



Traverse City Case Study— Community and Economic Benefits of Bicycling

Michigan Department of Transportation

FINAL REPORT

Final Report

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Traverse City Case Study— Community and Economic Benefits of Bicycling

Prepared for

Michigan Department of Transportation
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Introduction

This report on the community and economic impacts of bicycling in Traverse City is one of five case studies developed for the Michigan Department of Transportation (MDOT) by BBC Research & Consulting and R. Neuner Consulting (the study team). The research on Traverse City was conducted as part of the first phase of a study of economics and bicycling throughout Michigan. The study objectives include:

1. Estimating the community and economic benefits of bicycling in Michigan;
2. Estimating the community and economic benefits of bicycling in five case study communities throughout the state;
3. Providing in-depth qualitative information on links between bicycling and the economy according to business owners, government officials and bicycling advocates;
4. Estimating the economic benefits to Michigan from out-of-state participation in bicycling events; and
5. Estimating the economic benefits to Michigan from bicycle-related tourism.

Phase I of the project addressed the first three objectives and Phase II addresses the fourth and fifth objectives. The combination of the statewide and community specific research provides an opportunity to examine the specific ways policies and infrastructure impact local businesses and residents in the context of bicycling statewide. Additionally, the diverse nature of bicycling in the five case study communities gives stakeholders throughout Michigan an understanding of the many roles bicycling can play in a local economy. As a result, the case study reports can be a useful starting place for residents in investigating the economic benefits of bicycling in communities that were not studied as a part of this research.

Figure 1 provides a map of Michigan showing Traverse City, the other four case study communities and the state capital, Lansing.

Figure 1.
Case study communities

Note:

* Southwest Detroit and the Conner Creek Greenway Corridor.

Source:

BBC Research & Consulting, 2013.



This report includes the following subsections, detailing findings related to bicycling in the City of Traverse City:

1. Overview;
2. Economic and community benefits of bicycling in Traverse City;
3. Data sources;
4. Household spending and bicycle-related manufacturing;
5. Health benefits of bicycling;
6. Bicycle commuting and reduced absenteeism;
7. Events and tourism;
8. Community support and infrastructure; and
9. Background on bicycling in Traverse City.

For more information on the methodology and data sources, please see Section II – Methodology and Appendix B – Data Sources from the full statewide report.

The case study is accompanied by an infographic highlighting key statistics from the research.

1- Overview

Traverse City is a small municipality with a total population of about 15,000 residents. It serves as the central city in a micropolitan area containing about 143,000 residents. It is located in

northern Lower Michigan and contains a significant number of second homes and retirees. It boasts a thriving seasonal tourism industry, serving alongside neighboring Sutton's Bay as a summer getaway for Midwesterners and travelers from other national and international locations. Popular among locals and tourists alike are the Traverse Area Recreational Trail (TART) and Leelanau Trail, stretching east and north from the city, respectively. The TART system includes over 60 miles of trails throughout the region. Within city limits, Traverse City has approximately 5 miles of bicycle lanes and 5 miles of shared-use paths.

This case study provides an estimate of the community and economic benefits of bicycling in Traverse City along with key information from local residents detailing the links between the economy and bicycling. This combination of data helps the reader quantify the impacts of bicycling on the economy while providing background and context from key Traverse City stakeholders on how bicycling enhances the local economy.

Given the relative lack of specific data on bicycling in Traverse City, the analysis relies on information from a variety of sources including:

- Numerous stakeholder interviews with Traverse City officials, bicycle advocates, business owners and residents;
- A household survey conducted with city residents; and
- A variety of secondary data sources including the United States Census Bureau's American Community Survey, the Michigan Department of Community Health, and the United States Centers for Disease Control and Prevention.

2- Economic and Health Benefits of Bicycling in Traverse City

Below is a summary of the annual economic and health benefits estimated for Traverse City associated with bicycling:

- Household spending on bicycling related items (from bicycle-specific and general retail establishments) - \$1.8 million;
- Manufacturing - \$0 (no commercial bicycle-related manufacturers in Traverse City);
- Avoided health care costs - \$1.6 million;
- Reduced absenteeism - \$1.3 million; and
- Event and tourism spending - \$765,000.

These benefits total to approximately \$5.5 million annually. The remainder of the report provides more information on each of the key components of the overall economic and community benefits.

Along with the substantial benefits documented above, several key themes emerged from interviews with stakeholders in Traverse City that show the connections between bicycling and economic success as viewed by local officials, the business community and bicycling advocates:¹

- Thanks to strong trail development work, recreational bicycling has long been a strong component of bicycling in the region.
- The natural beauty and resources of the Grand Traverse region give it a unique competitive advantage for attracting bicycle-related tourism.
- Bicycling is closely linked to the region's larger strategy around outdoor recreation as a tourism draw.
- The built environment in Traverse City lends itself to bicycling being a logical transportation choice for residents.
- The congestion created by tourist-related traffic in the summer provides an opportunity to increase bicycling.
- Grand Traverse region residents drive more than the national average, and bicycling could provide one option for reducing the health impact of such long commutes.

3- Data Sources

A number of data sources were used in calculating the overall economic and community benefits and reporting on bicycling in Traverse City including:

The American Community Survey (ACS) – The ACS is a survey conducted by the United States Census Bureau on an ongoing basis. It provides statistically reliable information on residents throughout the United States for a variety of topics including basic demographics, employment, transportation and payments for essential goods and services.²

2013 Michigan Department of Transportation Household Survey on Bicycling – As part of the study, an online household survey was conducted to gather information from Michigan residents about their bicycling habits and spending. Responses were collected through outreach to statewide bicycle organizations, social media, cards distributed in each of the case study communities and post cards mailed to a random selection of households in Traverse City. A total of 310 responses from households in Traverse City were collected. Estimates regarding bicycling participation among all Traverse City households were calculated using the 177 responses collected from the mailed post card surveys. A copy of the survey instrument is included Appendix C of the Phase I report.

