

# **Elevated Impact**

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## **Glacial Hills Pathway and Natural Area Economic Impact Study**

**June 30, 2017**



# Acknowledgements

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This study was commissioned by the Grand Traverse Regional Land Conservancy through a grant from Short's Brewing Company.



The Grand Traverse Regional Land Conservancy's mission is protecting significant natural, scenic and farm lands – and advancing stewardship – now and for all future generations. For more than 25 years, GTRLC has been entrusted to preserve and protect this cherished corner of Michigan through ongoing conservation and stewardship programs.



Short's Brewing Company is a family-owned and entrepreneurial craft brewing company based in Bellaire, MI. In addition to producing some of the most highly sought after craft beers and ciders in North America, Short's maintains a passion for recreation and wild places that is reflected both in the company's activities and in the passion of its people.

The authors gratefully acknowledge the participation of all members of the Friends of Glacial Hills Committee and of the various representatives of the Village of Bellaire, Forest Home Township and Antrim County who provided perspective for this study. We also wish to thank the many volunteers who, armed with clipboards, took to the trails to collect daily user survey responses. Finally, we wish to thank the hundreds of trail users and local residents who participated in this study – we are grateful for their honesty and vision.

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R. Hanson, Resident, Village of Bellaire

Jennifer Jay, Director of Communications & Engagement, Grand Traverse Regional Land Conservancy

Rachel Krino, Assistant Director, Bellaire Chamber of Commerce

Lee Maynard, Trail Manager, Glacial Hills

Eldon McPherson, Council Trustee, Village of Bellaire

Lyn Petty, Resident, Village of Bellaire

Tim Reicha, Festivals & Events Director, Short's Brewing Company

Patricia Savant, Executive Director, Bellaire Chamber of Commerce

Joe Short, Founder, Short's Brewing Company

Brent Walk, Fun Promotions

## **Study Authors**

Sherwood B. Smith, President, Avenue ISR

Ann Tisdale, Senior Research Associate, Avenue ISR

Arthur Velez, Analyst, Avenue ISR

Avenue ISR is a business strategy and research consulting firm serving an international client base from Traverse City, Michigan. Avenue ISR has conducted hundreds of consulting engagements and impact analyses for multi-national corporations as well as regional businesses, governments and NGOs.

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## Executive Summary

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Glacial Hills comprises many things for the communities of Bellaire, Forest Home Township and Antrim County. It is a beautiful park and natural area that has been preserved forever for the people of these communities. It is a superb recreation destination for those who like walking, biking, cross country skiing, birding, snowshoeing and all other manner of outdoor “quiet sports.” It is also a tremendous economic engine that is producing both short and long term economic impact.

*“We notice the impact of Glacial Hills with the numbers of people who visit our office every day wanting to learn more about the trails. Visitors and locals love the experiences they can enjoy.”*

*– Patti Savant and Rachel Krino, Bellaire Chamber of Commerce*

The trail system and natural area draw 26,000 daily visitors annually. More than half (58%) of these visitors do not live in Antrim County year round. The vast majority combine their visit to Glacial Hills with spending in local businesses – restaurants, retail stores, hotels, etc.

The Glacial Hills Challenge is a gateway experience that has the potential to generate substantial economic impact for years to come. More than 90% of these visitors do not live in Antrim County year round. Many had a multi-day stay in the County as part of their participation. Many had never been to Bellaire before, and most indicated they will likely return. As this event grows from its current size, the impact will grow as well.

Glacial Hills serves as a valuable and cherished amenity for the people of Antrim County. Local residents give Glacial Hills extremely high ratings for the quality of the trail system. Most of them strongly agree that Glacial Hills enhances the overall quality of life for nearby residents. Property values in the vicinity of Glacial Hills are more than 50% higher than elsewhere in the Bellaire area.

The economic impact on the Bellaire and Antrim County economy is estimated to be \$1.45 million annually. Over ten years, this equates to \$14.5 million in incremental economic impact. However, if visitation by daily users and event participants can be increased by 10 percent per year over the next 10 years, this would increase to \$25.4 million in economic impact from 2017 to 2026 (in 2017 dollars).

### Implications and Recommendations:

- To the extent that resources are available, Glacial Hills should further develop trail markers, parking lots and points of entry to meet visitor needs.
- Advocates should promote daily use of Glacial Hills and work to expand events.
- The impact of Glacial Hills would be enhanced if it were even more closely integrated with the Village of Bellaire with a trail connector.
- The impact of Glacial Hills will be enhanced as regional leaders and stakeholders continue to develop and link together different outdoor recreation opportunities.
- Communities like Bellaire should consider investing in land conservation and building trail systems, provided they have the terrain, hospitality businesses and will to “do it right.”



*Image Courtesy of Friends of Glacial Hills*

## Study Overview

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### Purpose and Objectives

This report provides final results of a multi-pronged study into the use of the Glacial Hills Pathway and Natural Area as well as the social and economic impacts this locale has had on its surrounding communities.

The objectives of the study were as follows:

1. Determine the incremental revenue in terms of sales of goods and services that the existence of Glacial Hills has brought to Bellaire, Forest Home Township and Antrim County
2. Based on a commonly accepted set of multipliers, estimate the total economic impact and implied by this incremental revenue
3. Assess the impact of Glacial Hills on property values and the overall tax base
4. Assess Glacial Hills' role as a "gateway" experience that opens up the region to potential future visitors

Results were intended to both show the impacts and opportunities of Glacial Hills and to more deeply understand the potential of similar trail systems to support economic growth and community development in other communities in rural Northern Michigan and elsewhere.

## Data Sources and Methods

Study findings are based on the following data sources:

- **Infrared Tracker Data Identifying Trail Usage.** One tracker was positioned at each of three primary entrances to the trail system (Eckhardt Road, Orchard Hill Road, Vandermark Road) for an entire year from February, 2016 to February, 2017. Tracker readings were calibrated by visual observation so that a single "hit" was considered to be a unique daily visitor. (Note: Each parking lot providing access to the trail system has multiple trails and points of ingress/egress adjoining it. Some visitors are not counted at all; others are potentially counted multiple times. Our observation sessions confirmed that the net effect was 1 hit = 1 visitor)
- **Daily Use Survey** This was a pen and paper survey administered by volunteers who intercepted 97 users at trailheads. The survey was conducted in August and September, 2016. The sampling plan and volunteer shifts were organized to replicate actual patterns of use with a mix of weekday and weekend intercepts planned.
- **Event Survey** This was an online survey conducted in August, 2016 with 51 participants in the Glacial Hills Challenge – conducted.
- **Community Survey** This was an online survey conducted with 155 residents of Antrim County – conducted in December, 2016. A survey link was sent to a variety of community groups – members of the Chamber of Commerce, employees of major employers, service club members and area residents.

- **Analyses of Property Sales** These are based on data supplied by the Village of Bellaire and Forest Home Township, 2010 to 2016.
- **Review of Current Literature** concerning parks and trail systems

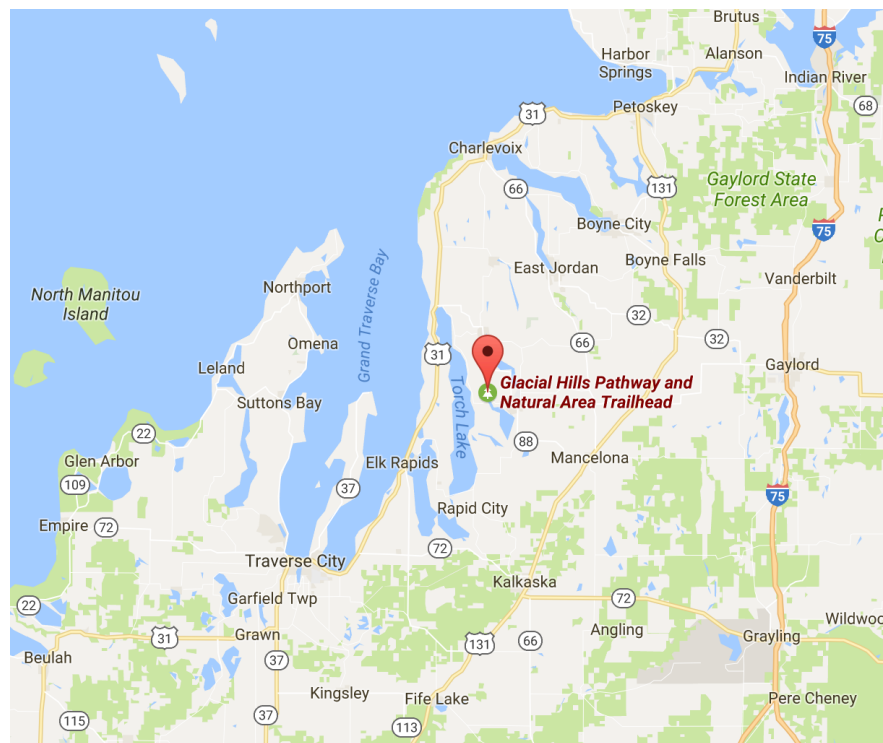
## Glacial Hills – An Introduction

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Located only half a mile northwest from the Village of Bellaire, the 814 acre Glacial Hills Pathway and Natural Area is a publicly owned natural area. Its 31.5 miles of trails make it a destination for hikers, mountain bikers, winter sports enthusiasts and all lovers of the outdoors.

