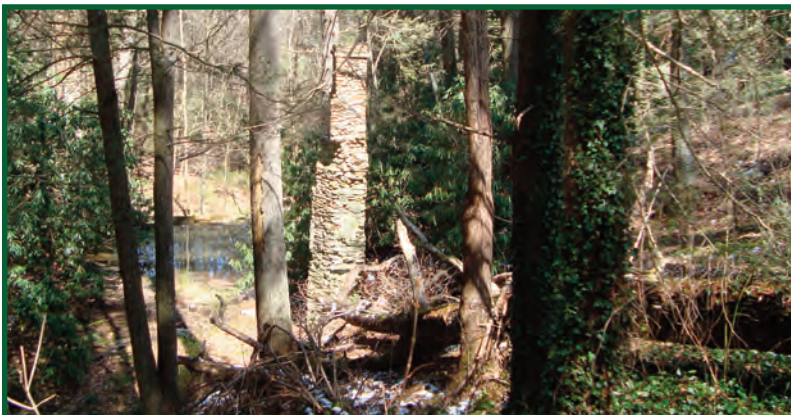
Cost Estimate: 450 ft. x \$35 (asphalt trail) = \$15,750



6 Pool Site Connection: Crossnore Baptist Church to the Linville River Mercantile Store

This should be a trail to maintain the wilderness character of the trail's surroundings. This trail will begin at the back of the Crossnore Baptist Church parking lot and continue along the east side of the stream by the former YMCA Pool and Chimneys to the Linville River Mercantile Store. Steps will need to be installed from the pool to the store location. Railing and/or other barriers should be installed to restrict access to the pool until improvements can be made. At some point the vegetation around the pool site will need to be removed and the pool site improved to make it safer and more appealing as a destination. The pool site as indicated in previous plans and studies has the potential to be a focal point in the community.

Cost Estimate: 1200 ft. x \$20 (10 ft. trail) = \$24,000





7 US 221: Crossnore Presbyterian Church to NC Division of Forest Resources Corpening Training Facility

This is a proposed trail or asphalt path that will typically follow the areas already cleared under the existing power lines along the south and east side of US 221 from Crossnore Presbyterian Church to the Corpening Training Facility entrance. The Division of Forest Resources is in the process of constructing a parking lot and access to the Linville River to accommodate fishermen. At some point, the Division of Forest Resources will construct a short trail along the river to allow additional fishing access.

Cost Estimate: 2100 ft. x \$20 (10 ft trail) = \$18,600



Visualization of proposed pedestrian improvement:



8 Dellinger Road: Hemlock Lane to US 221

This is proposed to be an elevated walking trail that will provide an alternate route to the Mercantile Store and Pedestrian Bridge. It is recommended that the trail be placed on the west side of Dellinger Road to reduce the cost of filling and stabilizing a bank on the east side. Due to the steepness of the slopes adjacent to the roadway, the trail will need to be cut into the bank to provide a needed separation between the road and trail users to enhance safety.

Cost Estimate: 930 ft. x \$20 (10 ft. trail) = \$18,600



9 Crossnore Pedestrian Bridge:

The old pedestrian bridge was removed in 1995 and had been used by local residents to walk to Crossnore Presbyterian Church since 1930. The old archway still stands and can be incorporated into the landing of a replacement bridge. The old bridge was another focal point in the community because it tied the Crossnore



Community to the Crossnore Presbyterian Church and Sloop Dam. The re-installment of the bridge would restore the connection to the historic church and provide a link to the recommended trail that is to extend from Crossnore Presbyterian Church to the NC Division of Forest Resources Corpening Training Facility. Prior to construction of a new bridge, an encroachment agreement must be obtained from NCDOT along with approval of the bridge design.

Cost Estimate: \$100,000

Visualizations of proposed pedestrian improvements:



10 Well Site Trail:

This trail will be extended from the Pool Site Connection and follow Crossnore Creek heading west to the well site and then loop around the well site and head back towards the Pool Site Connection. The area surrounding this trail is located in the 100 year flood zone, so special attention will need to be given to drainage when constructing the trail.