¹ While qualitative information collected from various stakeholders in Traverse City proved to be of great value, the views and opinions expressed by stakeholders cited in this report do not necessarily represent those of MDOT.

²For commuting by bicycle data were taken from the U.S. Census Bureau; American Community Survey; 2008-2012 5-Year Estimates, Table S0801 Commuting Characteristics by Sex. For information on the population and number of households in Michigan, data were taken from U.S. Census Bureau; American Community Survey; 2008-2012 5-Year Estimates, Table DP02 Selected Social Characteristics in the United States. Both tables were accessed at <http://factfinder2.census.gov/>.

Michigan Department of Community Health (MDCH) – The Michigan Department of Community Health provides health services to millions of Michigan residents each year and maintains information on the rate of certain diseases and medical conditions such as stroke and heart disease. MDCH data estimating the number of stroke and heart disease cases and the average direct and indirect costs associated per case were used to calculate the number of such cases and costs incurred in Traverse City. These estimated costs were applied to the World Health Organization’s estimate of the percent of stroke and heart disease cases attributable to inactivity, thereby allowing an estimation of costs avoided by active bicyclists (those who ride two days a week or more).

The Centers for Disease Control and Prevention (CDC) – The CDC is operated by the United States Department of Health and Human Services and collects data on health problems throughout the country. CDC data were used in calculating avoided health benefits due to bicycling, as described above.

Dun & Bradstreet (D&B) – D&B provides information on businesses by industry and location. Data from Hoovers, a D&B subsidiary, provides information on the revenues and employment of bicycle-related manufacturers and retailers throughout the state.

Where appropriate, this case study provides comparisons between other economic research related to bicycling and the results of this study.

In-depth stakeholder interviews. – As a part of this study, key public officials, business owners and representatives of community organizations were interviewed about bicycling and the local economy. A list of interview participants is included in Appendix D of the statewide report.

4- Household Spending and Bicycle-related Manufacturing

In the household survey, respondents were asked to quantify their total annual household spending on bicycling. Spending on bicycling includes bicycles, components, equipment and maintenance. Slightly less than half of Traverse City households spend \$1-100 annually on bicycling, but approximately 40 percent of households reported spending at least \$100 annually. A handful of households spend well over \$100 annually.

Based on the distribution of spending, the average Traverse City household spent roughly \$283 on bicycle-related equipment in 2013. This is considerably higher than both the statewide average of \$46 per household and the national \$90 per-household spending reported by the Outdoor Industry Association in 2012.³ This difference is largely attributable to a bicycling participation rate that is much higher in Traverse City than in the nation as a whole. For

³ The Outdoor Recreation Economy, Outdoor Industry Association accessed at : http://www.outdoorindustry.org/images/researchfiles/OIA_OutdoorRecEconomyReport2012.pdf?167

example, the American Community Survey reports that 5 percent of residents in Traverse City commute by bicycle compared with the national rate of 0.6 percent.⁴

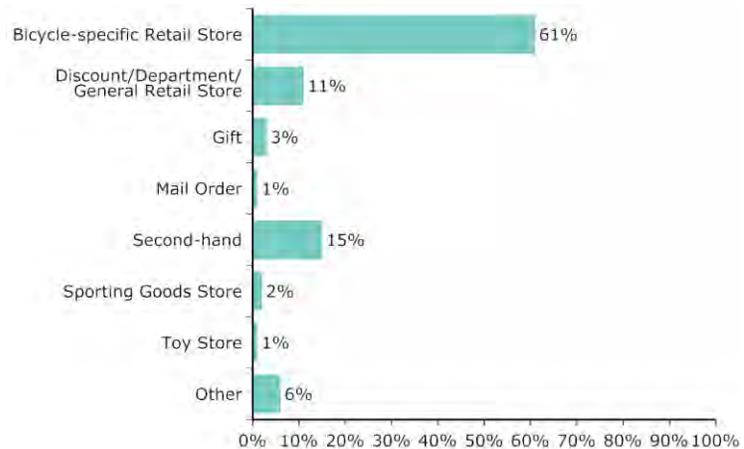
Using the average household spending from the survey along with ACS data regarding the total number of households in Traverse City (6,354), the total spending on bicycle-related retail purchases in 2013 was estimated to be approximately \$1.8 million.⁵

As shown in Figure 2, the most frequently reported type of retail establishment for bicycle purchases was a bicycle-specific retail shop. Such businesses were the source of more than half of all bicycle purchases, while 11 percent of survey respondents' primary bicycles came from general retail stores. Another 15 percent reported obtaining their bicycle second-hand from sources such as garage sales and classified advertisements.

Figure 2.
Primary Bicycle Source

Source:
BBC Research & Consulting from 2013 Michigan
Department of Transportation Household Survey
on Bicycling.

n = 149



4.1 - Bicycle retailers in Traverse City. In addition to information from the household survey, data were also collected from Dun & Bradstreet about bicycle retailers in Traverse City. Dun & Bradstreet maintains business listings for the United States and reports information such as revenue and employment. Using these data, information on bicycle-related retail establishments in Traverse City was collected. The average three-year revenue for these businesses in Traverse City was more than \$3.3 million. Dun & Bradstreet also reported that these businesses employ approximately 41 individuals. These data may overstate actual bicycle-related sales. The two largest bicycle retailers in Traverse City, Brick Wheels and McClain Cycle Shop, both sell a large quantity of non-bicycle recreational and exercise equipment. Total revenues for these two businesses are included in the \$3.3 million in revenue.