*“With the shrinking amount of public land in the area, it’s important to get as much as you can under public control, but also have a plan to use it.” – Terry Smith, Forest Home Township Supervisor*

**Image 1 – Glacial Hills Location in Northwest Lower Peninsula Michigan**



*Image Courtesy of Google Maps*

Three units of government own the properties that make up Glacial Hills: Antrim County, Forest Home Township and the Village of Bellaire.



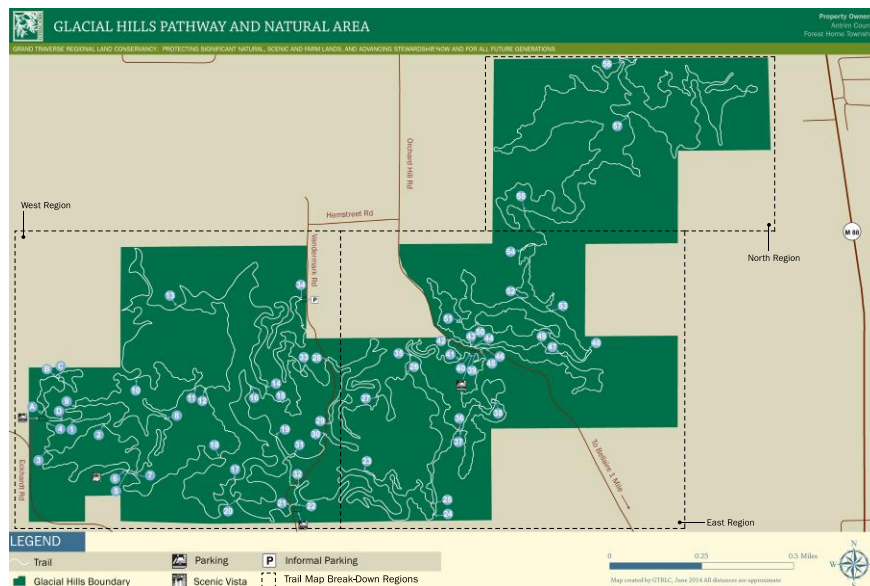
A key 180-acre parcel was acquired in 2010 with the help of the Grand Traverse Regional Land Conservancy to connect several different properties into what is now Glacial Hills.

Glacial Hills today contains 12 distinct habitat types, including two hardwood forest types, three wetland habitats, and the shrub thicket and wet mesic forest types. The area supports more than 20 species of trees, over 100 species of flowers, and over 100 species of birds, including great-horned owls, eagles and the threatened red-shoulder hawk.

Beginning in 2012, the Grand Traverse Regional Land Conservancy, along with employees from local governments and dozens of community volunteers, began developing and enhancing an extensive trail system to provide access to the natural area. Trail building was carefully done to create stable trail beds and smooth transitions.

Today Glacial Hills boasts 31.5 miles of trails that are well-suited for hiking, biking, cross country skiing, hunting and wildlife viewing. Novice mountain bikers find that they can enjoy the trail system right away; more experienced riders can pick up the pace to have a more challenging ride.

***Image 2 – Glacial Hills Trail Map Overhead View***



Three trailheads and miles of interconnected trails allow for a wide variety of experiences ranging from gentle to challenging.

Both daily users and event participants give Glacial Hills high ratings. 97 percent of daily users said they were “Extremely Satisfied” with the experience of Glacial Hills and 96 percent of event participants gave Glacial Hills ratings of “Excellent” or “Very Good” for overall trail system quality.

Some of the many special events that are held at Glacial Hills throughout the year are as follows:

- Glacial Hills Challenge
- Thursday Night Brights
- Guided Group Snowshoe Hikes
- Volunteer Trail Work Days
- Volunteer Tree Planting

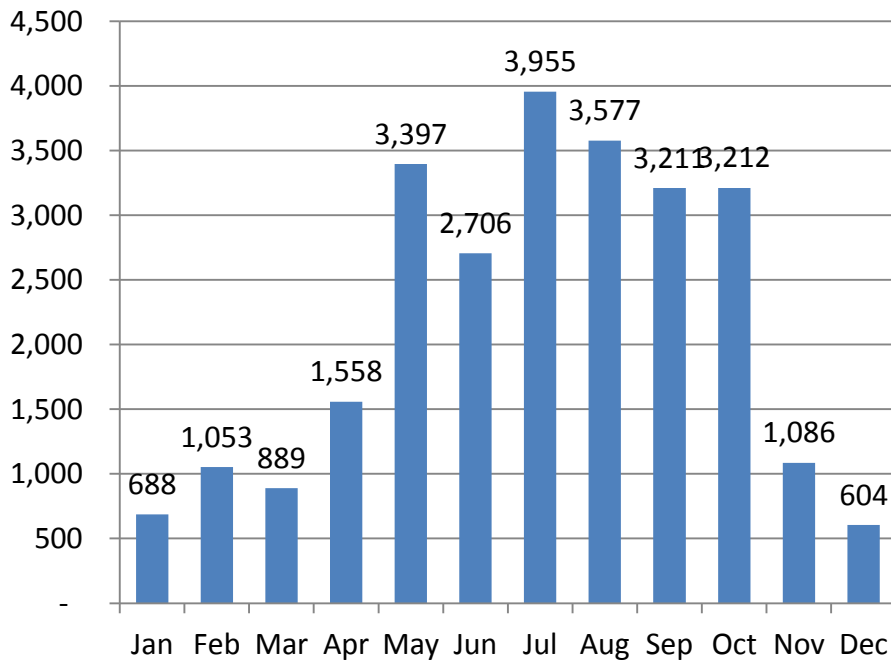
## Patterns of Use

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### Patterns of Visitation

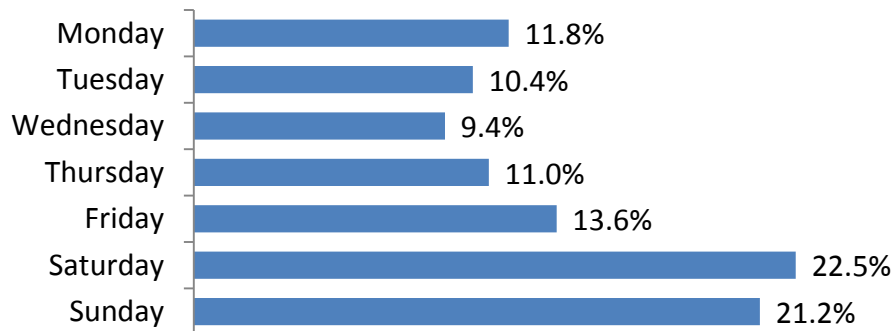
**Chart 1** below shows combined readings from three infra-red tracking devices which were positioned at the major access points to Glacial Hills over a period of 12 months. According to these, Glacial Hills attracts just under 26,000 visitors (actual = 25,936) each year.

**Chart 1 – Number of Visitors By Month**  
(based on data from infrared tracking devices February, 2016 - February, 2017)



As shown in **Chart 1** and **Chart 2**, visitation to Glacial Hills is concentrated on weekends between May and October.

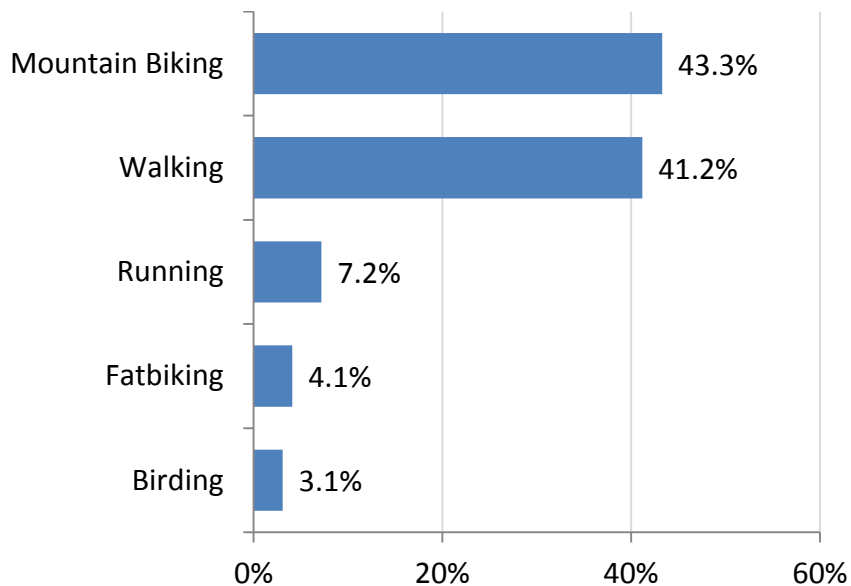
**Chart 2 – Number of Visitors By Day of the Week**  
*(based on data from infrared tracking devices February, 2016 - February, 2017)*



**Primary Activities**

**Chart 3** shows the primary activities in which daily users of Glacial Hills participate. The most common reason that users were on the trails when intercepted by volunteers was for mountain biking; however, walking was almost as popular. So although Glacial Hills is uniquely enjoyable on a mountain bike, visitors make their way to Glacial Hills for many other activities.

