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The Economic Benefits of Bicycle Infrastructure Investments

League of American Bicyclists
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Today the national bicycling industry contributes an estimated **$133 billion** a year to the U.S. economy.[i] It supports nearly 1.1 million jobs and generates $17.7 billion in federal, state, and local taxes. Another $46.9 billion is spent on meals, transportation, lodging, gifts and entertainment during bike trips and tours.

This article highlights the impact the bicycle industry and bicycle tourism can have on state and local economies, describes the need for bicycle facilities, discusses the cost effectiveness of investments, points out the benefits of bike facilities for business districts and neighborhoods, and identifies the cost savings associated with a mode shift from car to bicycle. The evidence demonstrates that investments in bicycle infrastructure make good economic sense as a cost effective way to enhance shopping districts and communities, generate tourism and support business.

Notable Economic Impacts

Regions that have invested in bicycling have seen a beneficial impact on their economies. Studies have shown that bicycle industry and bicycle tourism can boost local employment levels and economic activity.

Colorado has capitalized on its reputation as an outdoor recreation destination to attract tourists and active residents, and manufacturers who want to be close to their customers. A study commissioned by the **Colorado** Department of Transportation in

2000 determined that bicycling contributed $1 billion to the economy from manufacturing, retail, tourism and bike races. Retail and manufacturing employ 1,213 people with an annual payroll of $34.1 million. Half of all summer visitors at Colorado ski resorts spend time bicycling. Of those 699,000 people, 70 percent are from out of state and 40 percent said they would have altered their vacation destination if bicycling were not available. [ii]

A state need not have Colorado's outdoor recreation reputation, however, to benefit from the bicycling industry. Wisconsin accounts for 20 percent of bicycle manufacturing in the U.S. Overall, the bicycling industry – manufacturing, distribution, retail, and other services – contributes $556 million and 3,418 jobs to the **Wisconsin** economy. Wisconsin also hosts a number of popular bike races and attracts visitors to its trails, in part, through the availability of multi-day tours.[iii]

Investing in bicycle infrastructure and promoting cycling can draw new money to a local economy by attracting visitors who may otherwise spend their vacation dollars elsewhere. **Maine**, which since 1991 has made a concerted effort to improve its bicycle infrastructure by widening shoulders and creating shared-use paths, generates $66 million a year in bicycle tourism.[iv]

One of the most celebrated examples is **North Carolina's Outer Banks**, which, by a conservative estimate, generates $60 million in economic activity through bicycle tourism. They spent $6.7 million on bicycle infrastructure and have seen an annual nine to one return on that one-time investment. The types of visitors drawn to bike on the Outer Banks add a boost to the economy with their ability to spend money. A study shows that the bicycle tourists there tend to be affluent (half earn more than $100,000 a year and 87 percent earn more than $50,000) and educated (40 percent have a masters or doctoral degree). Expenditures by the 680,000 annual visiting bicyclists support 1,400 jobs in the area. The study shows that the quality of bicycling in the Outer Banks influenced vacation planning. Over half of survey respondents said bicycling had a strong influence on their decision to return to the area. The facilities themselves were well-received. Two-thirds of respondents said that riding on bike facilities made them feel safer and three quarters said that more paths, shoulders and lanes should be built.[v]

Québec, Canada has also seen a measurable impact of bicycle tourism on its economy. In 2000, Province-wide spending by bicyclists totaled $166 million. The Québec bicycle industry generated sales over $181 million, supporting 2,800 jobs and generating $17.2 in tax revenues for Québec and $13.6 million in national taxes. To draw tourists and encourage cycling, Quebec developed a network of 2,702 miles of bicycle paths and roadway routes called **La Route Verte**, which is promoted as the "best bicycle route in the world." In 2000, when only part of the route was complete, La Route Verte cyclists

spent a total of $95.4 million, corresponding to approximately 2,000 jobs and $15.1 million in tax revenue for Québec and $11.9 million for the Government of Canada. [vi] In 2005, **bicycle tourists** spent $83 a day, more than other tourists' average of $66.[vii]

