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REPORT SUMMARY

THE ECONOMIC IMPACT OF INVESTMENTS IN BICYCLE FACILITIES: A CASE STUDY IN THE NORTHERN OUTER BANKS

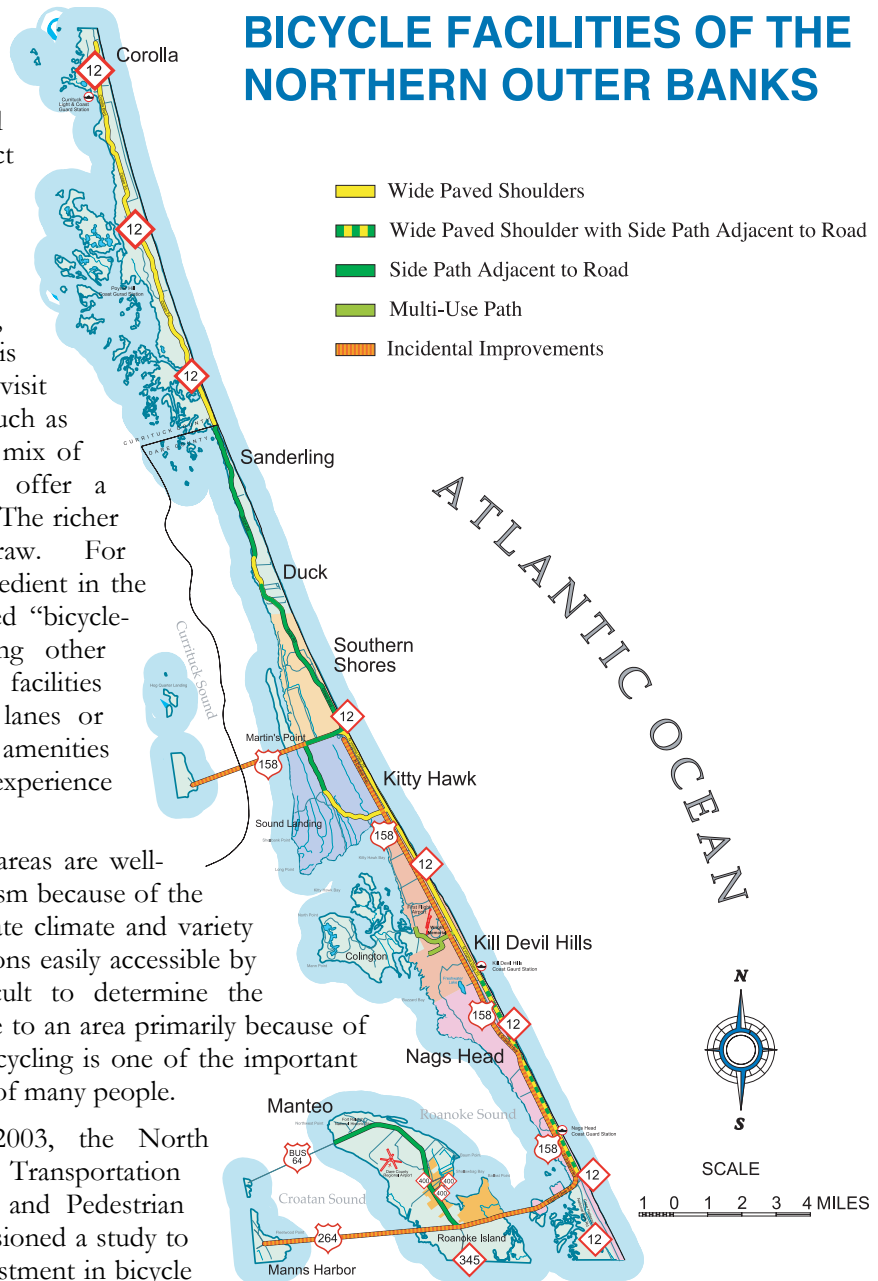
Bicycle Facilities Are a Significant Attraction for Tourists

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 and determine the economic benefits accrued in the northern Outer Banks. This area was selected for the study because of existing high levels of bicycle activity and the presence of an extensive system of special bicycle facilities. A map of the study area appears to the right.