**Chart 3 – Daily Users: Primary Activity on Trails**  
*“Which of the following is your primary activity on Glacial Hills today?”*



*“When you have to entertain visitors, Glacial is a ready-made activity for all to enjoy.”*

*– R. Hanson, Resident, Village of Bellaire*

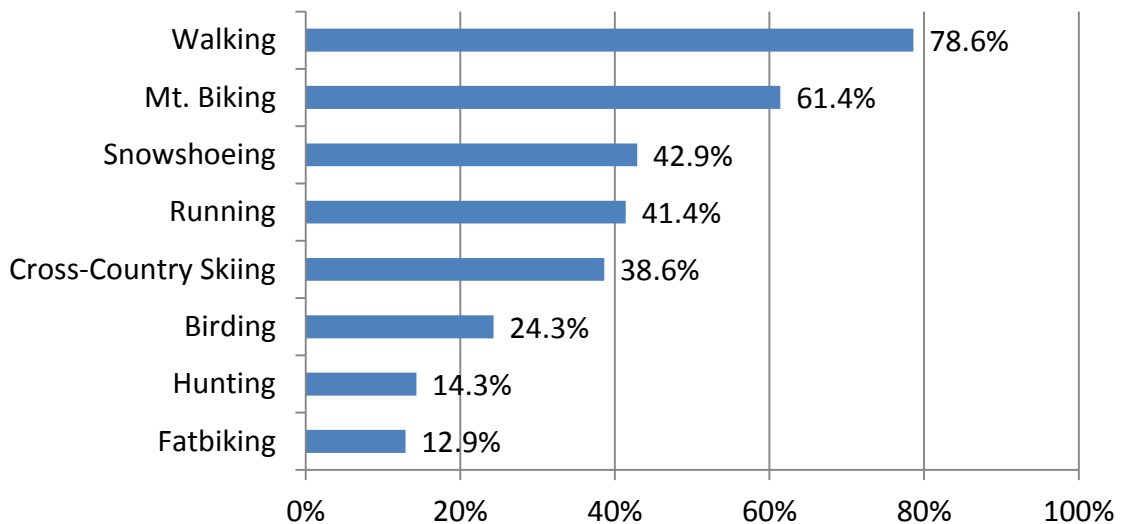


*Image Courtesy of Friends of Glacial Hills*

For reasons of logistics and volunteer availability, daily user data for Glacial Hills was gathered in August and September. However, **Chart 4** shows that many of these individuals also engage in activities that are more suited to late fall and winter – snowshoeing (43%), cross-country skiing (39%), hunting (14%) and fatbiking (13%) are all relatively widespread.

**Chart 4 – Daily Users: Participation in Activities Throughout the Year**

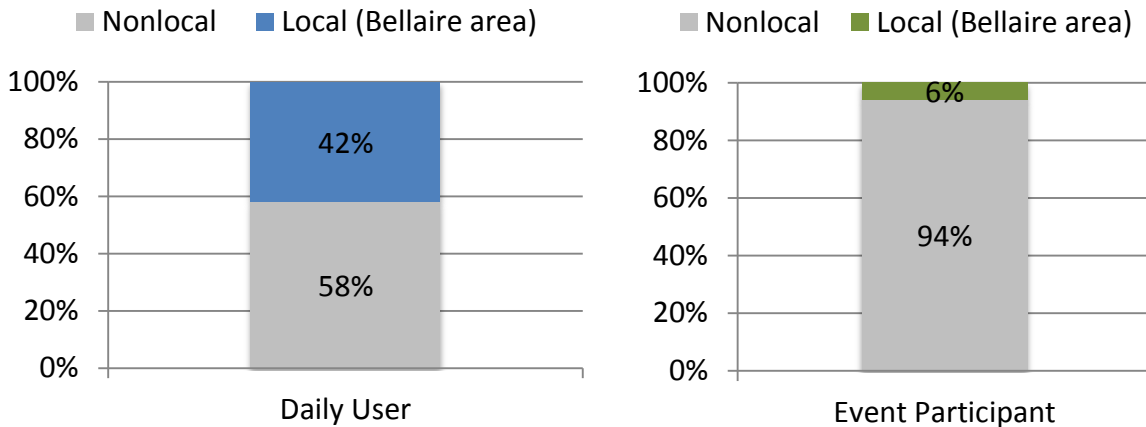
*“In which of these activities do you participate, at least occasionally?”*



## Geographic Origin of Users

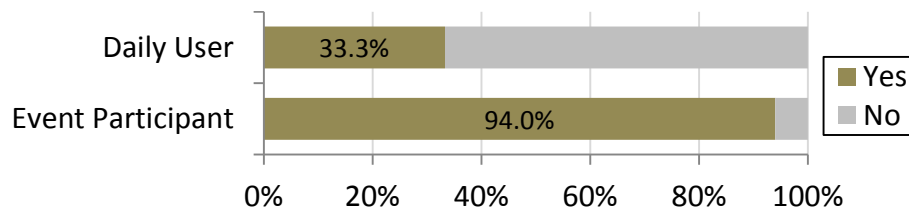
Glacial Hills draws visitors from outside the Bellaire area for both daily use and participation in the Glacial Hills Challenge. **Chart 5** shows that 58 percent of daily users and 94 percent of event participants do not live full time in the Bellaire area.

**Chart 5 – Daily Users and Event Participants: Local v. Non-Local**  
*“Do you live in the Bellaire area?”*



As **Chart 6** shows, the trip to Glacial Hills was the primary reason for visiting Bellaire for about a third (33%) of daily trail users. The other 67 percent may have been visiting friends or family in Bellaire or been on an extended vacation. Glacial Hills was likely an enjoyable part of the visit, but it was not primary. On the other hand, 94 percent of event participants visited Bellaire specifically to visit Glacial Hills. By implication, expanding the number and type of events at Glacial Hills may be an important approach to enhancing the economic benefit of the trail system.

**Chart 6 – Daily Users and Event Participants: Glacial Hills Primary Reasons for Visit**  
*“Was your trip to Glacial Hills your primary reason for visiting Bellaire?”*



In summary, daily users and event participants are most likely to have their permanent residence in some place other than Bellaire. Glacial Hills was often, though not exclusively, the primary reason for a visit to the Bellaire area.

# Economic & Community Impacts

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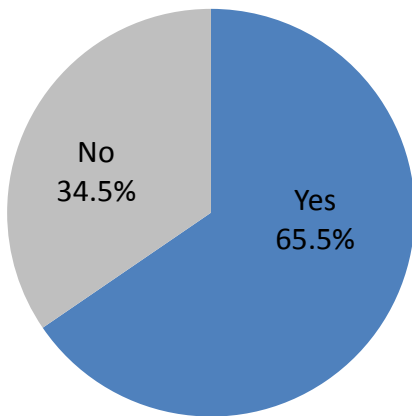
## Staying Overnight

Just under two-thirds of all non-local visitors to Glacial Hills stayed overnight in the Bellaire area as part of their trip (see **Chart 7**). This is true of both daily visitors and event participants.

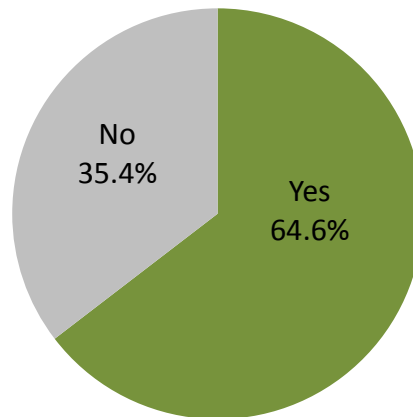
**Chart 7 – Daily Users and Event Participants: Overnight Stays**

*“Does this current trip to Bellaire involve an overnight stay?”*

**Daily User (Non-Local)**



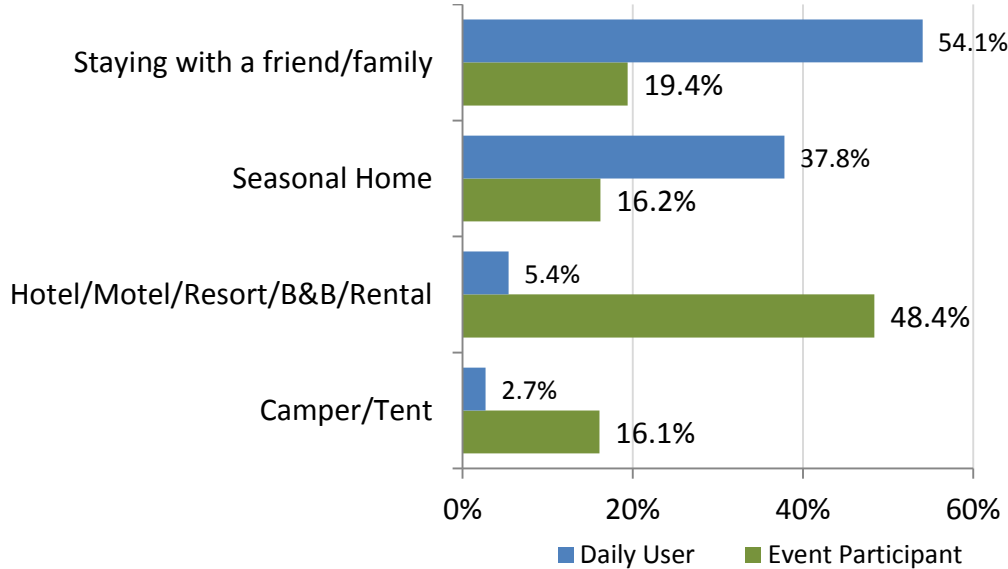
**Event Participant (Non-Local)**



**Chart 8** below indicates that daily users are more likely to stay with friends or at a seasonal home, whereas event participants are more prone to stay in motels, hotels or other paid accommodations.

