

THE ECONOMIC IMPACT OF INVESTMENTS IN BICYCLE FACILITIES

Study Overview



A Case Study of the North Carolina Northern Outer Banks
The NCDOT, Division of Bicycle & Pedestrian Transportation



April 2004

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Produced for the
North Carolina Department of Transportation
Division of Bicycle and Pedestrian Transportation

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Bicycle Facilities Are a Significant Attraction for Tourists

Tourism is an important economic resource for North Carolina, as tourists spend money that benefits local economies. The economic impact of such expenditures is large and varied, and it benefits businesses, workers and local governments. Because of this favorable economic impact, competition for tourist dollars is strong. Tourists are drawn to visit an area by specific attractions, such as beaches, but also by a complex mix of activities and attractions that offer a variety of things to see and do. The richer the mix, the stronger the draw. For bicycling to be a significant ingredient in the mix, an area must be considered “bicycle-friendly”. This means, among other things, providing special bicycle facilities such as bicycle paths, bicycle lanes or wide paved shoulders and other amenities that make the overall cycling experience convenient, pleasurable and safe.

North Carolina coastal areas are well-suited for attracting bicycle tourism because of the level terrain, year-round temperate climate and variety of natural and manmade attractions easily accessible by bicycle. Although it is difficult to determine the proportion of tourists who come to an area primarily because of bicycling, it is fair to say that bicycling is one of the important factors in the vacation decisions of many people.

In the summer of 2003, the North Carolina Department of Transportation (NCDOT) Division of Bicycle and Pedestrian Transportation (DBPT) commissioned a study to examine the value of public investment in bicycle facilities. The northern Outer Banks region was selected for the study because of existing high levels of bicycling activity and the presence of an extensive system of special bicycle facilities. A map of the study area appears to the right.

The study was conducted by the Institute for Transportation Research and Education (ITRE) at North Carolina State University. Researchers surveyed bicyclists riding on the bicycle facilities — paths and wide paved shoulders — and also obtained data from self-administered surveys of tourists at three visitors’ centers in the region.



The study found that the economic impact of bicycling visitors is significant. A conservative estimate of annual economic impact is \$60 million, with 1400 jobs created / supported per year. This compares favorably to the estimated \$6.7 million of federal, state and local funds used to construct the special bicycle facilities in the area.

Significant findings from the study include:

- 17% of visitors to the area report bicycling activity while there; this is approximately 680,000 bicyclists annually.
- A conservative estimate of the annual economic impact of bicyclists is \$60 million.
- The annual economic impact of cyclists is almost nine times as much as the one-time expenditure of public funds to construct special bicycle facilities in the region.
- 1,400 jobs are created or supported annually with the expenditures made by bicyclists.
- Almost half of surveyed bicyclists earn more than \$100,000 annually and 87% earn more than \$50,000. Forty percent have a Masters or Doctoral degree and an additional 38% reported completion of a college degree.
- The quality of bicycling in the region had a positive impact on respondents' vacation planning with 43% reporting that bicycling was an important factor in their decision to come to the area, 53% reported bicycling as a strong influence in their decision to return in the future, and 12% reported staying 3-4 days longer to bicycling in the area.
- Nearly two-thirds of respondents indicated that riding on bicycle facilities made them feel safer.
- Over three-fourths of all survey respondents indicated that additional bicycle paths, paved shoulders and bike lanes should be built.
- Nine out of ten survey respondents strongly agreed that state and/or federal tax dollars should be used to build more bicycle facilities.

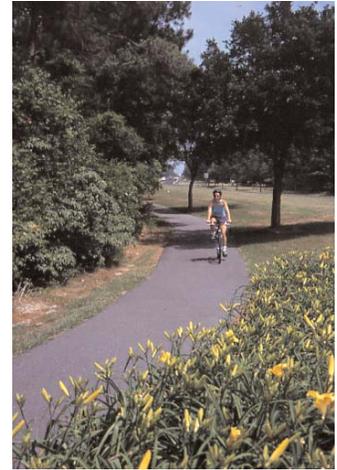
Ten Years of Public Investment in Bicycle Facilities

The northern Outer Banks region of coastal North Carolina is a natural attraction for bicyclists. Looking at a map, the long, thin ribbon of land conjures images of sun and sea that are almost irresistible to those who like to travel on two wheels. In 1974, a group of Dare County citizens and decision-makers who understood that appeal initiated an effort to improve conditions for bicycling. They approached the North Carolina Department of Transportation for assistance; however, at that time, there were neither state nor federal funds available to construct bicycle facilities. It was not until the late 1980's, when DOT



funding was first earmarked for construction of bicycle facilities that the Bicycle Program (now the Division of Bicycle and Pedestrian Transportation) could begin to plan, fund, design and build bicycle improvements in the region.