Cost Estimate: 1350 ft. x \$20 (10 ft. trail) = \$27,000

OTHER RECOMMENDATIONS



US 221:

Bike lanes should be requested as part of the US 221 widening (R-2595 and R-2596) to accommodate local cyclists as well as those on longer rides passing through the area or connecting to the Blue Ridge Parkway. While neither project is funded at this time, comments should be made to NCDOT early in the planning process and as part of any future Comprehensive Transportation Plans for Avery County.



Walt Clark Road:

"Share the Road" signs should be installed along this roadway. In addition, a request to add shoulders should be made if traffic volumes increase.

Crossnore Drive:

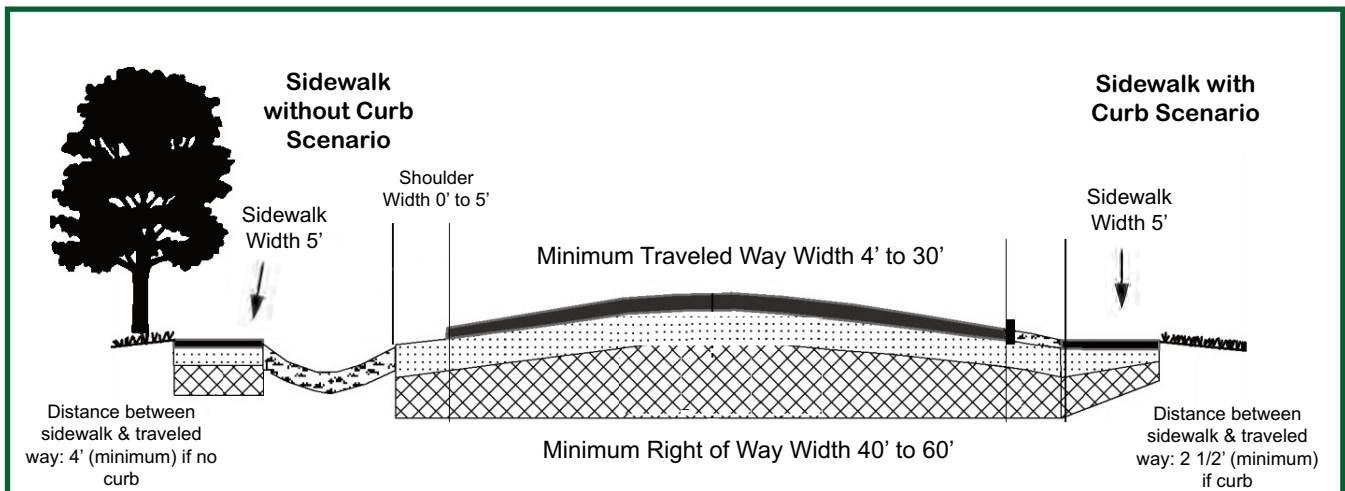
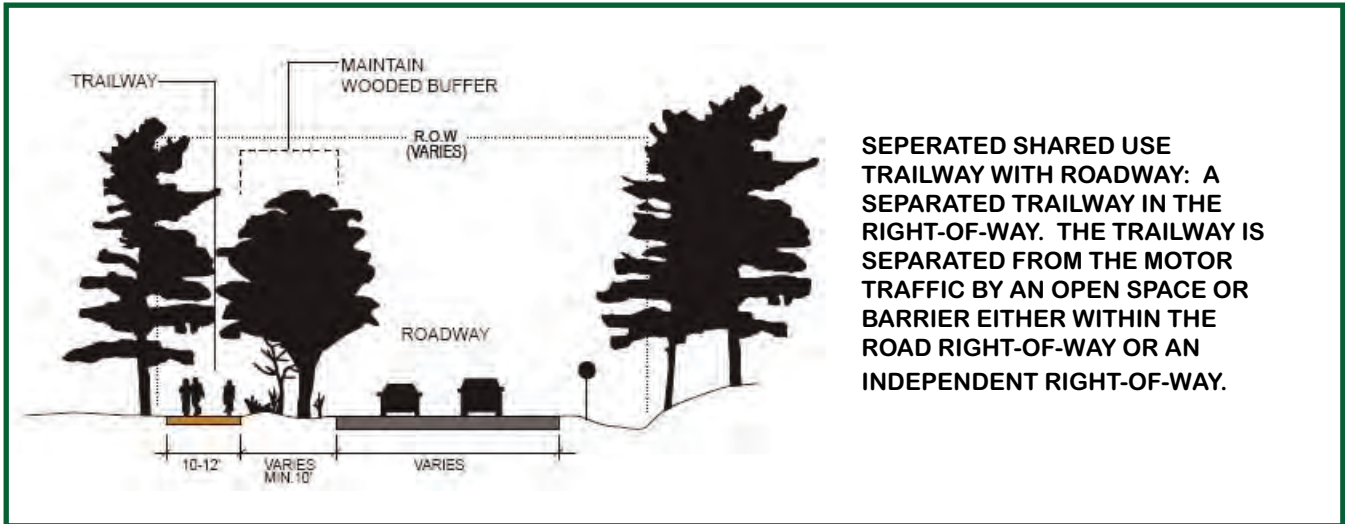
"Share the Road" signs should be installed along this roadway. The feasibility of adding shoulders should be evaluated when designing trails and/or sidewalks along this facility.