**Chart 8 – Daily Users and Event Participants: Accommodations During Overnight Stay**

*“Which of the following best describes your accommodations during this trip to Bellaire?”  
[of respondents who indicated their current trip to Bellaire did involve an overnight stay]*



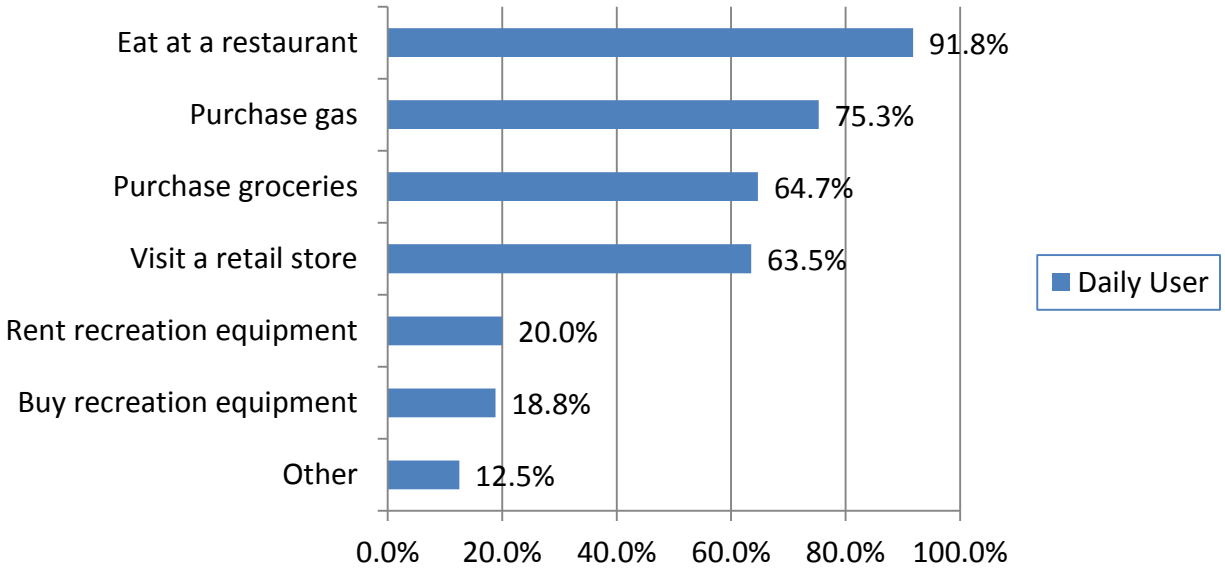
Some of the non-local event attendees (94% of total, per **Chart 6**) came alone to the Glacial Hills Challenge, but many others brought additional people with them who did not participate in the event. On average, the typical event attendee brought 0.56 extra people with them to Bellaire. In addition, some attendees traveled with other event participants. All told, the estimated 176 non-local event participants travelled in a total of 73 parties (or groups).

**Spending in the Local Economy**

Daily users typically do not use the trails and then immediately go home. The vast majority of them combine the trip to Glacial Hills with one or more visits to businesses in Antrim County. **Chart 9** shows that 92 percent of daily visitors ate at a restaurant, 75 percent purchased gasoline, 65 percent purchased groceries and 64 percent visited a retail store in connection to their visit to Glacial Hills.

**Chart 9 – Daily Users: Spending in Antrim County By Category**

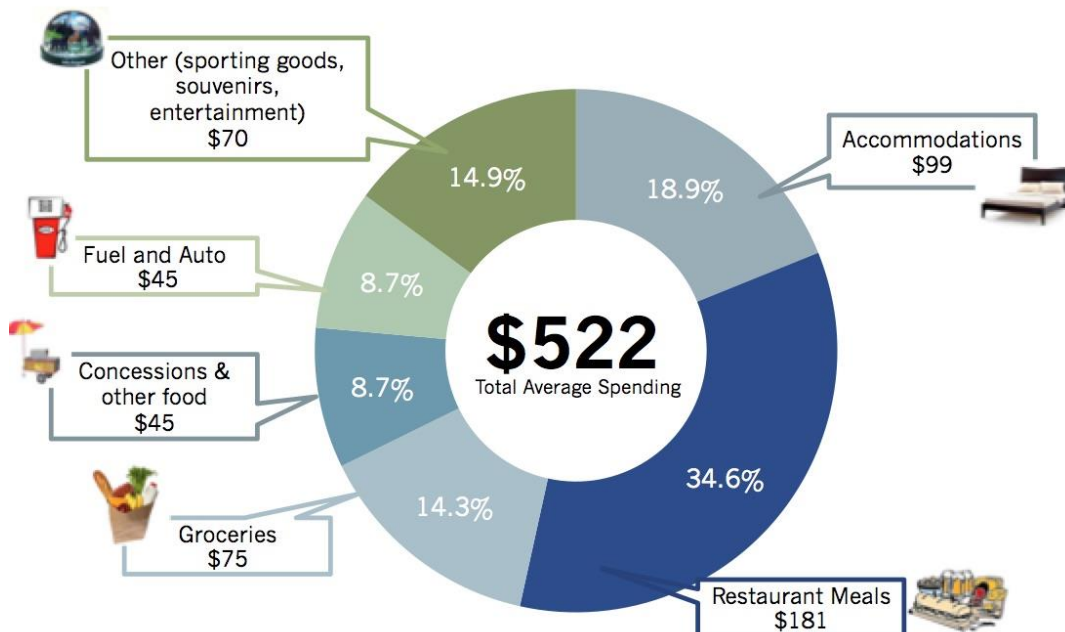
*“Did you do or will you do any of the following in Antrim County, Michigan, related to your visit to Glacial Hills?”*



**Chart 10** shows that each party of event participants spent an average of \$522 when visiting the Bellaire area. Many sectors of the local economy benefit from this population and their spending, including providers of accommodations, restaurant meals, groceries, sporting goods, souvenirs, etc.

**Chart 10 – Event Participants: Spending in the Bellaire Area**

*“What is the total amount you/your group (including friends, relatives or others who travelled with you) spent on each of the following categories while you were in the Bellaire area for Glacial Hills Challenge?”*





## Future Economic Benefits

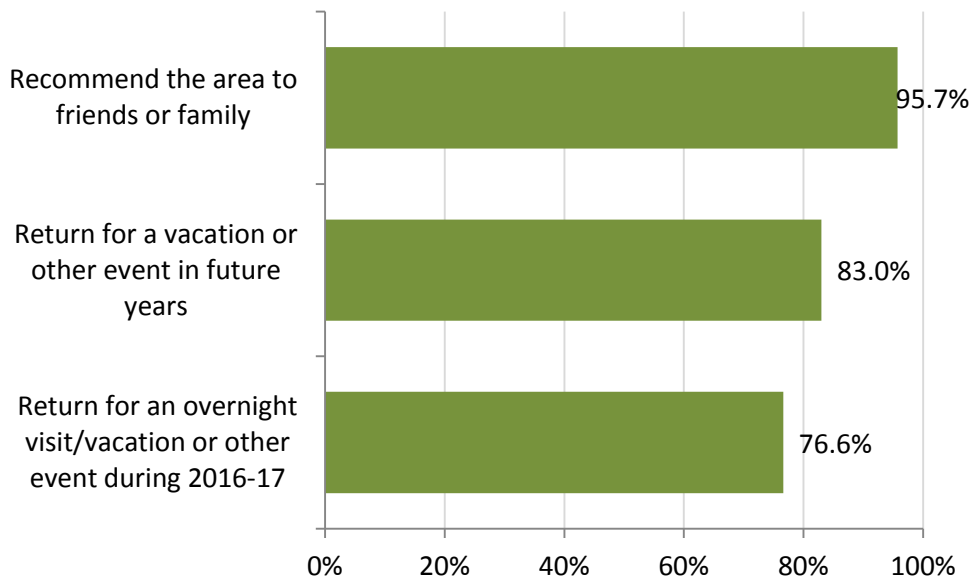
*“Perfect! I love these trails and the area. Racing introduced me to the trails I may not have found otherwise. I’ll be bac!” – Glacial Hills Challenge Participant, Madison Heights, MI*

The economic benefit of attracting event participants extends beyond a single visit. These individuals are likely to both return to Bellaire themselves and to promote the area in conversation with friends and family.