Stakeholders report that the growing popularity of bicycling is having an impact on the bicycle retail industry in the Traverse City region. Interviewees agreed the bicycle retail segment is healthy and growing.

⁴ U.S. Census Bureau; American Community Survey; 2008-2012 5-Year Estimates, Table S0801 Commuting Characteristics by Sex.

⁵ U.S. Census Bureau; American Community Survey; 2008-2012 5-Year Estimates, Table DP02 Selected Social Characteristics in the United States.

“We have a lot more bike shops here than we did 10 or 20 years ago. We have more trails, more shops, more bike rentals and more bike specific events and races. That means we see more people biking. It’s a nice thing to see.” – Gary Howe, Traverse City Commissioner

One clear anecdote of the economic impact of the region’s growing bicycling infrastructure is painted by the story of Crystal River Outfitters, a 20-year-old Glen Arbor-based outdoor recreation retailer and rental shop. The core of Crystal River’s business has long been canoe and kayak rental, but bicycle rentals are a growing segment.

Crystal River recently expanded from offering only bicycle rentals to opening their own full-service bicycle shop. What was once a rental fleet supported by one part-time bicycle mechanic in a garage now includes a full service shop with two full-time bicycle mechanics that work 10 out of 12 months of the year, a full-time bicycle rental employee, and four or five other part-time rental employees.

An owner of a local bicycle business attributes this growth to the development of the Sleeping Bear Heritage Trail. The first four-mile segment of the trail opened in June 2012, and when complete in 2015, the full trail will be 27 miles.

“Before the Heritage Trail, selling/renting bicycling to families with kids was a hard sell. The trail has hugely impacted our business, and every single business up here...Since the opening of the Heritage Trail, it’s been cool to see the range of ages of people using it. It’s cool to see these old bikes come in that have been hanging up in a garage for 10 years come into our shop for a tune-up. There is a clear economic benefit from this piece of infrastructure. First you bring out your old bike, and as you ride more, you come in and buy a new bike because you like riding the trail. I find it rewarding as a business owner to see people getting out to use the trail.” – Matt Wiesen, Crystal River Outfitters and the Crystal River Cyclery

4.2 - Non-bicycle-specific retail spending. Given that there are many types of retailers in Traverse City that sell bicycles, the study team used results from the household survey on bicycle spending along with the reported distribution of type of establishment to estimate total bicycle-related spending at general retail establishments. Using this information, bicycle-related spending at such businesses by Traverse City households totals approximately \$315,000 in annual sales.

4.3 - Bicycle-related manufacturing in Traverse City. Despite being home to several bicycle retailers and rental outlets, there are no commercial bicycle manufacturing businesses in Traverse City.

5- Health Benefits of Bicycling

The study team used information from a variety of sources to estimate the health and workplace benefits derived from bicycling in Traverse City.

5.1 - Health benefits from physical activity. Physical activity helps reduce the risk of a number of costly medical conditions. Several studies have quantified the value of physical

activity in terms of avoided health costs. The study team quantified benefits to Traverse City from physical activity based on avoided costs for treatment of strokes and heart disease. The information came from a variety of sources including:

- Data on the proportion of the conditions caused by physical inactivity from the World Health Organization;⁶
- The annual number of cases of these conditions in Michigan from the Centers for Disease Control and Prevention (CDC) (strokes) and the Michigan Department of Community Health (MDCH) (heart disease);
- The annual direct and indirect cost per case from the Michigan Department of Community Health; and
- The proportion of residents who reported riding their bicycle two or more days each week in the household survey.

Using statewide heart disease and stroke case data from CDC and MDCH, it was estimated that Traverse City experiences approximately 42 cases of stroke and 170 cases of heart disease annually that require hospitalization. These case numbers were applied to MDCH's cost per case estimates of about \$90,000 for stroke and \$88,000 for heart disease and the World Health Organization's (WHO's) estimation that 10 percent of stroke cases and 20 percent of heart disease cases are attributable to inactivity.

Using these figures, the study team estimates that the total avoided costs for strokes and heart disease in Traverse City due to bicycling is approximately \$1.6 million. A number of other costly medical conditions can also be linked to reduced physical activity including diabetes and some forms of cancer. The study team was not able to find adequate data to estimate the potential avoided health costs for these diseases.

6- Bicycle Commuting and Reduced Absenteeism

2012 American Community Survey (ACS) also provides some data on bicycle commuting in Traverse City, reporting the total commute share at 5 percent.⁷ The ACS asks participants to report their commute by asking how respondents "usually" commuted to work over the past week and directs respondents to only report the type of transportation which accounts for the majority of the distance. As a result, it may underreport the prevalence of bicycle commuting in Traverse City given that some individuals may not "usually" bicycle and that many bicycle commuters may combine their bicycle commute with other types of transportation including transit and carpooling.