Crosswalks:

Crosswalks along with proper traffic calming will force vehicular traffic to slow down and look for pedestrians. Crosswalks should be considered at the Crossnore Drive intersection with Dellinger Road/Johnson Lane.

CROSS SECTIONS



TRAFFIC CALMING

Traffic Calming:

Due to motorists exceeding the posted speed limits, it is recommended that traffic calming devices be considered at the previously mentioned crosswalk locations. Areas of primary concern include but are not limited to Crossnore Drive @ Johnson Lane/Delinger Road and also at Crossnore Drive @ Maple Street because of the potential need for pedestrians to cross the road at these locations. The following traffic calming devices should be considered:

- **Gateways / Entryways:** Gateways include decorative signing and/or landscaping to visually identify the entrance to a neighborhood or commercial district. This measure helps to make the area appear more as a destination rather than a connection to another area. Gateways are often incorporated into a median island.

Cost Estimate: Varies depending on size and material.



| Advantages | Disadvantages |
|---|---|
| <ul style="list-style-type: none"> • May reduce volumes • Positive aesthetic effect • Good functionality • Improves quality of life for neighborhood • No impact to emergency response times | <ul style="list-style-type: none"> • Can create vehicular hazards • Can create poor visibility conditions • Can be expensive |

- **Center Island Narrowings and Crossing Islands:** Narrowing of the roadway with a raised center island, typically planted, between the travel lanes. They also provide a pedestrian refuge thereby allowing pedestrians to cross one travel lane at a time.

Cost Estimate: Varies depending on size and material.



| Advantages | Disadvantages |
|---|---|
| <ul style="list-style-type: none"> • May reduce speeds and volumes • Positive aesthetic effect • Good functionality • Increases pedestrian safety | <ul style="list-style-type: none"> • Loss of on-street parking • Can impact emergency response vehicles if lanes made too narrow • Should not be used in areas with frequent driveways |

• **Traffic Circles:** Provides circular, counterclockwise operations at intersections by placing a raised island in the middle of the intersection. Vehicles on the through street must change their travel path to maneuver around the circle. Entry into the intersection is often controlled by Yield signs on all approaches.

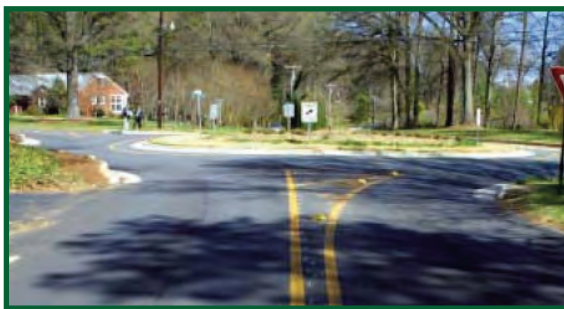
Cost Estimate: \$5,000 - \$10,000



| Advantages | Disadvantages |
|---|---|
| <ul style="list-style-type: none"> • May significantly reduce speeds on the through street • Reduces intersection collisions • Provides additional street aesthetics • May be used as a volume control device without limiting access | <ul style="list-style-type: none"> • May require the removal of parking near intersections • May cause sight distance problems for vehicles • Depending on size and location, may have high installation costs • May impact emergency response times • May impede large vehicles |

• **Roundabouts:** Similar to traffic circles but larger and with “splitter islands” on each approach that flare at the entry into the circle. They are more typically used as a substitute for a traffic signal. Traffic on the approaches must yield to vehicles within the circle.