BICYCLE FACILITIES OF THE NORTHERN OUTER BANKS



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 the annual economic impact is \$60 million, with 1,400 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:

- Seventeen percent 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 these bicyclists is \$60 million.
- The annual economic impact of cyclists is almost nine times as much as the one-time expenditure of public funds used 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 three to four days longer to bicycle 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 NCDOT 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. NCDOT first allocated dedicated Transportation Improvement Program (TIP) funds to construct Independent Bicycle Facilities (built independently of highway projects) and Incidental Bicycle Facilities (constructed through a scheduled highway project) in 1987.

Over the past ten years, 31 miles of on-road facilities like wide paved shoulders, wide curb lanes, and marked bike lanes and 24.75 miles of off-road facilities like greenway trails, side paths and multi-use paths have formed an extensive bicycle transportation system linking towns and villages in the northern Outer Banks from Corolla south to Nags Head and west to Manteo. To date, approximately \$5.9 million Bicycle TIP funds have been allocated for these facilities. The towns of Nags Head and Duck and the Dare County Tourist Bureau also contributed approximately \$800,000 toward construction costs bringing the total public investment to approximately \$6.7 million. 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:

- **Economic Benefits** – particularly in the case of bicycling travelers, increased retail sales (restaurants, lodging establishments, and retail stores), job preservation and creation; reduced health care costs resulting from healthier living; and, in the case of dedicated bike paths or trails, enhancement of nearby property values.
- **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** - improved air quality and energy conservation.
- **Benefits to Health and Fitness** – increased opportunity for more active lifestyles; promotes safe places to exercise, particularly for seniors; increased physical and mental well-being.
- **Social Benefits** – increased quality-of-life due to more open space and greenways, increased opportunities for walking or cycling, and increased connectivity within a community.

Many of these benefits are very hard to quantify or translate into dollar terms. However, it is possible to measure the effect investing in an amenity has in attracting visitors or tourists to an area through an Economic Impact Analysis. 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 was 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 to 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** were conducted, over a period of 2½ days, by interviewers who stopped bicyclists riding by three survey locations. Questions were intended to develop a “profile” of bicyclists and their perceptions of the quality of cycling in the area. The cyclists surveyed were both visitors and residents. A limited number of these surveys were also made available at two local bike shops. (These cyclists are generally referred to as either *Intercepted Visitor Cyclists*, or *Intercepted Resident Cyclists*.)
- **Self-administered 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 respondents engaged in some bicycling activity while in the area. Surveys were collected on-site, or mailed back over a six-week period. (These people are generally referred to as either *Visitor Center Cyclists*, or *Visitor Center Non-cyclists*.)
- **Mail-back surveys** were sent to the owners or managers of Bed and Breakfast and campground establishments, and also made available to their guests.
- **Pneumatic tube counters** were placed on bicycle facilities at eleven locations (off-road paths and wide paved shoulders) to physically count users of the facilities 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. These data provided the total number of tourists visiting the northern Outer Banks annually, the proportion of these tourists that were influenced to visit by bicycling, and the average amount spent per day by each visitor.

Highlights from the Surveys

Bicyclists who completed the surveys were relatively affluent and well-educated; most held advanced degrees (81 percent of Intercepted Visitor Cyclists, 66 percent of Visitor Center Respondents) and at least half reported household incomes of \$75,000 or more (78 percent of Intercepted Visitor Cyclists, 50 percent of Visitor Center Respondents). This may correlate to the average age of both response groups, which was in the mid to late 40's. Interestingly, more males filled out the Intercepted Visitor Cyclist survey, while more females returned the Visitor Center survey. In general, tourists tended to come from mid-Atlantic and northeastern states, specifically Virginia, Pennsylvania, Maryland and New York. The average Intercepted Visitor Cyclist has intermediate level cycling skills and normally rides ten to 49 miles per month. While at the northern Outer Banks he/she rode about 14 miles a day on each of five days. Visitor Center Cyclists are also, on average, intermediate skill level cyclists, but they typically rides less than ten miles per month.