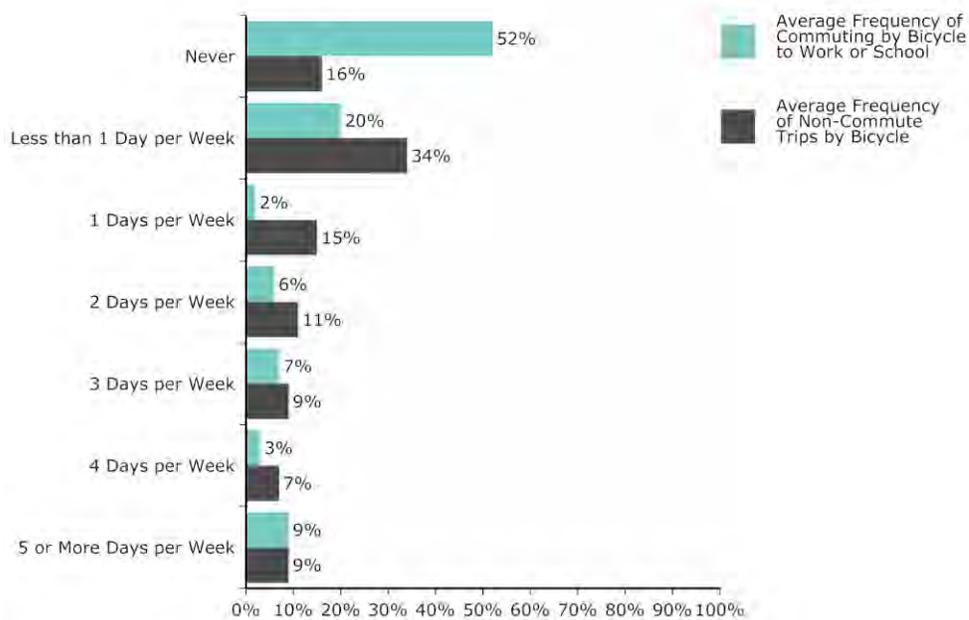
The study team also asked bicyclists in the household survey about how often they use their bicycle for commuting or other types of transportation. Results are shown in Figure 3 below. While about half of responding bicyclists report never commuting to work or school by bicycle,

⁶ *The World Health Report 2002: Reducing Risks, Promoting Healthy Life.*

⁷ U.S. Census Bureau; American Community Survey; 2008-2012 5-Year Estimates, Table S0801 Commuting Characteristics by Sex.

about one-quarter do so at least weekly. Non-work/school transportation by bicycle, including running errands or attending social events, is more common.

Figure 3.
Average Frequency of Commuting among Bicyclists



Source: BBC Research & Consulting from 2013 Michigan Department of Transportation Household Survey on Bicycling.
n = 148

Residents of the Grand Traverse region drive almost twice as many miles as the national average (24,000 versus 14,000 miles per year). Nearly all residents (98%) drive more than 18,000 miles per year. The average commute time is 46 minutes, and more than 12,000 workers commute to Grand Traverse County from outlying counties.⁸

These long-distance commutes have an impact on the health of residents in the region. The Michigan Land Use Institute created the Local Motion campaign to improve transportation choices in the region, and make it easier for residents to carpool, bicycle, bus or walk to work. Local Motion is focused on helping area companies develop commuting strategies, such as benefits for employees to do something other than driving. In the words of James Bruckbauer from the Michigan Land Use Institute:

“We researched how much money we’re spending in our community on transportation... [and] we’re spending a lot more than other regions. What if we could start helping families depend less on that second or third vehicle? Can families make small changes to their commutes that allowed them to use their cars less? For example, could you carpool three days a week or take the bus just two days a week? We’re trying to help people figure out how to go car-lite instead of car-less. When families start driving less, they notice an

⁸ www.howyougetthere.org

immediate impact on their budget. We also think there are clear economic benefits to reducing traffic in our community, like fewer road lanes to repair and maintain, neighborhood traffic complaints, and downtown spaces dedicated to parking.”

6.1 - Reduced absenteeism. Increase bicycling for transportation or recreation can have benefits for employers. The London School of Economics estimates that active bicyclists in the workplace miss one fewer day of work per year than non-bicycling workers,⁹ and research published in the Journal of Occupational and Environmental Medicine estimates that one work day absence equates to an average of \$341 in lost productivity.¹⁰ Using the proportion of active bicyclists in Traverse City along with an estimate of the cost of absenteeism per day, the study estimated that the total benefits to Traverse City due to reduced absenteeism are approximately \$1.3 million.

7- Events and Tourism

The greater Traverse City region is home to numerous bicycling events. The spectacular natural scenery is a draw for long-distance bicycle tours, and many major touring events make stops in Traverse City, including the 500-rider League of Michigan Bicyclists’ Shoreline West Tour.

Traverse City is also home to a robust bicycle racing scene. “Races are a huge part of the biking scene here,” said Jim Lively from the Michigan Land Use Institute. The most notable event is the Iceman Cometh Challenge, a 29-mile point-to-point mountain bike race. The Iceman began in 1990 with 35 riders and has since grown to nearly 5,500 racers and over 12,000 attendees, including a total prize purse of over \$50,000.¹¹

Other high-profile bicycling events have emerged in recent years, helping activate new economic opportunity. The M-22 Challenge is a multi-sport run, swim, bike event in Glen Arbor that draws nearly 900 racers. In 2012, registration sold out in less than two hours. Race officials see the event as having a significant economic impact:

“Most of these people are from out of town. It has made a busy weekend out of what would typically be a dead one in Glen Arbor.” – Matt Wiesen

Bicycling is also closely tied to the region’s tourism strategy. According to Mike Norton of Traverse City Tourism, outdoor recreation-oriented tourism is the region’s “bread and butter.” A 2013 study reported that more than 3.3 million visitor trips were made to the Traverse City in 2012, leading to direct spending of more than \$1 billion at local businesses.¹²

⁹ The British Cycling Economy Gross Cycling Product Report. London School of Economics

¹⁰ The Health and Productivity Cost Burden of the “Top 10” Physical and Mental Health Conditions Affecting Six Large U.S. Employers in 1999, by Dr. Ron Z. Goetzel, et al.