Cost Estimate: Single lane roundabout \$20,000-\$120,000 (Varies depending on right of way requirements)



| Advantages | Disadvantages |
|---|--|
| <ul style="list-style-type: none"> • Reduces vehicle speeds • Eliminates typical left-turn conflicts • In the long run, more economical to maintain than a traffic signal • Reduces crash severity at intersections | <ul style="list-style-type: none"> • Often requires a large amount of right of way • May require additional lighting to lessen driver confusion at night • Not a typical traffic calming measure for local streets (used more for collectors and minor thoroughfares) • Initial costs are high |

• **Neckdowns:** Neckdowns are used to make streets more pedestrian friendly by shortening the crossing distance and reduce speed by narrowing travel lanes.

Cost Estimate: \$4,000 - \$6,000



| Advantages | Disadvantages |
|---|--|
| <ul style="list-style-type: none"> • Increased pedestrian safety and range • Reduces speeds | <ul style="list-style-type: none"> • May require bicyclists to merge with traffic • May slow emergency vehicles • Loss of on-street parking |

FUNDING SOURCES

Federal

The Recreational Trails Program

The Recreational Trails Program is funded in the federal transportation bill and is administered in North Carolina by the Division of Parks and Recreation. The funds can be used for off-road trail construction. The maximum grant is \$75,000, and must be matched at 20%.

Land and Water Conservation Fund

The Land and Water Conservation Fund Program provides funds to local governments for conservation and recreation purposes. Off-road trail construction is an eligible use of funds. The grants require a 50% match, with a maximum grant amount of \$250,000.

NCDOT

Independent Projects

NCDOT's Division of Bicycle and Pedestrian Transportation (DBPT) programs funding through the TIP process for bicycle and pedestrian projects. 80% of the funding is from the federal Transportation Enhancement program and the remaining 20% comes from a local match. Projects must be requested through the TIP process described below. Projects may include off-road pedestrian facilities, pedestrian bridges or underpasses, and intersection treatments.

Provide the following to the TIP Program Manager:

- Location of the project
- Route on which the project is located, or name of facility as appropriate
- Termini (beginning and ending points on the route/facility)
- Description of the work
- Estimated costs and proposed delivery schedule for right of way, utility work, and construction phases

Incidental Projects

NCDOT's Pedestrian Policy Guidelines establish the process for inclusion of pedestrian improvements in programmed highway projects.

Pedestrian and bicycle projects incidental to scheduled highway improvements are included in the highway project cost, programmed in the TIP. Local governments can request inclusion of pedestrian and bicycle improvements when the highway project enters the Program Development and Environmental Analysis (PDEA) Branch. Local governments must commit to a 20% local match, maintenance, and liability for the project.

NCDOT pays the entire costs of replacing sidewalk that is removed for a road-widening project.

Spot Improvements

NCDOT's Division Offices receive discretionary funds for small projects and spot improvements which can include pedestrian facilities. Local governments can make requests through the Division Engineer and Division Traffic Engineer.

Other State Funding

Adopt-A-Trail Program

North Carolina's Adopt-A-Trail (AAT) program provides grants annually for trail construction, renovation, and repair. Maximum grants are \$5,000, with no match required. Grants are administered by the NC Division of Parks and Recreation.

NC Health and Wellness Trust Fund

The NC Health and Wellness Trust Fund was created by the General Assembly to use revenue from the Tobacco Master Settlement to improve the health of NC citizens. The fund currently offers grants through the Fit Together program for health promotion, which may include promotion, education, and policy measures to encourage walking.

Private

Blue Cross Blue Shield of NC Foundation

The Blue Cross Blue Shield of NC Foundation offers grants to local communities for health promotion. Grant funds may be used for pedestrian facilities, or pedestrian education and encouragement programs.

Private Donations

Private donations can be used for specific municipal purposes, including construction of pedestrian facilities. Fundraising through a non-profit organization is common.