As **Chart 11** shows, more than 95% of participants are “Very” or “Extremely” likely to recommend the Bellaire area to friends or family. Significant majorities are also likely to return to the area for vacations or other overnight visits.

**Chart 11 – Event Participants: Actions Likely Based on Most Recent Visit**

*“Based on your most recent experiences of the Bellaire area, how likely is it that you would...”*



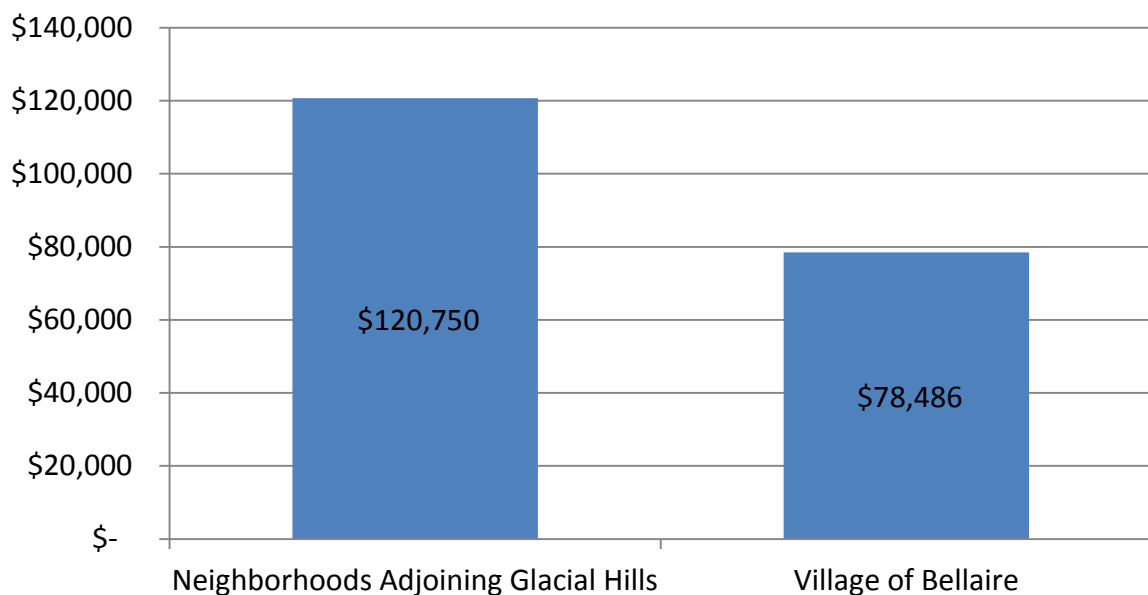
## Impact on Property Values

A large number of academic and government studies have confirmed that parks and trail systems have a positive impact on nearby property values. In his landmark study into the “Proximate Principle,” Professor John L. Crompton showed that proximity to a public park

typically creates a 20% positive impact on property values.<sup>1</sup> Numerous other analyses, empirical studies and models have confirmed that parkland, particularly land developed with trail systems, has a consistent positive impact on property values. See the **References** section of this paper for more information.

According to township and village data (see **Chart 12**), Glacial Hills appears to have a significant positive impact on local property values. **Chart 12** contrasts residential home sales of properties on the three main residential roads adjoining Glacial Hills compared to residential home sales in the Village of Bellaire. The period of the analysis is 2011 to 2016. Homes in close proximity to Glacial Hills sold for 54% more than the overall village median during this period.

**Chart 12 – Median Home Value (Selling Price): 2011 - 2016  
Neighborhoods Adjoining Glacial Hills (Eckhardt Road, Vandermark Road, Orchard Hill Road) vs. Village of Bellaire**



*“I grew up on the north end of Vandermark (1960s on) and live at the south end now (for 25 years). The creation of Glacial Hills has greatly enhanced the quality of living there due to the increased access for hiking and enjoying nature.”*

*– Jean Bedell, Resident, Forest Home Township*

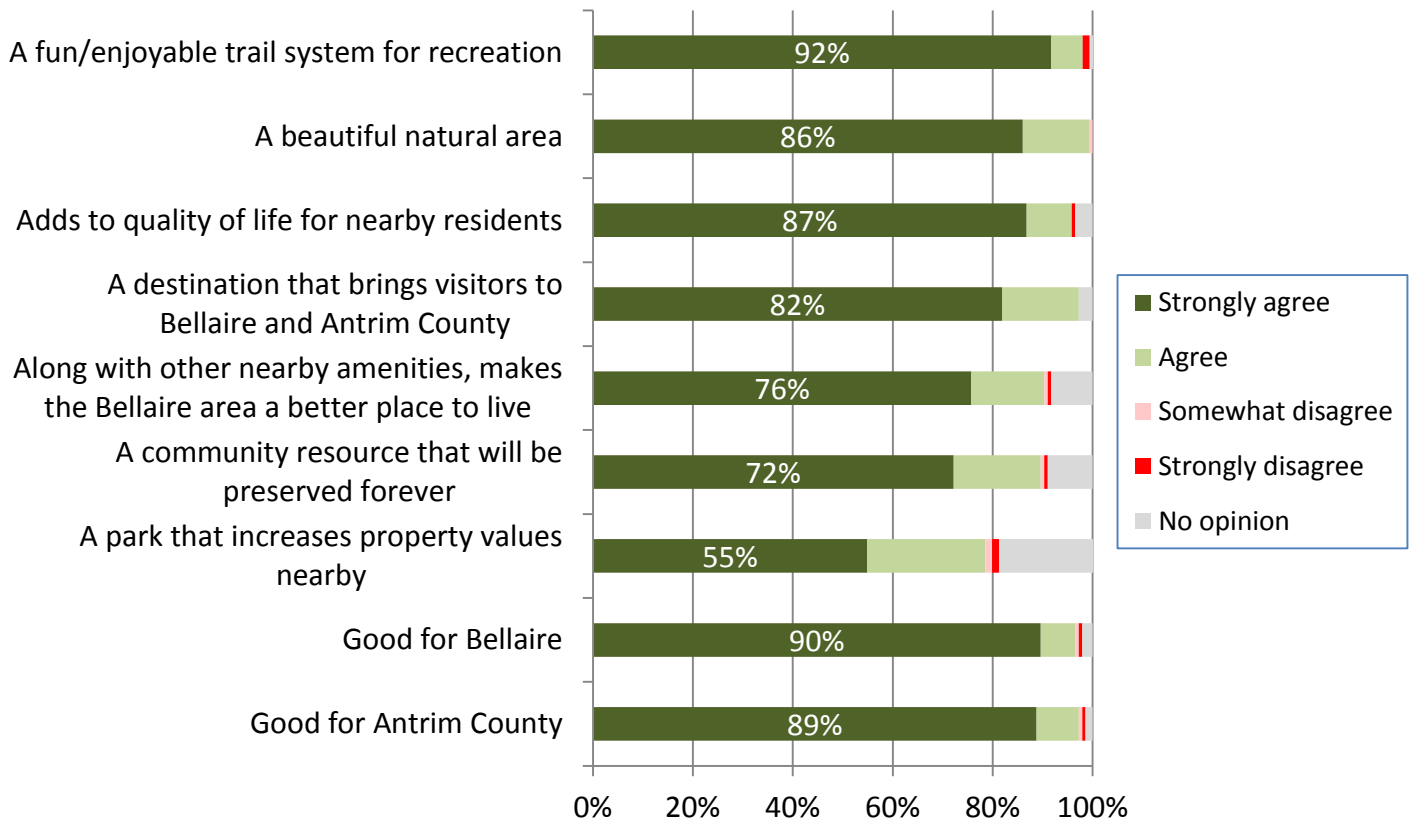
<sup>1</sup> John L. Crompton (2005). The Impact of Parks on Property Values: Empirical Evidence from the Past Two Decades in the United States. *Leisure Management* 10, 203-218.

## Community Impacts

The vast majority of Antrim County residents agree that Glacial Hills is good for the regional economy as well as overall quality of life. **Chart 13** shows that residents believe that Glacial Hills has multiple benefits for its community and the region. 87 percent “Strongly Agree” that Glacial Hills adds to quality of life for nearby residents. 82 percent “Strongly Agree” that it is a destination that brings visitors to Antrim County. 76 percent “Strongly Agree” that Glacial Hills, along with other nearby amenities, makes the Bellaire area a better place to live. Overall, 90 percent “Strongly Agree” that Glacial Hills is good for Bellaire and 89 percent “Agree” it is good for Antrim County.