The Visitor Center 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 Visitor Center Cyclists, 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 Visitor Center Cyclists indicated that the quality of bicycling would be important in their decision to return to the area.

Another factor that indicates that bicycling is important in terms of visiting the area is that 70 percent of the Intercepted Visitor Cyclists and 62 percent of the Visitor Center Cyclists stated that they

had brought their own bikes. Seventy-five percent of the Intercepted Visitor Cyclists bicycled more than half the days of their visit, with the average cyclist cycling 69 percent of the days of his or her trip. Finally, eleven percent of the Intercepted Visitor Cyclists and 16 percent of the Visitor Center Cyclists stated that their visit duration was extended due to bicycling, by an average of three and four days, respectively.

Interestingly, a higher percentage of both Intercepted and Visitor Center Cyclists 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.

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%), recreation (32%), and personal errands (11%). Four percent of residents indicated that their bicycle trip was for the purpose of commuting to work or school.

A large percentage of bicyclists indicated that additional facilities should be built in the area - 76 percent of intercept respondents, 70 percent of Visitor Center Cyclists, and 92 percent of resident cyclists. 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.
- 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.

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. An assumption was made based on state and local tourism information that at least four million tourists visit the northern Outer Banks each year. High, mid-range and low estimates shown below were developed as follows:

- **High Estimate**

Seventeen percent of tourists responding to the Visitor Center survey indicated that they bicycled while in the area, which translates to about 680,000 annual tourists (based on four million tourists total) who do some bicycling while there. This number was reduced to 102,000 based on the percentage of respondents that indicated that bicycling was *very important in their decision to come* to the area. This was intended to reflect the fact that most tourists did not come to the northern Outer Banks primarily to bicycle.

- **Mid-range Estimate**

For a more conservative 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 40,800.

- **Low Estimate**

To provide a lower boundary, the mid-range estimate was further narrowed by the percentage of the respondents who also gave a high rating to the importance of bicycling in *their decision to return* to the area. This reduced the number to 10,200 pertinent annual cyclists.

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 (IMPLAN) that estimates both the dollar impact and the number of jobs created by this economic activity. This is summarized below.

Estimate	Estimated Number of Riders Annually	Annual Economic Impact	Number of Jobs Supported Annually
High Estimate	102,000	\$149 Million	3,517
Mid-range Estimate	40,800	\$60 Million	1,407
Low Estimate	10,200	\$15 Million	352

The mid-range annual economic impact estimate of \$60 million generated and 1,400 jobs supported was selected as a conservative outcome of benefits to compare with the costs incurred by NCDOT and the local municipalities to construct the dedicated bicycle facilities in the northern Outer Banks. The estimated \$6.7 million expenditure of public funds over the last ten years yields a return *each year* that is 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 investment in bicycle facilities in the northern Outer Banks has resulted in a very favorable economic return for the area. Continued investment could only be expected to increase this favorable

impact and is therefore recommended. In addition, if North Carolina is to stay competitive for bicyclists with other nearby coastal states, a failure to continue investing in such facilities could prove to be harmful in the long run.

The types of bicycle facility investments identified as most desirable through this study are:

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

In addition, this study recommends that NCDOT and local municipal governments:

- 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 federal AASHTO (American Association of State Highway and Transportation Officials) standards and build new facilities to these standards.
- Increase efforts to promote the use of the bicycle facilities in the area.

This study also suggests that public investments in bicycle facilities in other coastal or resort areas could return similar benefits - whether the area attracts tourists primarily for bicycling or for other reasons.