



Bikeways to Prosperity

Assessing the Economic Impact of Bicycle Facilities

JUDSON J. LAWRIE, THOMAS P. NORMAN, MARY MELETIOU,
AND SARAH W. O'BRIEN

Lawrie is Senior Research Associate, Meletiou is Bicycle and Pedestrian Program Manager, and O'Brien is a Research Associate, Public Transportation Group, Institute for Transportation Research and Education, North Carolina State University, Raleigh. Norman is Director of the Division of Bicycle and Pedestrian Transportation, North Carolina Department of Transportation, Raleigh.

Since 1987, the North Carolina Department of Transportation (DOT) and local governments have invested \$6.7 million in public funds to construct an extensive network of bicycle facilities that consists of 55 miles of wide paved shoulders and multiuse pathways on the northern Outer Banks. North Carolina DOT commissioned the Institute for Transportation Research and Education (ITRE) at North Carolina State University to determine if the benefits gained from the bicycle facilities would justify investment in additional facilities throughout the state.

Problem

ITRE conducted a case study of bicycle tourism in the area. Measuring the benefits of this tourism was a challenge, because tourists visit the northern Outer Banks for a variety of reasons. Researchers needed a method to distinguish the tourists who bicycle as an incidental part of a vacation from those for whom bicycling is a major part of the attraction.

Solution

Two methods were considered for understanding the benefits—a benefit-cost analysis (BCA) and an economic impact analysis (EIA).

A BCA compares the value of the benefits with the cost of the investment and requires converting both the costs and the benefits into dollar amounts. Some bene-

fits of bicycle facilities, however—such as reduced traffic congestion, increased safety, healthy activity, and improved air quality—are not easily quantified.

An EIA examines the economic benefits from tourists who visit for a specific tourist attraction or event. The benefits largely result from tourist spending on food, lodging, and entertainment—which are easier to quantify. The researchers therefore chose the EIA approach.

Three key pieces of information were gathered through surveys and through bicycle traffic counts:

- ◆ The average amount of money that tourists spend during a visit to the northern Outer Banks,
- ◆ The total annual number of tourists, and
- ◆ The proportion of tourists for whom bicycling was an important reason for the visit.

Bicycle Use and Characteristics

During a three-day period starting July 30, 2003, researchers developed a profile of area bicyclists by surveying 173 who were riding on the facilities—143 visitors and 30 residents. In addition, 392 tourists completed self-administered surveys at three area visitor centers over three months, starting in July 2003, to determine the percentage of respondents who engaged in bicycling on vacation.

Survey responses revealed spending patterns, trip information, attitudes and perceptions about bicycling and the facilities, investment priorities, and general demographics. Pneumatic tube counters calibrated for bicycle detection tallied users at 11 locations on a variety of bicycle facilities during a one-week period.

Economic Impact Analysis

Information from the Outer Banks Chamber of Commerce led researchers to estimate that 4 million tourists visit the study area annually. The visitor center surveys showed that 17 percent of these tourists do some bicycling on their trip. This translates to approximately 680,000 annual visitors who bicycle.



Survey station set up along a wide paved shoulder section of a bicycle facility.

Three survey questions addressed the degree to which these bicycling tourists were drawn to the area by bicycling and the bicycle facilities:

- ◆ “How important was the activity of bicycling in your decision to come to this area?”
- ◆ “How would you rate the overall quality of bicycle facilities in the area?”
- ◆ “How important will the quality of bicycling be in a decision for you to return?”

The answers to these questions yielded a conservative estimate that approximately 40,800 tourists each year—roughly 1 percent of the 4 million total visitors annually—were attracted to the Outer Banks to a significant degree by the bicycling activities. Estimated annual expenditures, projected from the spending patterns and trip duration data collected in the surveys, were then evaluated using an economic impact model. Accounting for data specific to the Outer Banks area, federal and state taxes and contributions, and economic multiplier effects, the model estimated an annual economic impact of \$60 million and 1,407 jobs supported from the 40,800 visitors for whom bicycling was an important reason for choosing to vacation in the area.