**Chart 13 – Antrim County Residents: Community Impacts**

*“Do you agree or disagree with the following statements describing Glacial Hills?”*



*“We moved here for quality of life. We love the peace and quiet of living in a small town, but we also love the sheer number of things to do outside. The woods, the lakes and the rivers are outside our backdoor. Glacial Hills was definitely one of the draws when we decided to live and work here.”*

*– Anonymous Community Survey Respondent, Recently Moved to Bellaire*

# Economic Modeling

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## One Year Impacts

Glacial Hills is generating enhanced economic impact and tax revenues in the Village of Bellaire, Forest Home Township and Antrim County. There are three principal effects.

### *Daily Visitors*

- 26,000 daily visitors per year visit Glacial Hills
- 58% of these visitors do not live in the local area; this equates to 15,000 non-local visitors per year
- We used the MSU Economic Impact Calculator to calculate weighted average spending (based on lodging category) of \$71.22 per visitor per day
- Total Direct Spending (15,000 x \$71.22) = \$1.07 million
- Using a conservative multiplier\* of 1.3 for rural areas, this implies total economic impact of **\$1.4 million**

### *Event Participants*

- 187 event participants attended the Glacial Hills Challenge in 2016
- 94% of these attendees do not live in the local area; this equates to 176 non-local visitors per year
- Number of unique parties (groups traveling together) = 73
- Direct Spending Per Party (per survey results) = \$522
- Total Direct Spending (73 x \$522) = \$38,000
- Using a conservative multiplier\* of 1.3, this implies total economic impact of **\$50 thousand**

*\* Glacial Hills brings incremental dollars into the local economy. These dollars translate into business activity and jobs. Those working in these jobs tend to spend a portion of their wages in the local economy. Therefore, there is a “multiplier effect” that leads to total economic impact. Multipliers for tourism in rural areas may run as high as 1.6 or 1.7, depending on the particulars of the local business mix.*

## **Adding the impacts of daily visitors and event participants, Glacial Hills is currently generating \$1.45 million per year of economic impact from tourism.**

In addition, \$136,502 in tax revenue (summer tax + township tax) was collected from neighborhoods adjoining Glacial Hills in the year preceding this study. If we divide this number by 1.54 (the observed surplus of 54% in median home price) we estimate that tax revenues “would have been” (hypothetical) \$88,638 without the property value benefits that arise from the proximity of Glacial Hills. Thus, Glacial Hills appears to be providing enhanced tax revenue of approximately **\$48,000 per year in additional tax revenue for local taxing authorities.**

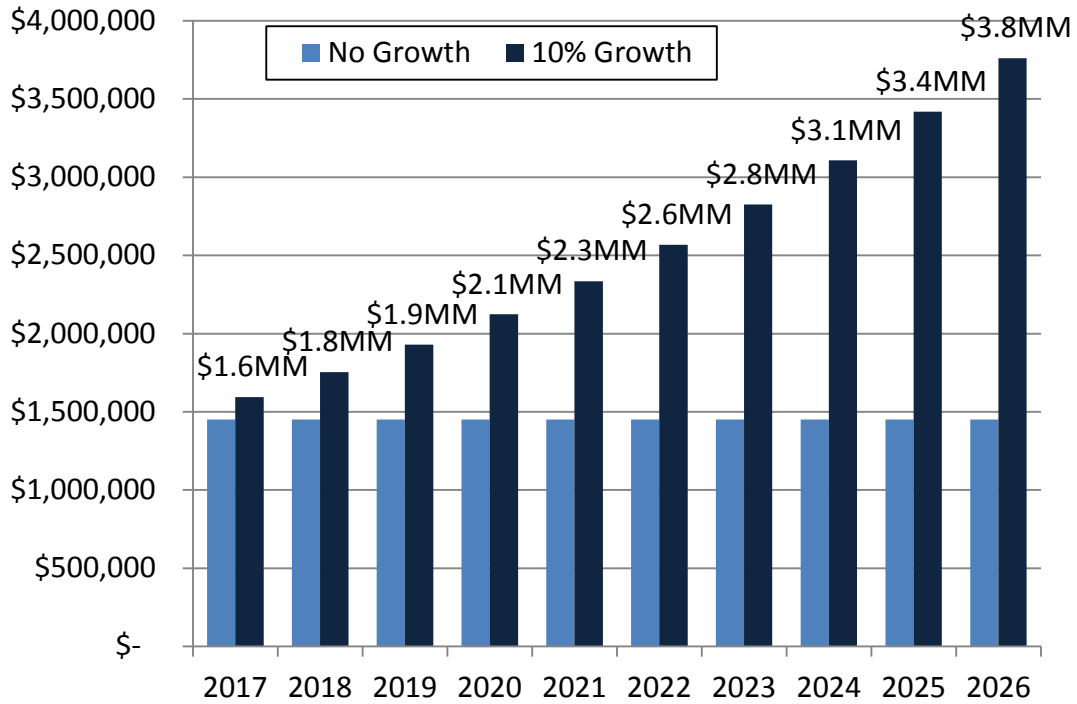
### **Multi-Year Impacts**

In the previous section we showed that Glacial Hills is currently generating \$1.45 million per year of economic impact from tourism. Looking at the impacts from daily use and special events at current rates, Glacial Hills would produce \$14.5 million for the local economy over 10 years (in 2017 dollars).

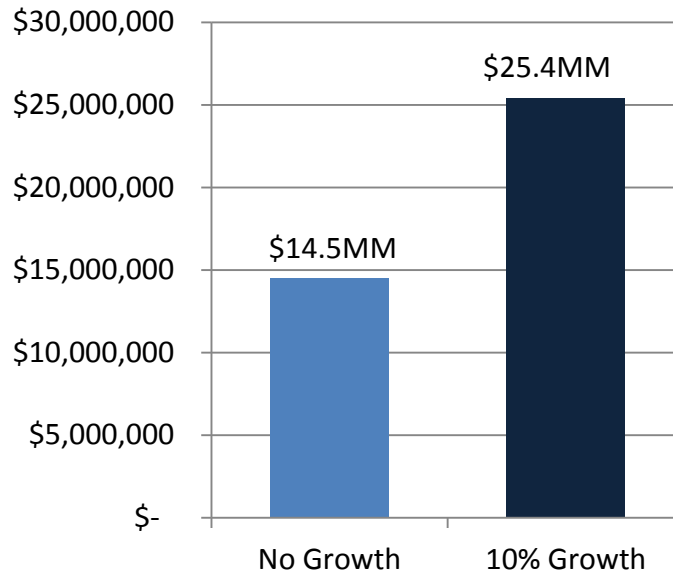
However, as **Chart 14** shows, if the number of daily users and event participants visiting Glacial Hills increased by 10% per year for the next 10 years, annual economic impact would grow from \$1.45 million in 2017 to \$3.8 million in 2026. With no growth in visitation, the 10-year total economic impact from Glacial Hills would be \$14.5 million. With sustained 10% growth, this 10-year total economic impact would rise to \$25.4 million. This result is summarized in **Chart 15**.

**If visitation increases by 10% per year, Glacial Hills is projected to produce \$25 million of economic impact for the local economy over the next 10 years.**

**Chart 14- 10 Year Trend (Forecast)**



**Chart 15 - 10 Year Total (Forecast)**



## The Way Forward: Conclusions & Recommendations

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There are a number of implications that emerge from this study. These go beyond pure research findings and are somewhat subject to interpretation and judgment. It is ultimately up to the individuals and organizations that are passionate about Glacial Hills to draw conclusions and plan accordingly.

### **Enhance Amenities**

Although both daily users and event participants rated the trail system and natural area highly in its current form, several made requests for additional enhancements and amenities. These were reported in greater detail to the Friends of Glacial Hills, but following is a summary:

- Alternate/Supplemental trail marking for easy navigation of routes
- Larger parking lots
- Drinking water at entry points
- Changing rooms
- Trail connector directly to the Village of Bellaire

These enhancements should be made, pending available resources.

### **Promote Daily Use**

Although some organizations have been promoting Glacial Hills along with other Bellaire and Antrim County destinations, many first time visitors have remarked “I had no idea that trails of this quality were here.” Glacial Hills is still a bit of a secret among mountain bike riders and visitors to Northern Michigan. Promoting Glacial Hills both as a primary reason for visiting Northwest Lower Michigan and/or a stop to include in a longer stay will pay significant dividends.

### **Expand Events**

Nearby Traverse City hosts athletic events that attract thousands of people (Bayshore Marathon, Iceman Cometh Race, etc.). Participants in the Glacial Hills Challenge were very positive about the trail system and the town. There seems to be opportunity to add additional events and to grow the existing Glacial Hills Challenge.

