

Report on the Study of State Parks and Trail Signage

2014

**By the North Carolina Department of Transportation for the NC General Assembly Joint Legislative
Transportation Oversight Committee and Fiscal Research Division**

4/1/2015

This document reports on the NC Department of Transportation's study of the use of highway signage as a means of improving the North Carolina residents' and tourists' awareness of State parks, including historic and cultural sites as well as the Mountains-to-Sea Trail, pursuant to SL 2014-100, Section 34.15(b), and details existing sign locations and benefits to improve or expand sign locations in order to increase efficacy and public awareness.

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State Parks and Trails Signage

Executive Summary

Pursuant to Section 34.15(a) of the 2014 Budget Bill, the Department of Transportation (NCDOT), in conjunction with the State Parks and Recreation Division of the Department of Environment and Natural Resources, the Department of Commerce, and Friends of the Mountains-to-Sea Trail, Inc., shall study how the use of highway signs as a means of improving the awareness of State parks, including historic and cultural sites and the Mountains-to-Sea trail.

As directed, this report provides information relative to the study of 1) whether signs currently located on or near highways in this state are sufficient in number, location, and size to make travelers on the highways of NC aware of the existence and location of all state parks, including historic and cultural sites as well as the Mountains-to-Sea trails (MST) and East Coast Greenway (ECG); 2) whether signs currently located on or near highways in NC adequately inform travelers that portions of roads they travel on are part of the current route of the MST and ECG; 3) what measures could be taken to improve the efficacy of highway signage in achieving the goals of subdivisions (1) and (2); and 4) what costs and benefits of implementing the measures described in subdivision (3).

This report documents the findings, and is for submittal to the Joint Legislative Transportation Oversight Committee and the Fiscal Research Division no later than April 1, 2015.

Members of Study Group

This report was developed by NCDOT with assistance from a committee of members representing state agencies and non-profit organizations representing state park and cultural sites, tourism and economic development, and the Mountains-to-Sea Trail and East Coast Greenway. Members included:

Ron King (primary study author), State Signing and Delineation Engineer, NCDOT

Kevin Lacy, State Traffic Engineer, NCDOT

John Amoroso, Regional Planning Program Specialist, NC Division of Parks and Recreation

Niles Barnes, South Atlantic Coordinator, East Coast Greenway Alliance

Karin Cochran, Deputy Secretary, NC Department of Cultural Resources

Kate Dixon, Executive Director, Friends of the Mountains-to-Sea Trail

Erin Lawrence, Engineering Program Manager, NC Division of Parks and Recreation

Mark Shore, Director of Tourism Marketing, Economic Development Partnership of NC

Libby Smith, Senior Community Development Advisor, NC Department of Commerce

Carol Tingley, Deputy Director, NC Division of Parks and Recreation

Current Sign Locations

ECG

In the state of North Carolina, the East Coast Greenway Alliance (ECGA) has identified approximately 370 miles of combined off-road trails and carefully selected roads intended for bicycling and pedestrians to use for transportation and recreation. The routing in North Carolina is a collaborative effort coordinated by their North Carolina State Committee, which has representation from MPOs and RPOs along the route corridor (17 total MPO/RPO), with additional advocacy representation and NCDOT and State Parks members.

As part of the 2,900 mile network of trails connecting cities along the Eastern Seaboard from Maine to Florida, the ECGA provides users with navigational tools including maps, cue sheets, signage, and a phone app. Signage is one of their key navigational tools. Currently, over 75 miles of the ECG route in NC is signed with another 40+ in process.

MST

The MST is a unit of the NC State Park system that includes approximately 600 miles of designated trail, part of an off-road trail network that is planned to eventually stretch from the Great Smokies to the Outer Banks. Friends of the Mountains-to-Sea Trail (FMST), the nonprofit which supports the trail, works with communities to develop thru-hiking options which link State Park-designated trails by utilizing connecting roads in areas where no off road trail has yet been built. These thru-hiking options allow trail user to complete the MST hike across North Carolina.

FMST provides navigational tools including maps, guidebooks and signs and trailblazers on the trail sections. The signage package for the MST is being revisited as part of the MST Master Plan which is currently underway and graphics should be consistent across the designated portions of the trail as well as across the through hiking options in order to reduce confusion related to trail location. There are currently no signs on the road sections, and FMST feels this makes navigation challenging on these sections

Signs are also needed for the MST on major roads and ferry crossings to direct people to parking areas for trail heads for off-road segments designated by State Parks.

State Parks, including cultural and historic sites

NCDOT Standard Practice states that to qualify for highway signing, a facility must generate moderate levels of traffic of at least 100,000 annual vehicle-trips. Sign locations are limited to the closest primary route, not to exceed 15 miles from the facility in rural areas and five miles in urban areas. Some parks may have more than one primary route and entrance into the park. Sign costs are funded by the requester. See Appendix A for Standard Practice T-14.