Some locations focus more on quality of life for their residents than on tourism. **Portland, Oregon**, which has been designated a Platinum-level Bicycle Friendly Community by the League of American Bicyclists, in part for its investments in infrastructure, saw $90 million in bicycle-related activity in 2008. Nearly 60 percent of that activity came from retail, rental, and repair, with manufacturing and distribution, bicycle events, and professional services, such as bike messengers and coaching and legal expertise, also contributing.[viii] Recognizing the importance of bicycling to Portland, **Mayor Sam Adams** has proposed setting aside **$500,000** specifically for bicycle programs and projects to "provide more Portlanders an affordable option for getting around the city."[ix] As a result of policies to encourage bicycling and maintain urban density, which reduce auto-dependency, Portland residents **save on transportation costs** and have more money to spend on things they value. Compared to the distance and time spent commuting to work in the median American city, Portlanders travel 2.9 billion fewer miles and spend 100 million fewer hours, saving $2.6 billion a year.[x]

These communities show the impact that relatively modest investments in paths, expanded shoulders, and trails can have on the local economies by attracting visitors, residents, and businesses.

Demand for Bicycle Infrastructure

Over the course of the twentieth century the vehicle miles traveled in cars steadily increased and the overwhelming majority of infrastructure spending went toward roads for motorized vehicles. While the car is still responsible for more than 85 percent of miles traveled to work,[xi] there is increasing attention being paid by a wide range of policy-makers and individuals to bicycling as a clean, healthy, and congestion-free alternative.

The call for bike facilities is building from the bottom up as people drive less and look for more transportation choices. Between May and September 2008, with gas at $4 a gallon, Americans drove 57.8 billion fewer miles than they did during the same months in 2007. When average gas prices were under $2 in March 2009, **American were still driving less.** Americans drove more than a billion fewer miles in March 2009 than during that month in 2008 when the gas price was $3.[xii]

Surveys indicate that there is a substantial demand for additional bicycle facilities. In 2002, the National Highway Transportation Safety Administration surveyed Americans on their behaviors and attitudes towards bicycling and walking. Eighty-four percent of

people polled agreed (strongly or somewhat) that **bicycling is "a great form of exercise"** for them. Seven in ten said that they would like to bike more than they do now. But less than half of those surveyed were satisfied by how their communities were designed for bicycling. The most popular changes for bicyclists were additional bike lanes, paths, and trails, followed by improvements to existing facilities.[xiii]

Bike facilities improve cycling conditions for many riders. A 2009 study by researcher Jennifer Dill used GPS technology to collect information on bicycling behavior from 166 regular Portland riders. It found that a "disproportionate share of the bicycling occurred on streets with bicycle lanes, separate paths, or bicycle boulevards" and concluded that "the data support the need for well-connected neighborhood streets and a network of bicycle-specific infrastructure to encourage more bicycling among adults."[xiv] A 2006 Minneapolis study shows that 83 percent of the time cyclists will choose a longer route if it includes a bike lane, and respondents were willing to add 20 minutes onto their trip in order to use a bicycle trail instead of riding on roads with facilities next to parked cars.[xv]

As the NHTSA data indicate, investments in bicycling infrastructure are good for the general population. According to the National Household Transportation Survey, the distribution of urban trips to work by bike is roughly the same across all income levels.[xvi] Additionally, for households without cars, bicycles provide a vital means of transportation. Urban households without a car bicycle to work nearly three-and-a-half times more often than households with one car.[xvii] Non-motorized trips are not exclusive to urban areas, 20 percent of all rural trips are one mile or less and 25 percent of those are made by walking or biking.[xviii] Providing bicycle infrastructure benefits people across income levels and geographic areas.

Efficient and Cost Effective

In urban areas, where cars and bicyclists travel at similar speeds, bike lanes can accommodate **7 to 12 times as many people** per meter of lane per hour than car lanes and bicycles cause less wear on the pavement.[xix]

The cost of a bike lane varies depending on the location, the condition of the pavement, lane-painting expenses, changing traffic-light signalization, and other factors, but can cost **as little as $5,000 a mile**. It is most cost-effective to create a bike lane when an existing road is being repaired or a new road is put in.[xx]

California is on the expensive end of the spectrum. Using state-wide averages and local cost history, the city of **Roseville, Calif.** estimates the cost of signage and striping for a mile of a standard bike lane in California to be $60,000.[xxi] In contrast, the California Department of Transportation (CalTrans) is paying **$75 million to repave**, not rebuild,

just three miles of Interstate 710 in Los Angeles.[xxii] Thus, for the cost of repaving 3 miles of rough pavement on Interstate 710, CalTrans could sign and stripe 1,250 miles of California roads for bike lanes. That's more than the distance from Los Angeles to Seattle, Wash.