Other Survey Findings

Of the survey respondents, 12 percent reported staying an extra three to four days to bicycle in the area. The perceived high quality of bicycling in the region had a positive effect on respondents’ vacation experience and planning—55 percent indicated that the bicycle facilities helped them feel safer while riding, and 53 percent reported that bicycling influenced their decision to return in the future.

According to the survey, 9 out of 10 respondents strongly agreed that state and federal tax dollars should be used to build bicycle facilities. Nearly two-thirds of respondents indicated that additional bicycle facilities should be built.

Application

This research demonstrates a straightforward way to gauge the economic benefits of bicycle facilities. Similar research is needed in other regions to determine the change in economic impact that may result from different types of tourist attractions, geography, or a network of bicycle facilities.

The study shows that continued investment in bicycle facilities could be expected to increase the favorable economic impact—therefore additional investment is recommended. Lessons learned from this research are under consideration in other localities throughout the state.

Benefits

The ITRE study found that visitors who bicycle in the northern Outer Banks have a significant economic impact on the area. Moreover, the study provides evidence that the expenditure of public funds on bicycle facilities in an area with a substantial amount of tourism can be a worthwhile investment.

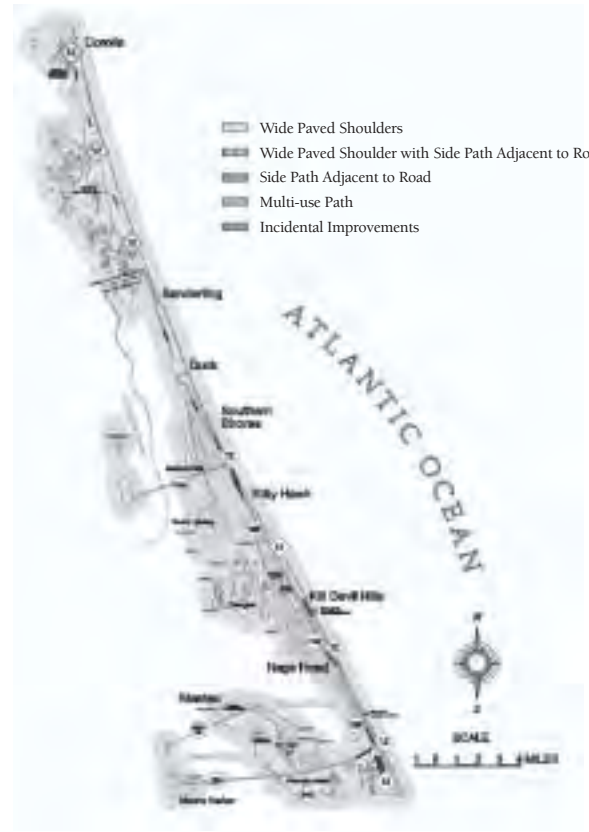
The annual economic impact of \$60 million and 1,407 jobs supported is a reasonable but conservative estimate of the benefits. The estimate compares favorably with the \$6.7 million in public funds invested in the construction of the bicycle facilities. That investment annually yields an economic return approximately nine times the initial expenditure.

The study suggests that public investment in a network of bicycle facilities in other coastal and resort areas could return similar benefits, whether the area attracts tourists primarily for bicycling or for other reasons. Because of the usefulness of the EIA findings, North Carolina DOT plans to study more bicycle and pedestrian facilities for the economic impact on local economies to allocate direct public funding most effectively.

For more information, contact Judson J. Lawrie, North Carolina State University, Institute for Transportation Research and Education, Centennial Campus Box 8601, Raleigh, NC 27695-8601; telephone 919-513-3482; fax 919-515-8898; e-mail jjlawrie@unity.ncsu.edu.

EDITOR’S NOTE: Appreciation is expressed to Peter Shaw and Joseph Morris, Transportation Research Board, for their efforts in developing this article.

Suggestions for “Research Pays Off” topics are welcome. Contact G. P. Jayaprakash, Transportation Research Board, Keck 488, 500 Fifth Street, NW, Washington, DC 20001 (telephone 202-334-2952, e-mail gjayaprakash@nas.edu).



Bicycle facilities of the northern Outer Banks.