Facilities with less than 100,000 annual vehicle-trips do not receive signs. Their traffic impacts on the state system are minimal and do not warrant highway signing. Facilities with over 250,000 annual vehicle-trips are major traffic generators. Their impacts are significant; furthermore, without signing, impacts could have a negative effect on safe

and efficient traffic operations. As a result, the NCDOT will fund signing costs for major traffic generators. See Appendix B for Standard Practice T-13.

For this study the Division of Parks and Recreation inventoried all existing DOT motorist signs. Each park superintendent documented the location, text, and included photos of each sign. This data was then recorded to a GIS data layer for analysis and ease of communicating sign locations to DOT. In addition, missing signs and proposed locations for additional sign were noted. These additions will be reviewed by the State Parks and Receptions Division staff and recommendations made to NCDOT. Staff has documented 360 existing signs and initially identified approximately 85 additional signs.

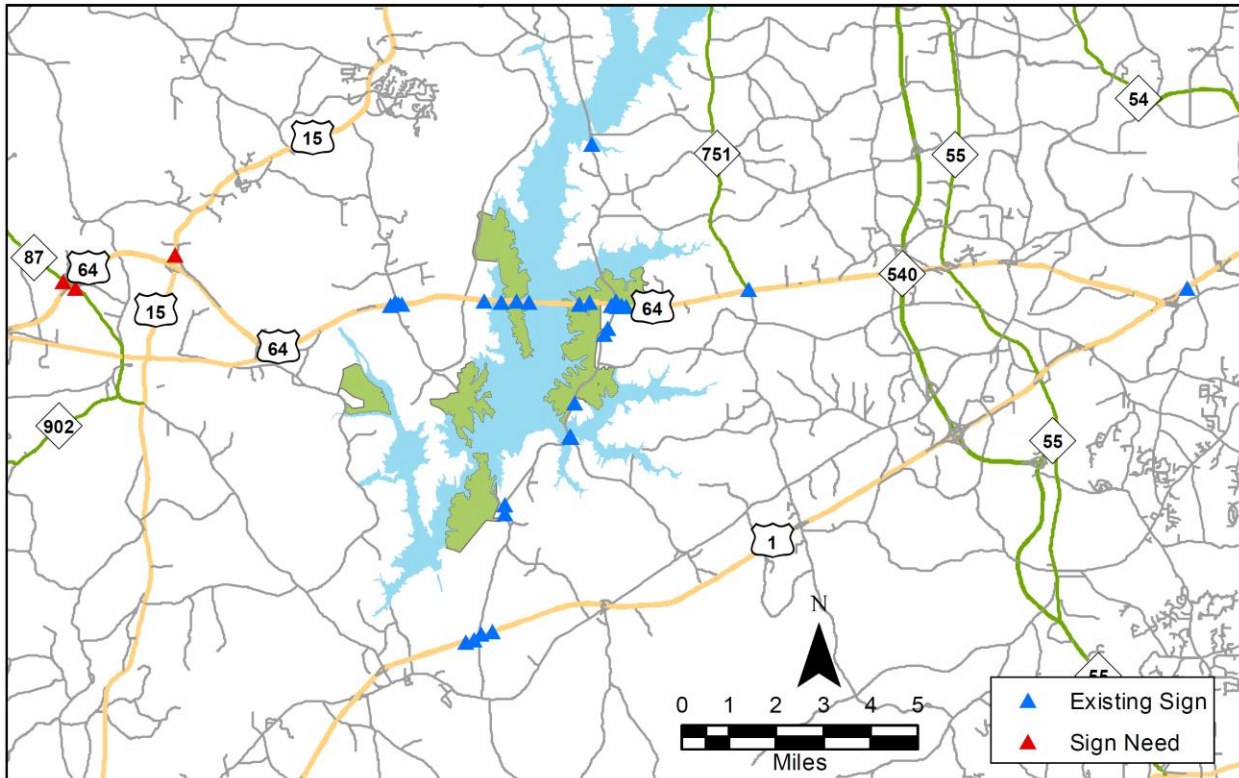


Figure 1. DOT sign locations for Jordan Lake State Recreation Area.

Measures to improve the Efficacy

ECG

It was discussed that an average of 5.5 signs per mile (2.75 per mile in each direction) is need. For rural on-road segments, two signs per mile (one in each direction) can suffice on straight segments.

It is important to have a sign at turning intersections, followed by a confirmation sign after a turn is made. On steep declines, a sign indicating a turn is coming up can be helpful for users traveling on bicycle.

Co-locating signs on existing posts is also preferred to both help lower costs and to reduce sign clutter.

The study group recommends that the signs be of the style shown in Appendix C and that the same style sign be used throughout the route to aid in branding the ECG as an important tourism destination for North Carolina.

MST – Mountains-to-Sea State Trail

Approximately 500 miles of roads are included in the thru-hiking options developed by FMST. These road segments fall mostly within NCDOT Divisions 2, 3, 6, 7, 9, 11, and 14 with short segments within Divisions 1 and 4. Most are on rural roads, selected for their wide shoulders and low traffic counts. When possible, the route follows NCDOT- and county-designated bike routes.