¹¹ <http://www.iceman.com/the-iceman-history>

¹² Executive Summary: Tourism-Related Benefits in Traverse City’s Economy. Anderson Economics Group, prepared for Traverse City Tourism. August 28, 2013. Accessed at: http://is0.gaslightmedia.com/TCCVB/_ORIGINAL_/fs81-1381340720-44042.pdf

Traverse City Tourism conducted a tourism survey and other research that was published in October 2013. Research findings were based on the feedback of 1,795 individuals who had inquired for information from Traverse City Tourism between January 2012 and August 2013. The research showed that 10.9 percent of respondents stated outdoor recreation was the primary reason for a most recent trip to Traverse City. Although visitors reported engaging in a wide variety of activities while in the area, bicycling was reported as a popular recreational activity, with more participants than other activities such as boating, golfing and kayaking.

Area officials are looking for innovative ways to link the region's outdoor recreation opportunities to economic development. This past summer, the Bay Area Transportation Authority (BATA) launched a Bike-n-Ride bus pilot program. This bus gives users the option to ride or walk the 17-mile Leelanau Trail out to Suttons Bay, and then get a ride back to Traverse City on a modified bus that can accommodate up to nine bicycles on board. In the words of Mr. Bruckbauer, "The program opens our incredible northern trail infrastructure to a whole new group of people."

Despite this progress, some local stakeholders think the region can do even more to link bicycling to tourism:

"The tourism potential is huge, and we can do a better job of tapping into it. We need more coordinated marketing and promotion of our bicycling assets. We could do a much better job of marketing our region as a cycling destination." – Julie Clark, Tart Trails

One stakeholder thinks bicycling could also pose a solution to mitigating the negative externality of heavy traffic created by the region being a major tourism destination in the summer months:

*"I'd love for people to come to Traverse City for three days and walk or bike everywhere. You could go on vacation in Traverse City and leave your car parked the entire time."
– Gary Howe*

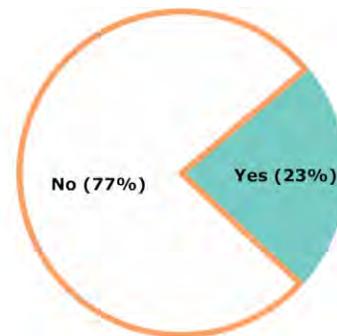
Traverse City Tourism's research cited traffic and congestion within the City as a major concern impacting whether or not visitors came back to the region.

7.1 - Results from the household survey. As shown in Figure 4, about 23 percent of Traverse City residents reported participating in a bicycle event or taking a trip related to bicycling during the past year. Those who did report this type of participation typically only engaged in a few events.

Figure 4.
Percent of Residents that Participated in a Bicycling Event or Bicycling-Oriented Vacation in Michigan in the Past Year

Source:
BBC Research & Consulting from 2013
Michigan Department of Transportation
Household Survey on Bicycling.

Have you participated in an organized bicycle event in Michigan (e.g. Bike Ypsi Fall Ride, Tour de Troit) or taken a vacation in Michigan during which bicycling was a key activity (i.e. bicycling-oriented vacation) in the past 12 months?



n = 176

The study team used information from the household survey to estimate the total spending at events by bicyclists from Traverse City. Respondents were asked to estimate their expenses for food, travel and other expenses. Based on this information, the study team estimates that bicyclists in Traverse City spend approximately \$765,000 annually on bicycle-related events and travel.

Phase II of the study quantifies the impacts of event and tourism spending on the statewide economy.

8- Community Support and Infrastructure

Traverse City is home to a diverse bicycling community. The consensus among interviewed stakeholders was that Traverse City's bicycle culture is growing and shifting. Thanks to a long history of trail development work, recreational bicycling has long been a strong component of bicycling in the Traverse City region, but stakeholders agreed that bicycling for transportation is growing in popularity.

"Bicycling is something that's always been a big part of outdoor recreation in Traverse City. The big driver has been the improvement of our trail infrastructure, but now it is becoming more of a part of the transportation mix." – Mike Norton

The City of Traverse City is currently working on their Active Transportation Plan, which will include attention to the on-street bicycling network. According to Matt McCauley:

"[The active transportation planning process] is exciting because it is shifting the conversation to also include transportation. Bicycling is becoming more of a transportation option for more and more people in Traverse City, and a year-round option. It used to be one or two people riding all year-round, but now I can't name all of them."

In addition to the TART trail system, the city has 5 miles of bicycle lanes and 5 miles of shared-use pathways. Over the past 26 years, the City has invested over \$6 million in bicycle and pedestrian facilities.

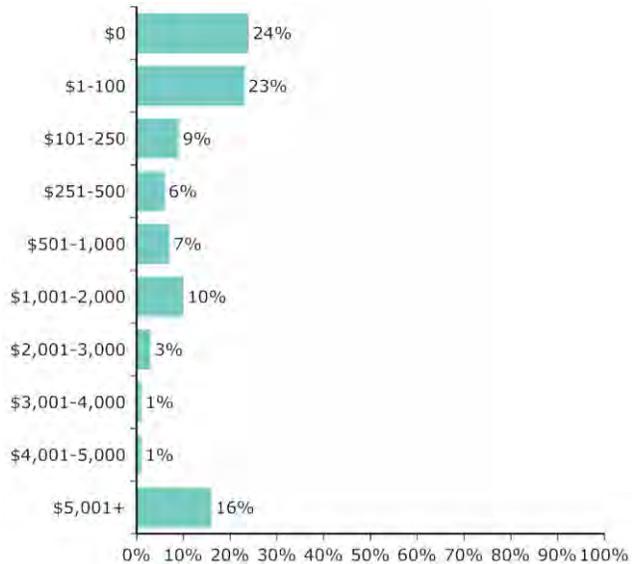
8.2 - Value of bicycle infrastructure. Residents in Traverse City also report substantial value from the availability of quality bicycle infrastructure. The study team quantified the value placed on bicycle-specific infrastructure such as bicycle lanes, cycle tracks and shared use pathways. As shown in Figure 5, about 40 percent of residents placed an annual value of

accessing bicycle infrastructure at more than \$100. Sixteen percent of respondents even place an annual value of more than \$5,000 on the ability to use bicycle infrastructure.¹³