Good for Business

Bicycle facilities have been used, with other traffic calming methods, in communities across the country to create **safe and attractive streets** that are conducive to non-motorized modes of transportation. Bicycle lanes create a buffer between car traffic and pedestrians, encourage non-motorized transportation, and can slow traffic as drivers become more aware of the presence of bicyclists.[xxiii]

Critics sometimes express concern that eliminating on-street parking to make room for a bike lane would harm local business. However, many business districts are discovering that attracting customers requires more than plentiful parking. Along San Francisco's Valencia Street, two-thirds of merchants surveyed four-and-a-half years after bike lanes were painted said that the lanes had a **positive overall impact on their business**. Two-thirds of the merchants also supported more traffic calming measures on the street and all of the merchants said they could be supportive depending on the project.[xxiv]

A 2009 study of Bloor Street, a commercial street in Toronto, Ontario showed that encouraging bicycling is good for business: people who had biked and walked to the area reported that they **spent more money** in the area per month than those who drove there. The study concluded that the addition of bike lanes would be unlikely to harm local business and predicted that commercial activity on the street would likely increase. Three-quarters of merchants surveyed on the street believed that business activity would improve or stay the same if a bike lane replaced half of the on-street parking.[xxv]

Businesses can also benefit from the health impacts of their employees bicycling to work. A study of 30,604 people in Copenhagen showed that people who commuted to work by bike had 40 percent lower risk of dying over the course of the study period than those who didn't[xxvi] and bike commuters average a day **fewer absences** due to illness each year than non-bike commuters.[xxvii] In recognition of these economic advantages and in an effort to attract and retain highly sought-after employees, employers are continuing to add **wellness and health management programs** to encourage healthy habits among employees.[xxviii]

Good for Home Values

Many communities have recognized the broad appeal of bicycle facilities and the impact they can have on real estate values. Arlington County, Va., a silver-rated **Bicycle Friendly Community,** has set the goal of ensuring that all residents live within a quarter-mile of a bike facility and has currently achieved 90 percent coverage.[xxix]

Bob McNamara, a Senior Policy Representative for the National Association of Realtors (NAR), a 1.2 million member professional organization, emphasized the importance of transportation choice at the 2009 National Bike Summit. He argued that Realtors sell not just houses, but communities, and that increasing transportation choice increases livability.[xxx] In 2008, NAR revised its policy statement on transportation to call for the **consideration of all transportation types**, including bicycling, in every transportation project.[xxxi]

By mapping real estate transactions, researchers have been able to show that bike facilities can have positive, statistically significant impacts on home values. The design identifies the value placed on home proximity to urban bicycle greenways with a statistical formula that controls for other housing features. A study of home values near the Monon Trail in Indianapolis, Ind. measured the impact of the trail on property values. Given two identical houses, with the same number of square feet, bathrooms, bedrooms, and comparable garages and porches – one within a half mile of the Monon Trail and another further away – the home closer to the **Monon Trail** would sell for an average of 11 percent more.[xxxii] More studies on the impacts of trails and paths can be found at the **National Trail Training Partnership**[xxxiii] and the **Rails to Trails Conservancy**.[xxxiv]

Savings

Riding a bicycle instead of driving a car has economic impacts that are not always obvious, often because the costs and benefits are borne and accrued by society in general rather than the individual user. Researcher Todd Litman of the Victoria Transport Policy Institute has attempted to **quantify the benefits** of switching from driving to bicycling. He looked at the benefits of congestion reduction, roadway cost savings, vehicle cost savings, parking cost savings, air pollution reduction, energy conservation, and traffic safety improvements. Litman estimated that replacing a car trip with a bike trip saves individuals and society $2.73 per mile. (A typical two-mile bike trip would save $5.56.)[xxxv] The benefits would be enormous if even a small fraction of the more than 200 billion miles Americans drive each month – nearly three trillion a year – were shifted to bike. (For an indication of just how enormous, consider that nearly 30 percent of all trips in Copenhagen, Denmark are by bicycle. A 30 percent mode-share in the U.S. would lead to an estimated savings of $163.8 billion a month, nearly two trillion dollars a year.)