*“We are in the business of providing outdoor recreation to our guests, and Glacial Hills has become another highly visible destination for our guests. Increased visibility for events only increases our appreciation of Glacial Hills in our community.”*

*– Chris Hale, Vice President of Sales and Marketing, Shanty Creek Resorts*

### **Link with Other Recreation Partners**

Many local business owners and business leaders are already thinking in terms of providing visitors with “one extra day” worth of activities in the area. Bellaire and Antrim County already are building a reputation for outdoor recreation and outdoor lifestyle. This work can be enhanced through collaboration and co-promotion.

### **Replicate This Model**

For those who care about land preservation, outdoor recreation or economic development, Glacial Hills is a great success story that can be replicated. Antrim County is characterized by significant rural poverty. Median household income in Antrim county was \$46,845 in 2015 according to the United States Census American Community Survey, which is more than \$2,700 below the Michigan average. The county unemployment rate for Antrim County in May, 2017<sup>2</sup> was 5.3 percent, which is 1.6 percentage points higher than the state of Michigan rate. Creating reasons for people to visit Antrim County and ultimately to relocate there are essential for building resilience in Antrim’s rural communities. Development of trail systems may be one way to meet these goals.

That said, there are important conditions that are causing Glacial Hills to be successful. The property is beautiful and features varied terrain. The nearby town has restaurants and accommodations for visitors. The volunteers and lightly compensated staff who built the Glacial Hills trail system used care and the best current thinking on trail development and maintenance. If some or all of these conditions are in place, the Glacial Hills model can be replicated throughout Northern Michigan and beyond.

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<sup>2</sup> Source: Michigan DTMB, Bureau of Labor Market Information and Strategic Initiatives, Local Area Unemployment Statistics (LAUS)



## References

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- The Business of Trails: a compilation of economic benefits: <http://www.americantrails.org/resources/economics/businessoftrails.html>
- Property Value/Desirability Effects of Bike Paths Adjacent to Residential Areas (Delaware Center for Transportation: <https://www.railstotrails.org/resourcehandler.ashx?id=4482>
- Trail Effects on Neighborhoods: Home Value, Safety, Quality of Life (referencing studies from the mid-90s): <http://www.americantrails.org/resources/adjacent/sumadjacent.html>
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## Appendices

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# Appendix A - Glacial Hills Daily User Survey

Survey Administrator Only

Date: \_\_\_\_\_ Time: \_\_\_\_\_ am pm

Location: \_\_\_\_\_

Thank you for taking the time to complete this short survey about your experiences today!

1. Do you live in the Bellaire area?  Yes (SKIP to Question 2)  No (answer 1a and 1b)

1a. Was your trip to Glacial Hills your primary reason for visiting Bellaire?

Yes  No

1b. Does this current trip to Bellaire involve an overnight stay?  No  Yes (answer 1c and 1d)

If staying overnight as part of this trip...

1c. What is the total number of nights you will have stayed in Bellaire for this trip? \_\_\_\_\_

1d. Which of the following best describes your accommodations during this trip to Bellaire?

Hotel/Motel/Resort/B&B/Rental  Camper/Tent  Seasonal Home  Staying with a friend/family

2. What is your zip code for your primary residence? \_\_\_\_\_

3. Did you do or will you do any of the following in Antrim County, Michigan, related to your visit to Glacial Hills?

Eat at a restaurant  Purchase gas  Buy recreation equipment  
 Visit a retail store  Rent recreation equipment (bike,  Other: \_\_\_\_\_  
 Purchase groceries  ski, etc.)

4. Including yourself how many people are in the group that travelled to Glacial Hills? (if you are by yourself, just enter "1" on the appropriate line) 18 & under: \_\_\_\_\_ Over 18: \_\_\_\_\_

5. Which of the following is your primary activity on Glacial Hills today? In which of these activities do you participate, at least occasionally?

Primary Activity Today

Birding  
 Fatbiking  
 Mt. Biking  
 Cross-Country Skiing  
 Hunting  
 Snowshoeing  
 Running  
 Walking  
 Other: \_\_\_\_\_

Activities You Participate In (select all that apply)

Birding  
 Fatbiking  
 Mt. Biking  
 Cross-Country Skiing  
 Hunting  
 Snowshoeing  
 Running  
 Walking

6. Over the past 12 months, what is the total number of times you have visited Glacial Hills? (including today)  
 1  2-3  4-6  7-10  11-20  21-30  31-50  More than 50, please write in your estimate: \_\_\_\_\_

7. How would you rate your experience on Glacial Hills today on a scale of 1-5?

(5=extremely satisfied 1=not at all satisfied)

1  2  3  4  5

Please briefly explain why you gave this score. \_\_\_\_\_

8. In which seasons do you use Glacial Hills?

Spring (Mar, Apr, May)  Summer (Jun, Jul, Aug)  Fall (Sep, Oct, Nov)  Winter (Dec, Jan, Feb)

9. What improvement(s) would you most like to see on Glacial Hills? (write in your response)

10. If you would like to learn more about Glacial Hills, including upcoming events, please provide a name, telephone and email address.

Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Email:

11. Demographics (optional): What is your gender?  Male  Female

11a. What is your age? \_\_\_\_\_

## Appendix B - Glacial Hills Event Survey

### The Glacial Hills Challenge

Note:

- Invitation copy will indicate that respondents are being carefully selected to offer input that will help better understand/improve the Glacial Hills Trail System
- Items in [BRACKETS] indicate coding instructions that will not be seen by participants
- [PAGE BREAK] indicates a location where a page break must be placed; there will be many other page breaks to keep the number of question on screen to a manageable number
- When two sets of answers are presented following a question, this indicates a table will be constructed - the first set of answers consists of column headings; the second set consists of rows of possible responses
- Surveys will be designed to be completed on smart phones and tablet computers as well as full screen computers.

Thank you for taking the time to complete this short survey about your experiences with the Glacial Hills Challenge! Your responses are extremely important to us. Please answer all questions as completely as possible.

**1. Did you personally attend the Glacial Hills Challenge? (choose the answer that best describes your participation)**

Yes, I was a participant

Yes, I was a spectator

Yes, I worked or volunteered at the event

No, I did not attend [TO TERMINATE PAGE WITH MESSAGE BELOW]

Thank you very much for your willingness to participate in our survey. However, survey questions are only relevant to people who participated in the Glacial Hills Challenge. If you have any general advice or feedback for the event organizers, please enter it below.

[ESSAY]

**2. Where is your primary residence? [EMBED MAP SHOWING DIVISIONS WITHIN MICHIGAN]**

Antrim County

Northern Lower Peninsula Michigan (not Antrim County)

Southern Lower Peninsula Michigan

Upper Peninsula

Other U.S. State, please specify \_\_\_\_\_ [TRIGGER Q3]

Canadian Province, please specify \_\_\_\_\_ [TRIGGER Q3]

Other Country, please specify \_\_\_\_\_ [TRIGGER Q3]

**3. Do you own a second or vacation home in Michigan?**

Yes No

**4. What is your zip/postal code for your primary residence?**

[NUMERIC TEXT BOX]

[BELLAIRE RESIDENTS SKIP TO Q15]

**5. Was the Glacial Hills Challenge event the primary reason for your trip to the Bellaire area?**

Yes      No [TRIGGER Q6]

**6. Would you have spent more time, less time or the same amount of time in the Bellaire area if you had not participated in Glacial Hills Challenge?**

More      Same amount      Less

**7. Was this your first time visiting the Bellaire area?**

Yes      No

**8. In addition to you, how many other people travelled with you to the Glacial Hills Challenge?**

Participated in the event

Did not participate (spectators or did something else)

0 (no one came with me)

1

2

3

4

5 or more

**9. Did you stay overnight in the Bellaire area on this trip?**

Yes      No [SKIP TO Q13]

**10. Where did you personally stay during your visit?**

At a secondary or vacation home in the area that I own

A friend or family member's home

Rental property [TRIGGER Q11]

Hotel/motel [TRIGGER Q11]

Bed and Breakfast [TRIGGER Q11]

Campground [TRIGGER Q11]

Other, please explain

**11. What is the total amount that your family group spent on lodging while you were in the Bellaire area? (Note: If you travelled alone, your "family group" consists of you)**

\$0-99

\$100-199

\$200-299

\$300-399

\$400-499

\$500 or more [TRIGGER TEXT BOX]

**Please enter the total amount you spent on lodging while you were in the Bellaire area.**

**12. How many nights did you stay in the Bellaire area?**

1, 2, 3, 4, 5 or more [TRIGGER WRITE-IN FOR 5 OR MORE]

**Please write in the number of nights you stayed in the Bellaire area for Glacial Hills Challenge?**

**13. Which of the following did you do while you were in the Bellaire area for Glacial Hills Challenge? (select all that apply; residents as well as visitors)**

- |  |  |
|--|--|
| Ate at one or more restaurants                                     | Visited a medical facility (hospital, doctor's office, etc.) |
| Shopped at one or more retail stores                               | Visited downtown Bellaire                                    |
| Paid for entertainment, e.g. movies, miniature golf, bowling, etc. | Visited other town(s) in the area                            |
| Purchased gasoline   | Visited other parks, trails or beaches                       |
| Purchased groceries  | Other, please explain  |
|  | None of the above  |