Figure 5.
Annual Value of Bicycling Infrastructure

Source:
BBC Research & Consulting from 2013 Michigan Department of Transportation Household Survey on Bicycling.

n = 176



A few studies have attempted to quantify the impact of installing specific infrastructure elements (such as a protected bicycle lane or cycle-track). One of the more comprehensive studies, conducted by the New York City Department of Transportation, showed that protected bicycle lanes increased retail sales by locally-based businesses by 49 percent.¹⁴ Further research is needed to verify if these findings hold for non-protected bicycle infrastructure and in communities like Traverse City.

9- Background on Bicycling in Traverse City

The household survey and stakeholder interviews also provided information on the nature of bicycling in Traverse City including:

- Overall ridership;
- An overview of recreational riding;
- Barriers to increased bicycling; and
- The promotion and encouragement of bicycling in Traverse City.

¹³ It is important to note that while respondents reported a high value for a network of bicycling infrastructure, this does not suggest that Traverse City should implement taxes or fees for residents to access this infrastructure. Bicycle registration and fee collection have been considered by a few jurisdictions in the past decade and have not been implemented or have been repealed for a variety of reasons (Ottawa: <http://www.ottawasun.com/2012/01/13/staff-to-council-no-bicycle-licenses>; San Diego: <http://calbike.org/san-diego-repeals-bicycle-license-law/>; Minneapolis and Minnesota: <http://www.dot.state.mn.us/bike/other.html>, Long Beach: <http://latimesblogs.latimes.com/lanow/2011/02/long-beach-eliminates-bike-registration-law-that-dealt-steep-fines.html>).

¹⁴ *Measuring the Street: New Metrics for 21st Century Streets*. New York City DOT.

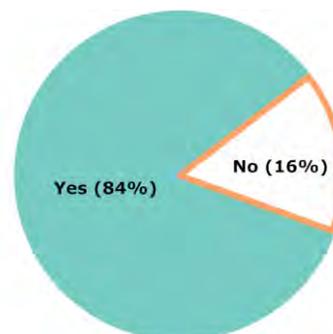
9.1 - Overall ridership. As shown in Figure 6, a large share of the adult survey respondents in Traverse City reported riding a bicycle in the past year. Those respondents who report having ridden a bicycle in the past 12 months are considered “cyclists” in the analysis of this report.

**Figure 6.
Residents Who Have Ridden in
the Past Year**

Source:
BBC Research & Consulting from 2013 Michigan
Department of Transportation Household Survey
on Bicycling.

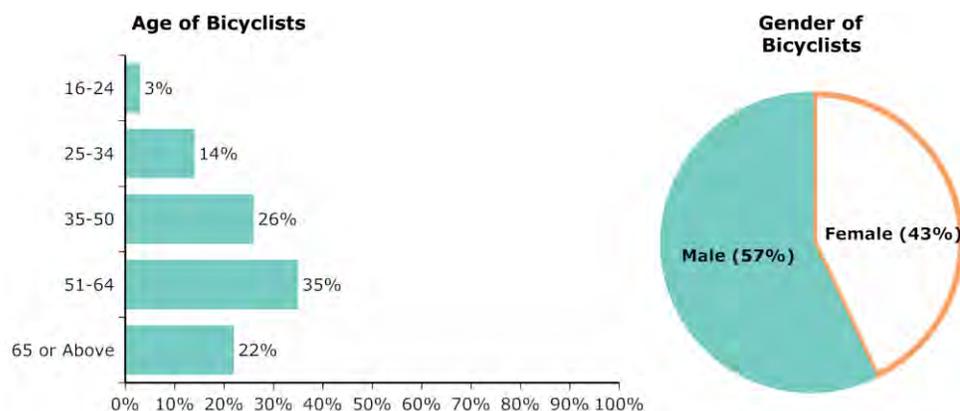
n = 177

**Have you personally
ridden a bicycle for any
reason in the past year?**



9.1.1 - Demographics. The household survey provides demographic information about residents who reported riding in the last year. As seen in Figure 7, approximately 60 percent of bicyclists in Traverse City were male and more than 70 percent were over age 35.

**Figure 7.
Age and Gender of Bicyclists**



Source: BBC Research & Consulting from 2013 Michigan Department of Transportation Household Survey on Bicycling.

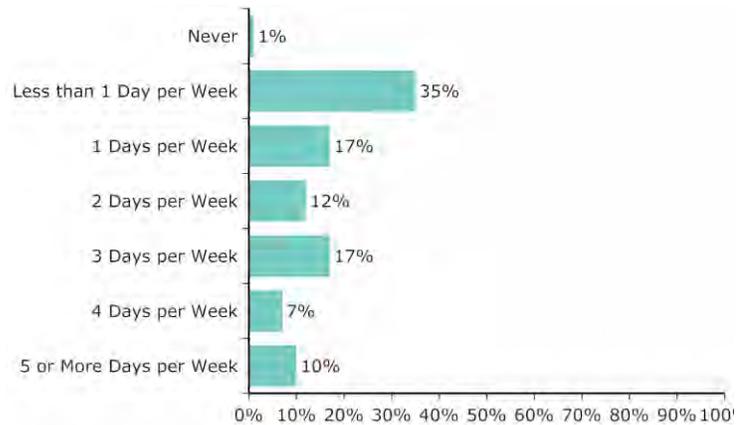
n = 148

9.2 - Recreational Riding. Among residents who have ridden a bicycle in the past year, about 35 percent reported bicycling recreationally some but less than once per week, while slightly less than half report riding their bicycle for recreation at least two days per week. This distribution of the frequency of recreational bicycling is shown in Figure 8.