Employers who provide free parking to their employees are actually subsidizing the cost of their employees' transportation with a significant, often unrecognized and untaxed, benefit. Whereas bicycle parking can often be provided in otherwise unused space, car parking adds a significant cost to office real estate. Even without accounting for the cost of land, building parking comes at a significant cost. A simple surface level, paved

parking space costs between $3,000 and $5,000, depending on drainage and landscaping. A single space in a parking deck costs $10,000 to $50,000.[xxxvi] Employers are bearing the cost of these spaces in their rent or purchase price.

Meanwhile, employees are losing productive hours of their day while stuck in traffic. According to the **Texas Transportation Institute**, "Gridlock costs the average peak period traveler almost 40 hours a year in travel delay, and costs the United States more than $78 billion each year…traffic jams are wasting 2.9 billion gallons of gas every year."[xxxvii] There is reason to believe, however, based on the recent decline in driving, that a relatively small shift from cars to other modes could have an outsized impact on congestion. According to the Federal Highway Administration (FHWA), there was a 3 percent drop in traffic on "urban interstates" from 2007 to 2008. This has translated to a nearly **30 percent reduction in peak hour congestion**, indicating that "when a road network is at capacity, adding or subtracting even a single vehicle has disproportionate effects for the network."[xxxviii]

In addition to costs related to driving, there are also considerable costs due to physical inactivity that can be reduced by promoting bicycling. The health benefits of physical activity have long been established and researchers from a range of disciplines have been able to show that the physical environment impacts levels of physical activity. There are many different ways to estimate the health cost savings of bicycling. The values vary depending on study design, medical conditions attributed to inactivity, cost data availability, and other variables, but **all studies show positive outcomes**. The health savings resulting from physical activity, measured in 10 different studies, range up to $1,175 per person, per year. The median annual per capita value of the ten studies was $128.[xxxix] Drawing on some of this research, the Robert Wood Johnson Foundation's Active Leadership Program has developed an online tool, found at **http://www.ecu.edu/picostcalc/** to determine the annual health savings that could be derived from reducing physical inactivity rates in particular communities. Users can enter information on their congressional district, municipality, or business to see how much could be saved.

These savings justify spending on bicycle facilities. A 2009 study in England found that, because of health improvements, congestion reduction, and environmental benefits, a small number of additional regular riders are needed to pay for new cycling infrastructure. For example, the study's **Cycling Planning Model** suggests that an investment of £10,000 – $16,521 U.S. – requires just one additional cyclist riding three times a week over the thirty year life of the project.[xl]

With the proper investments, it is possible to increase the share of bicycling trips and lead to the economic benefits described above. Countries such as the **Netherlands, Denmark and Germany**, where bicycling levels were decreasing as car-use exploded in

1950s and 1960s, were able to reverse the trend with land-use policies and investments in separate cycling facilities in high traffic areas and traffic calming measures in residential areas.[xli] Cities in the U.S., like **Portland, Ore.,** have been able to increase their mode-share by building a complete network of facilities and encouraging urban density. The results of a study of 33 large U.S. cities, (excluding New York City, which is considered an outlier in much transportation research because of its size and high use of public transportation) showed that each additional mile of bicycle lane is associated with an approximate one-percent increase in the share of bike-to-work trips.[xlii]

Conclusion – A Good Investment Within Reach

Bicycling is popular across America among all types of people. Communities that have fostered that popularity by providing bicycle infrastructure for transportation and recreation have seen considerable economic benefits by attracting businesses, tourism, and active residents.

Neighborhoods become more desirable when traffic slows down and residents have more transportation choices. Businesses can encourage shopping among loyal, local customers by making getting there by bike more appealing. Individuals benefit from increased levels of fitness and health that result in real cost savings and employers have healthier employees who miss fewer days of work.

A modest mode shift from driving to riding has considerable impacts in savings on health, road construction, congestion, and environmental remediation. As examples in the U.S. and internationally demonstrate, this shift is possible – but unlikely without federal, state, and local investments in bicycle facilities to provide drivers with an appealing, safe alternative choice.

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