**14. What is the total amount you/your group (including friends, relatives or others who travelled with you) spent on each of the following categories while you were in the Bellaire area for Glacial Hills Challenge?**

[TABLE OF DROP DOWNS]

Spending in the Bellaire Area

Spending in Michigan for en-route and nights away from home before or after the event

- \$0 – nothing at all
- \$1-99
- \$100-249
- \$250-499
- \$500-749
- \$750-999
- \$1,000-1,499
- \$1,500-1,999
- \$2,000 or more

- |  |   |
|--|---|
| Restaurant and bar meals and drinks    | Souvenirs                               |
| Grocery & convenience store food/drink | Recreation and entertainment            |
| Concessions or other food              | Motor vehicle expenses (gas, oil, etc.) |
| Sporting goods and equipment           | Medical expenses                        |
| Clothing                               | Miscellaneous                           |

**15. On a scale of 0 to 10 how satisfied were you overall with your experience of the Glacial Hills Challenge? (0 = Not at all satisfied, 10 = Extremely satisfied)**

[RADIO BUTTONS 0...10, No Opinion]

**16. What did you like best about the Glacial Hills Challenge event?**

[TEXT BOX; ESSAY STYLE]

**17. What one thing would make your experience of the Glacial Hills Challenge better?**

[TEXT BOX; ESSAY STYLE]

**18. If you haven't already shared this, how was your experience of the Glacial Hills trail system?**

[TEXT BOX; ESSAY STYLE]

**19. Please rate the Glacial Hills trail system on the following characteristics:**

- Excellent
- Very good
- Good
- Fair
- Poor

- Technical difficulty/character
- Flow
- Elevation change
- Trail bed condition
- Overall trail system quality

**20. Based on your most recent experiences of the Bellaire area, how likely is it that you would...**

- Extremely likely
- Very likely
- Somewhat likely
- Not very likely
- Not at all likely

- Recommend the area to friends or family
- Return for an overnight visit/vacation or other event during 2013-4
- Return for a vacation or other event in future years

**21. Do you belong to any biking/trail/outdoor clubs, organizations or groups?**

Yes [TRIGGER Q20] NO

**22. Please list the biking/trail/outdoor clubs, organizations or groups of which you are a member.**

**Almost finished! Here are some questions about you.**

**23. What is your gender?**

- Female
- Male
- Other, please explain

**24. What is your age?**

Under 25	45-54	75-84
25-34	55-64	85 or over
35-44	65-74	

**25. What is the highest level of education you have completed?**

High school or less  
Trade or technical school  
Some college  
Associate's degree  
Bachelor's degree  
Graduate degree (e.g. M.A. or Ph.D.)

**26. How many adults and children live in your household?**

[DROP DOWNS FROM 1 to 20]  
Number of adults including yourself                      Number of children (under 18)

**27. Considering all sources (salary, bonuses, investment income, etc.), approximately what was your household's total income – before taxes – in 2015? Note: "Prefer not to answer" is one of your options.**

[DROP DOWN]  
Less than \$25,000  
\$25,000 - \$49,999  
\$50,000 - \$74,999  
\$75,000 - \$99,999  
\$100,000 - \$149,999  
\$150,000 - \$199,999  
\$200,000 - \$299,999  
More than \$300,000  
Prefer to not answer

**That's it! Thank you very much again for your participation. You will now be re-directed to the Glacial Hills Challenge web site.**

# Appendix C - Glacial Hills Community Survey

## Notes:

- Items in [BRACKETS] indicate coding instructions that will not be seen by participants
- [PAGE BREAK] indicates a location where a page break must be placed; there will be many other page breaks to keep the number of question on screen to a manageable number
- When two sets of answers are presented following a question, this indicates a table will be constructed - the first set of answers consists of column headings; the second set consists of rows of possible responses
- Surveys will be designed to be completed on smart phones and tablet computers as well as full screen computers. A printed version of the survey will be available upon request (contact Woody Smith at [ssmith@avenueisr.com](mailto:ssmith@avenueisr.com) or (231) 883-2835.

Thank you for taking the time to complete this short survey about the Glacial Hills Pathway and Natural Area! Your responses are extremely important to us. Please answer all questions as completely as possible.

### 1. Where in Antrim County do you live?

Village of Bellaire  
Village of Central Lake  
Village of Mancelona  
Central Lake Township  
Chestonia Township  
Custer Township  
Echo Township  
Forest Home Township

Helena Township  
Jordan Township  
Kearney Township  
Mancelona Township  
Other location in Antrim County:

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Other County, State, etc.:

---

### 2. How long have you lived in Antrim County?

Have never lived in Antrim County  
2 years or less  
3-5 years  
6-10 years  
11-20 years  
More than 20 years

### 3. Have you ever personally visited Glacial Hills Pathway and Natural Area (“Glacial Hills”)?

Yes [TRIGGER Q4 THROUGH Q7]  
No [TRIGGER Q8 (INSTEAD OF Q6)]

### 4. Over the past 12 months, what is the total number of times you have visited Glacial Hills?

None  
1  
2-3  
4-6  
7-10  
11-20



21-30

31-50

More than 50, please write in your estimate: \_\_\_\_\_

**5. In which seasons have you ever visited Glacial Hills? (select all that apply)**

Spring (March, April, May)

Summer (June, July, August)

Fall (September, October, November)

Winter (December, January, February)

**6. Which of the following activities do you participate in, at least occasionally? Which of these activities have you ever done at Glacial Hills? (select all that apply)**

Do This Activity (at least occasionally)

Birding

Fatbiking (fat tire biking)

Mountain Biking

Cross-Country Skiing

Hunting

Snowshoeing

Trail Running

Walking/Hiking in the Woods

Have Done This Activity at Glacial Hills

Birding

Fatbiking (fat tire biking)

Mountain Biking

Cross-Country Skiing

Hunting

Snowshoeing

Trail Running

Walking/Hiking in the Woods

**7. Please rate Glacial Hills on the following characteristics:**

Excellent

Very good

Good

Fair

Poor

No opinion

Scenic beauty

Habitat for wildlife

Availability of parking

Variety of trails and terrain

Trail bed condition

Overall trail system quality

Overall trail and natural area maintenance

Accessibility for people with disabilities

**8. [FOR THOSE WHO HAVE NOT VISITED GLACIAL HILLS] Which of the following activities do you participate in, at least occasionally? (select all that apply)**

Birding

Fatbiking (fat tire biking)

Mountain Biking

Cross-Country Skiing

Hunting

Snowshoeing  
Trail Running  
Walking/Hiking in the Woods

**9. If you were describing Glacial Hills to someone who was unfamiliar with the region, what words or short phrases would you use?**

[TEXT BOX - ESSAY STYLE]

**10. Do you agree or disagree with the following statements describing Glacial Hills?**

Strongly agree  
Somewhat agree  
Somewhat disagree  
Strongly disagree  
No opinion

[RANDOMIZE]

A beautiful natural area  
A fun/enjoyable trail system for recreation  
A destination that brings visitors to Bellaire and Antrim County  
Adds to quality of life for nearby residents  
A community resource that will be preserved forever  
A park that increases property values nearby  
Good for Bellaire  
Good for Antrim County  
Along with other nearby amenities, makes the Bellaire area a better place to live

**11. What improvements would you most like to see at Glacial Hills?**

[TEXT BOX – ESSAY STYLE]

**12. Which of the following would you personally be willing to do in order to support Glacial Hills? (select all that apply)**

[RANDOMIZE]

Participate in hands-on trail maintenance and conservation activities  
Attend public meetings of groups working to support Glacial Hills  
Participate in trail clean-ups or native plantings  
Make a financial contribution to support ongoing protection/stewardship efforts  
Join a Facebook group or other online group to learn more about current activities  
Contact local or state elected official to urge action on supporting Glacial Hills  
Other, please explain  
None of these

**13. If there is anything else we missed or something more you would like to share about Glacial Hills, please tell us about it here.**

[TEXT BOX – ESSAY STYLE]

**Almost finished! Here are some questions about you.**

**14. What is your gender?**

Female          Male          Other, please explain

**15. What is your age?**

Under 25	45-54	75-84
25-34	55-64	85 or over
35-44	65-74	

**16. How many adults and children live in your household?**

[DROP DOWNS FROM 1 to 20]

Number of adults including yourself

Number of children (under 18)

**17. Considering all sources (salary, bonuses, investment income, etc.), approximately what was your household's total income – before taxes – in 2015? Note: "Prefer not to answer" is one of your options.**

[DROP DOWN]

Less than \$25,000

\$75,000 - \$99,999

\$200,000 - \$299,999

\$25,000 - \$49,999

\$100,000 - \$149,999

More than \$300,000

\$50,000 - \$74,999

\$150,000 - \$199,999

Prefer to not answer

**18. If you would like to learn more about Glacial Hills, including upcoming events, please provide a name, telephone and email address.**

Name: [TEXT BOX]

Telephone Number: [TEXT BOX]

Email Address: [TEXT BOX]

**That's it! Thank you very much again for your participation.**