Figure 8.
Average Frequency of
Recreational Bicycling among
bicyclists

Source:
BBC Research & Consulting from 2013 Michigan
Department of Transportation Household Survey
on Bicycling.

n = 150



9.2.1 - Fat bikes. Fat bikes were highlighted as a trend in Traverse City, including the local fat bike race series, and a fat bike rental operation in Empire. A “fat bike” is a bicycle with over-sized tires, designed for riding on softer terrain, such as snow and sand. Fat bikes are built around frames with large forks and stays to accommodate the wide rims required to fit their large tires.

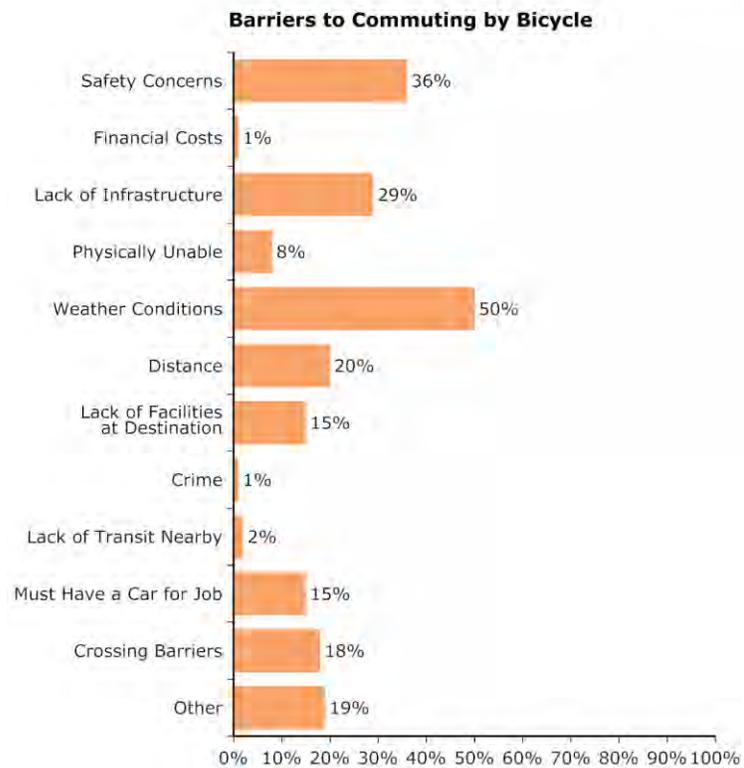
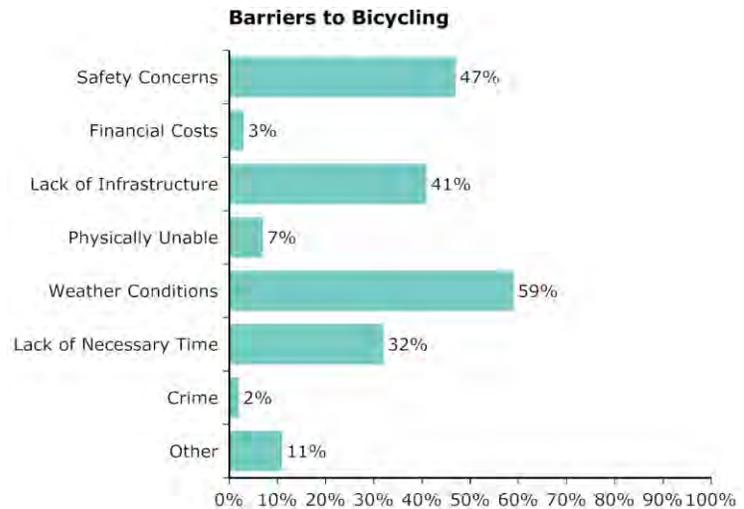
“Fat wheel bikes are everywhere in Traverse City now. People are riding around in the snow, riding them around in the sand. That’s extending bike use here. There’s even a race series now.” – Jim Lively

9.3 - Barriers to increased bicycling. In the household survey, residents were asked about barriers to riding more overall as well as barriers specific to commuting by bicycle. Respondents were able to cite multiple barriers rather than indicating only the largest barrier. Addressing and mitigating the most commonly stated barriers to bicycling is an effective approach to increasing ridership. The most frequently cited barriers to increased bicycling in Traverse City were weather conditions (59%), safety concerns (47%) and lack of infrastructure (41%).

Figure 9.
Barriers to Bicycling and
Commuting

Source:
 BBC Research & Consulting from 2013 Michigan
 Department of Transportation Household Survey
 on Bicycling.

n = 177



When asked about barriers to commuting specifically, 45 percent reported that weather conditions were a barrier, followed by safety concerns (36%). The next highest barriers to commuting were lack of infrastructure (29%) and distance (20%).

9.4 – Promotion and encouragement. The region’s advocacy work is led by two key organizations, TART Trails and the Michigan Land Use Institute (MLUI).

