

Biking Barriers in Ithaca & Tompkins County

A review of local surveys and reports

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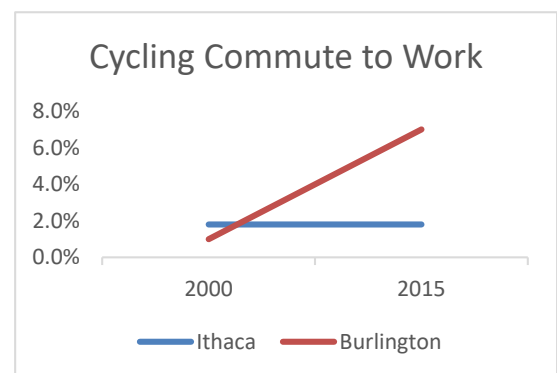
I. Executive Summary

This report reviews eight biking surveys and studies to better understand the barriers to biking faced by people in the Ithaca area, especially for those who are occasional or interested riders. The key barrier that emerged from this review was related to safety: biking in traffic in the absence of biking infrastructure was daunting for many people. Other reported biking barriers included access to bikes, weather, and terrain. Based on these barriers, we give some recommendations on biking innovations that may mitigate these obstacles and encourage residents to bike more.

II. Introduction

In the past three decades, there has been considerable growth in cycling in the United States. The total number of bike trips has more than tripled, and the percentage of people biking to work has almost doubled from 0.6% to 1% since 1971.¹ A handful of cities that have put focused attention on bicycling like Burlington, VT; Portland, OR; and Davis, CA have five or more times larger shares of bike commuters than the national average. While this increase may seem small, it suggests a shift in the transportation preferences of Americans from personal automobiles to alternative transportation methods. Bicycling is not only a sustainable and environmentally clean method of transportation, it can also encourage healthier lifestyles, decrease dependence on motor vehicles, ease parking shortages and traffic congestion, and even decrease future development costs.²

In 2000, Ithaca had one of the highest rates in cycling in New York, with 1.8% of people using their bike as a main mode of transportation for their commute. Since then, however, cycling rates have remained virtually unchanged. As noted earlier, this is in contrast with other cities which have seen significant increases in bike mode share. Burlington, Vermont—a comparable city in terms of size, terrain and climate—provides a sense of the potential for growth (see chart on right).³



Why aren't more Ithaca area residents biking? In this report, we have compiled various surveys done in the Ithaca area and nationally to try to answer this question. In particular, we have tried to gain insights

¹[Daziano & Motoaki \(2014\)](#)

²[People for Bikes \(2015\)](#)

³ American Community Survey 2015

into the barriers facing those people who are interested in using a bike for transportation, but are not yet doing so, as they would be the group that would contribute to increasing bike use in the future. A review and discussion of the results of these surveys are shown below. Finally, based on the review of surveys, we propose some recommendations that we believe will encourage Ithacans to bike more.

III. Methods

We looked at seven local surveys and studies that contained questions that asked participants about their biking habits and biking barriers in the Ithaca area. In this section, we describe each survey, highlighting its source, year, population studied, and key findings regarding biking barriers. We also include the results of a recent national survey that looked at similar issues, which helps place our findings in context. Before presenting the results of each survey in depth, we include below a summary chart of all surveys.

Survey/Study	Population	Key Findings
1. <u>Bike to Work & School, Way2Go</u> (2013)	240 – Event participants	-Key Priorities: More bike lanes (reported by 57.1%), safer roads (53.8%).
2. <u>Bike to Work & School, Way2Go</u> (2014)	190 – Event participants	-Key priorities: More bike lanes (reported by 64.2%), Less/slower traffic (41.1%), -Other significant barriers: Lack of bike storage (24.7%), hills (23.2%).
3. <u>Smart Trips, Way2Go</u> (2015)	94 – Downtown Ithaca residents	-Main concern for occasional bikers: safety, need (separated) bike lanes -Main concern for interested but bike-less people: terrain, bike access
4. <u>Get Your GreenBack Tompkins</u> (2014)	853 – Residents throughout Tompkins County	-32.5% of respondents who did not bike expressed a desire to do so. -Main barriers mentioned: lack of bike, safety, terrain, and weather.
5. <u>Safe Routes to School, City of Ithaca</u> (2014)	169 – Parents’ responses from 3 downtown elementary & middle schools	-Major concerns for parents considering their children walking/biking to school: Too much traffic (75%), and too fast traffic (70%). -Other barriers: unsafe intersections, unpleasant routes, distance from school
6. <u>Lighting the Way, Get Your GreenBack Tompkins</u> (2016)	91 – Low income, rural, recent immigrants, formerly incarcerated	-Main issues were lack of bike and distance. -67 of 91 (74%) did not own a bicycle. 17 of those (25%) said that they would ride if they had a bike. -Those who said they wouldn’t ride either lived more than 5 miles away from their work or didn’t work. -Other reported barriers included concerns about traffic, health, and not knowing how to bike.
7. <u>... Demand for Nonmotorized Transportation, Daziano & Motoaki</u> (2014)	599 – Cornell students, staff, and faculty.	-Key barriers: Traffic, slope, rain, snow --affect less experienced bikers more than more experienced bikers. -Having more biking facilities may encourage more people (especially less experienced cyclists) to bike.