Over the past ten years, NCDOT has built an extensive system of special bicycle facilities in the region. Multi-use paths, wide paved shoulders and wide curb lanes now link the towns and villages from Corolla south to Nags Head and west to Manteo. To date, approximately \$5.9 million of federal/state funds have been allocated for these facilities. The towns of Nags Head and Duck and the Dare County Tourist Bureau have contributed approximately \$800,000 toward construction costs bringing the total public investment in dedicated funds to \$6,685,000. In addition, NCDOT has incorporated other improvements such as bicycle-safe accommodations on bridges and additional width on roadways into scheduled highway projects. In some areas, developers have used private funds to build bicycle facilities as well. Combined, these improvements have made bicycling a viable transportation option in the region and have enhanced bicycle recreation opportunities.



The Benefits of Investing in Bicycle Facilities

There are both specific economic benefits and other less tangible benefits of public investments in bicycle facilities. These include:

- **Economic Benefits** – particularly in the case of bicycling travelers, increased retail sales (restaurants, lodging establishments, retail stores), job preservation and creation, and, in the case of dedicated bike paths or trails, enhancement of nearby property values. Also, reduced health care costs resulting from healthier living.
- **Benefits to the Transportation System** – less traffic congestion, improved safety (minimized conflicts between motorists, bicyclists or pedestrians), and preservation of highway infrastructure (e.g., paved shoulders resulting in less damage at the edge of the vehicle lanes).
- **Environmental Benefits** – including improved air quality and energy conservation.
- **Benefits to Health and Fitness** – it is being increasingly recognized that Americans, particularly seniors, would benefit in many ways from a more active lifestyle.
- **Social Benefits** – the quality-of-life benefits that result from living in communities with more open space and greenways, and that provide more opportunities for walking or cycling.



Many of these benefits are very hard to quantify or translate into dollar terms. However, it is possible to estimate the economic impact of such an activity and this is a common tool used to measure the benefits of something that attracts tourists to an area. This is the premise upon which this study was designed.

Measuring Bicycle Usage and Characteristics



The basic intention of an Economic Impact Analysis is to examine the economic activity generated by visitors or tourists that are drawn to an area by a particular attraction or facility. When tourists visit an area, they spend money, and these expenditures benefit the local economy. A particular challenge in this case study was that tourists obviously come to the Outer Banks for a variety of reasons, most of which may have little or nothing to do with bicycling. Although they may do some bicycling while in the area, for most tourists this is not the primary reason for visiting the Outer Banks. Moreover, even if bicycling were an important factor in their decision to visit the area, was it the overall quality of bicycling in the area or was it the availability of specific bicycling amenities such as wide paved shoulders or multi-use paths?

To try and resolve these questions, a variety of surveys and bicycle traffic counts were conducted in the area. The northern Outer Banks region was chosen for this study because of known bicycling in the area and the presence of a system of bicycle facilities. The surveys and counts were as follows:

- Intercept surveys of bicyclists riding by three survey locations over a period of 2 1/2 days in order to develop a “profile” of bicyclists and their perceptions of the quality of cycling in the area.
- Surveys aimed at general visitors (cycling and non-cycling) were made available at three Visitor Centers in the area, primarily to find out what proportion of them engaged in some bicycling activity while in the area.
- Surveys of Bed and Breakfast and campground managers and their guests.
- Surveys at bicycle shops.
- Mechanical traffic counting devices to physically count bicyclists facilities at 11 separate bicycle facility locations over a period of one week.