TART Trails is a non-profit organization that formed in 1998 when four individual trail groups in the Traverse City area came together to create a stronger force for recreation and alternative transportation. TART Trails works to provide recreation and transportation opportunities by

preserving open space corridors, building trails and advocating for active living and outdoor recreation.

TART manages a trails system currently consisting of more than 60 miles, including eight multi-use trails in Grand Traverse and Leelanau counties, and a cross-town bicycle route that runs through Traverse City.

Bicycling in TRAVERSE CITY



Population: 14,702

"Bicycling is becoming more of a transportation option for more and more people in Traverse City." - Matt McCauley, Northwest Michigan Council of Governments



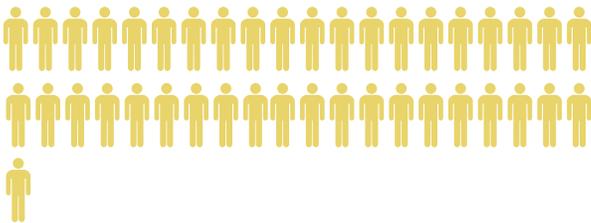
Bicycling retail revenue
\$3.3 million

53% Residents who place an annual value of at least \$100 on the ability to use bicycle infrastructure

Total annual spending associated with bicycling events and vacations in Michigan
\$765,000

55% Bicyclists who bike at least twice a week

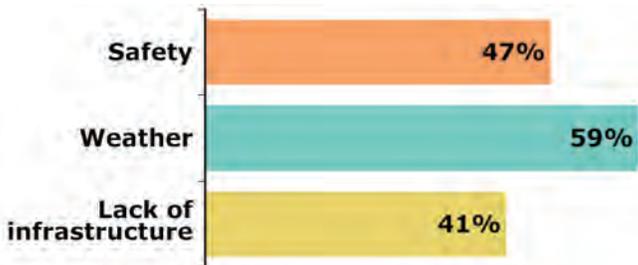
People employed by bicycling industry: 41



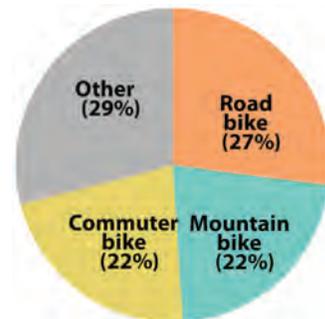
26% Bicyclists who commute by bicycle at least twice a week

23% Residents who participated in a bicycling event or bicycle-oriented vacation in Michigan in the past year

Key barriers to bicycling



Top primary bicycle types



Total annual economic impact of bicycling **\$5.5 million**

Study funded by MDOT

For more information contact Josh DeBruyn, MDOT Bicycle and Pedestrian Coordinator at debruynj@michigan.gov

This infographic provides a one-page snapshot of bicycling within Traverse City based on information gathered by BBC Research & Consulting and R. Neuner Consulting for the Michigan Department of Transportation (MDOT) as part of the first phase of a two-phase study on the economic benefits of bicycling in Michigan. The infographic is accompanied by a case study report on Traverse City as well as a report providing information on the state of Michigan and the data sources and methodology used for the study. A household survey was conducted with residents in Traverse City, which gathered the following information shown on the infographic:

- Annual spending associated with bicycling events and vacations;
- Key barriers to bicycling;
- Percent of residents who place an annual value of at least \$100 on the ability to use bicycle infrastructure;
- Percent of bicyclists who bike at least twice a week;
- Percent of bicyclists who commute by bicycle at least twice a week;
- Percent of residents who participated in a bicycling event in Michigan in the past year; and
- Primary types of bicycles used by residents.

Below is a description of the data source for other data on the infographic:

- Population – provided by the U.S. Census Bureau 2012 American Community Survey;
- Miles of existing infrastructure – gathered from interviews with local officials during the case study process;
- Bicycle Friendly CommunitySM Rating – a rating based on a number of metrics related to bicycling support and participation from the League of American Bicyclists;
- Bicycling retail revenue – based on the three-year average annual revenue of bicycle retailers in Traverse City reported in Dun & Bradstreet;
- People employed by bicycling industry – based on the three year annual employment averages for retail bicycle shops and bicycle manufactures located in Traverse City as reported in Dun & Bradstreet;
- Total annual impact of bicycling – calculated from the following components:
 - Total household retail spending on bicycling reported by Traverse City residents in the household survey (\$1.8 million);
 - The total household spending on bicycle events and vacations as reported by Traverse City residents in the household survey (\$765,000);
 - The average three-year annual revenues of bicycle-related manufactures in Traverse City as reported in Dun & Bradstreet (\$0);
 - The avoided health care costs due to physical activity from bicycling based on (\$1.6 million):
 - The statewide rates of hospitalization for stroke and heart disease from the United States Centers for Disease Control;
 - The proportion of heart disease and stroke due to physical inactivity from the World Health Organization;
 - The proportion of residents who are physical active using their bicycle from the household survey; and
 - The average cost of hospitalization for stroke and heart disease from the Michigan Department of Community Health.
 - The avoided costs of absenteeism for Traverse City employees due to bicycling based on (\$1.3 million):
 - The proportion of residents who are physical active using their bicycle from the household survey;
 - The cost of absenteeism per day from the Journal of Occupational and Environmental Medicine;¹ and
 - The number of days per year of avoided absenteeism due to cycling from the London School of Economics.²

¹ The Health and Productivity Cost Burden of the “Top 10” Physical and Mental Health Conditions Affecting Six Large U.S. Employers in 1999, by Dr. Ron Z. Goetzel, et al.

² The British Cycling Economy Gross Cycling Product Report. London School of Economics