Although the MST is primarily used by pedestrians who will be walking against traffic, signs posted with traffic will probably work well for MST users as long as they are posted in both directions so pedestrians can look for them on the other side of the road.

The proposal for locations and numbers of signs per mile on the ECG may work for the MST, as well.

The study group recommends that the signs be of the style shown in Appendix D and that the same style sign be used throughout the route to aid in branding the MST as an important tourism destination for North Carolina.

State Parks, including cultural and historic sites

The Department of Environment and Natural Resources (State Parks and Recreation Division) will provide locations of all existing state parks and will propose additional signing, where needed. NCDOT will continue to work with the State Parks and Recreation Division to develop a specific practice or program tailored to state parks as an addendum to Standard Practices T-13 and T-14.

Costs and Benefits

Provisions for signing state parks, including historic and cultural sites, are subdivided into two different types of traffic generators: moderate and major. The NCDOT has policies for each that includes criteria for eligibility and sign locations. The NCDOT will continue to work with requesters and other agencies on future state park sign requests.

Provisions for trail signage are not as clear, whereas the NCDOT receives many sign requests from various interest groups and parties. Signing for all trails (short and long distances) throughout the state would be confusing to the public. The NCDOT currently signs for long distance trails such as the Appalachian Trail, Blue Ridge Parkway, and Overmountain Victory Trail, with limited signs for the East Coast Greenway. The NCDOT also signs for many biking and pedestrian trails, adjacent and fully separated to highways.

The NCDOT will continue to work with various agencies, segment managers, and friends to install major (long distance) trail signs like the MST and ECG and concurs that these trails bring significant tourism dollars and jobs to communities along their routes. Costs per sign assembly can range from \$100 to \$300.

APPENDIX A:

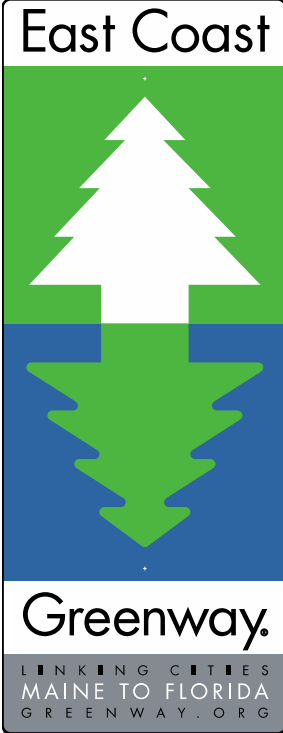
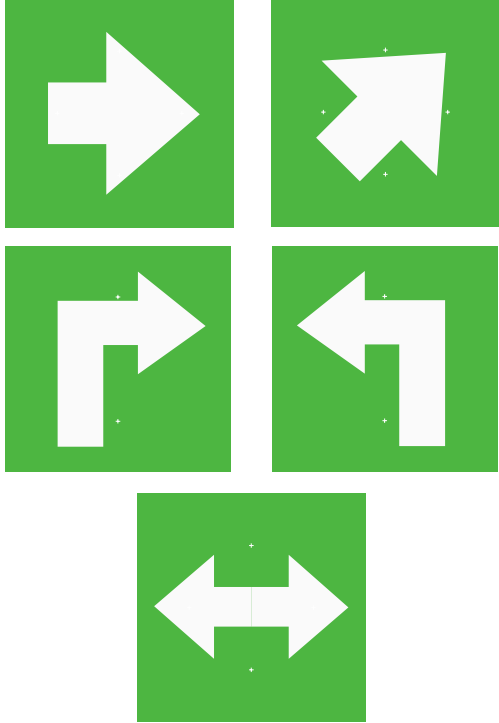
[Standard Practice for Supplemental Guide Signs for Moderate Traffic Generators \(T14\)](#)

APPENDIX B:

[Standard Practice for Supplemental Guide Signs for Major Traffic Generators \(T13\)](#)

APPENDIX C: Figure of Proposed Signs for On-Road Segments of ECG



Standard Trail Marker	Arrow Panel Options
	
<p>Standard Panel Size: 5.5" wide x 15" tall.</p>	<p>Square Arrow Panel Size: 5.5" square. <i>Note: also available at 3.5".</i></p>
<p><i>Note: we have a limited quantity at 3.5" x 9.5". Contact ECGA before ordering small signs, to confirm availability.</i></p>	<p>Due to the ECG logo's similarity to an arrowhead, markers can be used without arrows in locations where only a <i>straight ahead</i> confirmation is needed.</p>

**To order, contact Eric Weis, East Coast Greenway Alliance:
401-450-7155 or eric@greenway.org**

Standard ECG sign (Preference)

APPENDIX D: Figure of Proposed Signs for On-Road Segments of MST



Standard MST Sign for On-Road "Current" Route (Preference)