These efforts provided valuable information about the amount and nature of bicycling activity in the area. Included was information about how long people stayed, where and how often they bicycled, and how much and on what they spent money. This allowed calculation of an average amount spent per day by each visitor. These figures were then fed into an economic impact computer model at North Carolina State University in order to estimate the overall economic impact.

Highlights from the Surveys

Bicyclists who completed the surveys are relatively affluent and well-educated. The typical cyclist was a 45-year old male with a Masters or Doctoral degree who earns \$100,000 or more a year and lives in Virginia or another mid-Atlantic state. His cycling skills are at an intermediate level and he normally rides 10-49 miles/month. While at the northern Outer Banks he rode about 14 miles a day on each of five days.

The average respondent from the Visitors Centers' surveys was slightly different. This person tended to be a 47-year old female with a college degree who makes \$75,000-\$99,000, and lives in Virginia, North Carolina or a mid-Atlantic state. She is an intermediate skill level cyclist who typically rides less than 10 miles per month.



The Visitors Centers' surveys revealed that about 17 percent of tourists, or about 680,000 people annually, engage in some bicycling activity while in the area. Approximately one-third of these bicyclists indicated that it was an important factor in their decision to visit. The quality of bicycling in the area was rated fairly highly by survey respondents, as was the quality of bicycle facilities. Scoring even higher was the perception that the bicycle facilities added to the cyclists' feeling of safety while riding. Finally, many survey respondents indicated that the quality of bicycling would be important in their decision to return to the area.

It should also be recognized that bicycling is important not just for the tourists. Many residents also benefit by the presence of the bicycle facilities and use them for purposes of exercise (46 percent), recreation (32 percent), and personal errands (11 percent). Four percent of residents indicated that their bicycle trip was for the purpose of commuting to work or school.

Another factor that indicates that bicycling is important in terms of visiting the area is that 70 percent of the intercepted respondents and 62 percent of the bicycling tourists stated that they had brought their own bikes. The average intercepted respondent bicycled on 69 percent of the days of his or her trip, with 75 percent bicycling on more than 50 percent of the days of their visit. Finally, 11 percent of the intercepts and 16 percent of the visitor center cyclists stated that their visit duration was longer due to bicycling, by an average of three and four days respectively.

Interestingly, a higher percentage of both intercept and Visitor Center respondents said that bicycling would be more important to their decision to return to the area than it was in their decision to come. This suggests that once exposed to the quality of bicycling in the area, visitors are more likely to return.

A large percentage of bicyclists indicated that additional facilities should be built in the area - 76 percent of intercept respondents, 70 percent of bicycling tourists, and 92 percent of residents. An overwhelming proportion favored the use of state and/or federal funds to build such facilities - 95, 88 and 100 percent respectively.

Analyzing Economic Impact

There are two main types of benefits that result from the presence of bicycle facilities in an area. Each of these has some economic value (i.e., people would be willing to pay something in order to obtain these benefits).

- The **benefits to local residents** who use the bicycle facilities for recreation, exercise, commuting, etc. There may also be some benefits from less traffic congestion, increased bicycle and pedestrian safety, and improved air quality. In addition, more and more communities are looking at the ability of a child to safely walk or bicycle to school or to a local store as an important feature of a desirable community.
- The **benefits that result from tourists** drawn to the area due to the bicycle facilities. The tourists spend money that benefits the local economy.

An Economic Impact Analysis (EIA) presumes that the main benefit that occurs from an investment is in attracting visitors or tourists from other areas. For example, a tourist attraction such as the Wright Brothers National Memorial attracts many visitors from across the country. These tourists spend money on food, lodging and a variety of other things while visiting, and this has a direct economic impact on the local restaurants, lodging facilities, and retail merchants. Moreover, these expenditures result in increased public revenues through sales and other local taxes (each travel dollar produces about 6 cents in state tax revenues, and 3 cents in local tax receipts).

There are three types of economic impacts:

- **Direct:** the dollars initially spent by tourists that primarily benefit local commercial establishments such as lodging facilities, restaurants, and retail stores.
- **Indirect:** subsequent purchases by suppliers of materials and services to the primary businesses.
- **Induced:** expenditures by the workers in the direct and indirect businesses on consumer goods and services.



Often it is not too difficult to develop an estimate of how many tourists come to an area because of a particular attraction or event; however, there are a number of reasons to visit the Outer Banks, the obvious ones being beach- or ocean-related, not bicycle-related. Even if tourists come for the purpose of bicycling, are they attracted by the overall quality of bicycling in the area (e.g., flat terrain, scenic views, and temperate climate), or by the quality of the bicycle facilities that are available (wide paved shoulders, multi-use paths, etc.)? The answer is probably not one or the other but some combination of both factors. No matter how scenic or flat, bicyclists are not likely to be attracted to an area where the bicycling is difficult or unsafe.



In order to deal with these issues, several questions were included in the surveys that were designed to help determine the extent to which bicycling in general, and bicycle facilities in particular, were important to the decision to visit the area. This information was used to help assess the degree to which it could reasonably be argued that some of the economic benefits accruing from the tourists are attributed to bicycling, or to bicycle facilities.

Because of the uncertainties mentioned above, and the inherent difficulty of developing a precise estimate in this kind of analysis, a range of estimates was developed to evaluate the number of bicyclists for whom it could reasonably be argued that they were strongly

attracted to the Outer Banks by bicycling. High, mid-range and low estimates were developed as follows:

■ **High Estimate**

It is estimated that at least four million tourists visit the northern Outer Banks each year. Seventeen percent of tourists responding to the general survey indicated that they bicycled while in the area, which translates to about 680,000 annual tourists who bicycle while there.



This number was then adjusted to reflect that most tourists probably did not come to the northern Outer Banks primarily to bicycle. A factor of 15 percent was used, related to the percentage of bicyclists that reported that bicycling was very important in their decision to come to the area. This reduced the number of pertinent annual bicyclists to about 102,000.

■ **Mid-range Estimate**

For a mid-range estimate, the high estimate was reduced by the percentage of respondents who also gave a high rating to the overall quality of bicycling facilities in the area. This reduced the number of pertinent annual cyclists to about 40,800.

■ **Low Estimate**

For the low estimate, the high estimate was reduced by the percentage of the respondents who, in addition to giving a high rating to the overall quality of bicycle facilities in the area also gave a high rating to the importance of bicycling in their decision to return to the area. This reduced the number to about 10,200 pertinent annual cyclists.



This low estimate is similar to the estimate of annual riders developed independently from the bicycle traffic counts. It is likely that the traffic count data represents a very conservative estimate in that there are many cycling locations in the northern Outer Banks where the counting devices were not installed.

To generate an annual expenditure figure, the estimated number of cyclists was multiplied by the average trip expenditures and then fed into an economic impact computer model that estimates both the dollar impact and the number of jobs created by this economic activity. This is summarized below.

Number of Cyclists	Annual Economic Impact	Estimated Number of Riders	Number of Jobs Created
High Estimate	\$149 Million	102,000	3517
Mid-range Estimate	\$60 Million	40,800	1407
Low Estimate	\$15 Million	10,200	352

These benefits compare very favorably to the cost of constructing the special bicycle facilities built in this area by NCDOT and the municipalities. The estimated expenditure of public funds is \$6.7 million. A mid-range estimate of the economic benefits is \$60 million annually. Therefore, the return on the investment in each year equals approximately nine times the initial investment. If the additional \$2 million spent on bicycle improvements built as part of a highway or bridge project is added, the return on the investment is still very high with a sevenfold return each year.

Recommendations

The study suggests that continued investment in bicycle facilities could only be expected to increase the favorable economic impact found in the northern Outer Banks and is therefore recommended by the NCDOT. These investments can also help North Carolina remain competitive with other nearby coastal states for bicycling tourists.

The types of bicycle facility investments found to be most desired in this study are:

- More and/or wider bicycle paths and lanes.
- More and/or wider paved shoulders on roads.

In addition, it is recommended to:

- Pursue opportunities to create linkages between existing bicycle facilities where possible.
- Develop more bicycle lanes or paved shoulders on side streets away from the beach.
- Upgrade existing bicycle facilities where necessary to meet national standards and build new facilities to these standards.
- Increase efforts to promote the use of the bicycle facilities in the area.

Investments in bicycle facilities in other areas would return similar benefits, whether an area already attracts tourists for other reasons, or whether the bicycle facilities are the primary attraction.

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