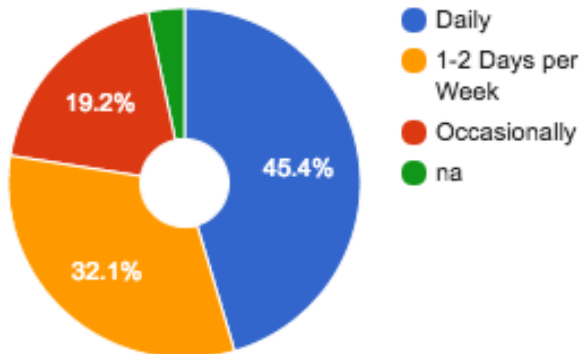
<p>8. <u>US Bicycling Benchmarking Report</u>, PeopleForBikes (2015)</p>	<p>9376 - American adults, responses weighted by age, gender, region, ethnicity, and income to make population representative of the United States.</p>	<p>-53% of American adults would like to bike, of which 35% do not own or have access to a bike. -Not having a bike is a major barrier, especially for low-income families. -About 60% of respondents across all demographics worry about getting hit by traffic when cycling in their area -64% of people who would like to bike more say that protected bike lanes would make a difference in their transportation choices.</p>
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IV: Review of Surveys & Studies

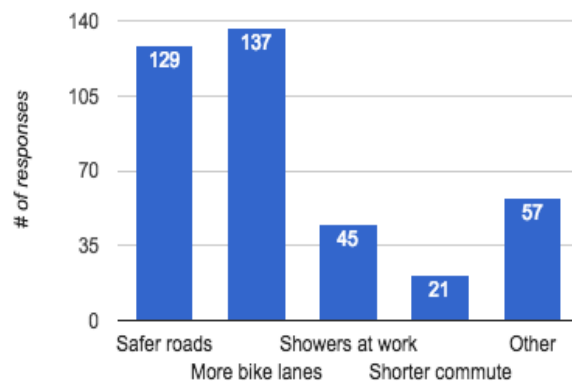
1. Bike to Work and School 2013

This brief survey of 240 unique respondents was conducted during the May 2013 National Bike to Work and School Day in Ithaca, NY. All respondents were participants in the event and included residents from the Ithaca area, as well as residents of more rural towns around Ithaca. All respondents likely had their own bikes and experience riding on the road, some on a daily basis. The survey contained both open-ended and multiple choice questions, and was designed to record participants' biking habits and their perceived barriers to biking more frequently. Open-ended questions included the location from which participants rode their bikes and if they had combined bicycling with another mode of transportation. The multiple-choice section asked how often a participant rode their bike, and what improvement in their biking experience would encourage them to ride their bike more (options provided: more bike lanes, safer roads, showers at work, shorter commute, and "other"). Relevant results from this survey are presented in the charts below:

How Often Do You Bike?

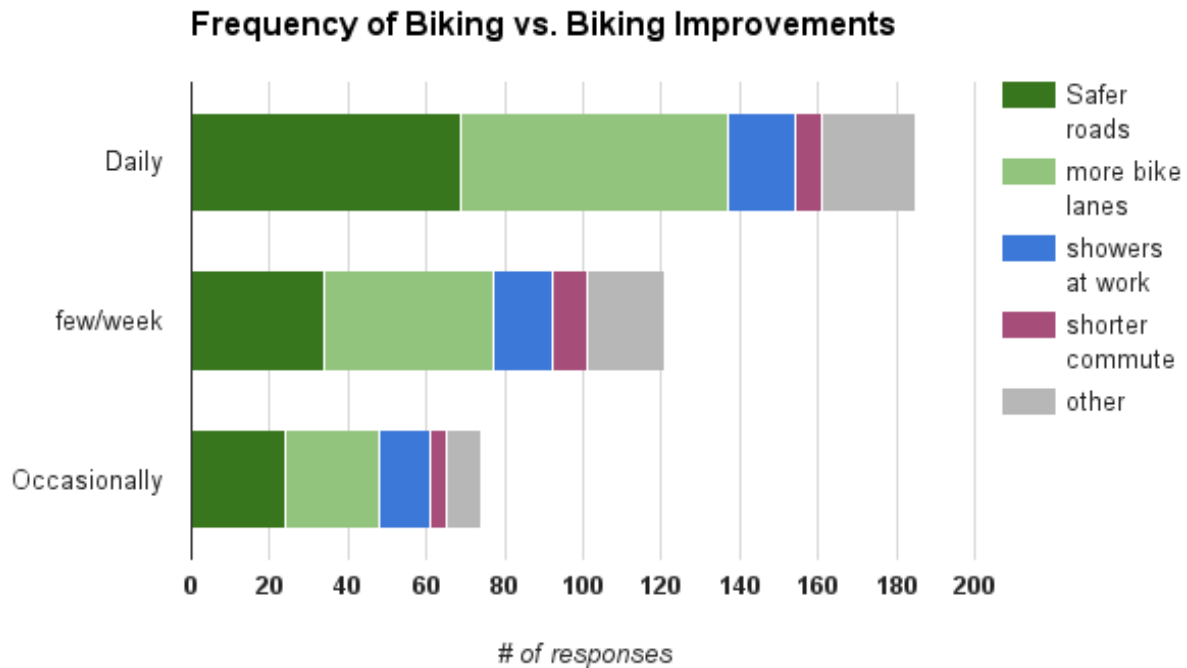


What Would Help You Bike More Often?



As can be seen in the charts above, safer roads (reported by 53.8% of respondents) and more bike lanes (57.1%) overall were the most commonly listed by participants as the top improvements that would encourage them to bike more frequently. These priorities did not change when looking at more and less

experienced cyclists, as can be seen in the chart below that looks at barriers for groups of people by biking frequency.

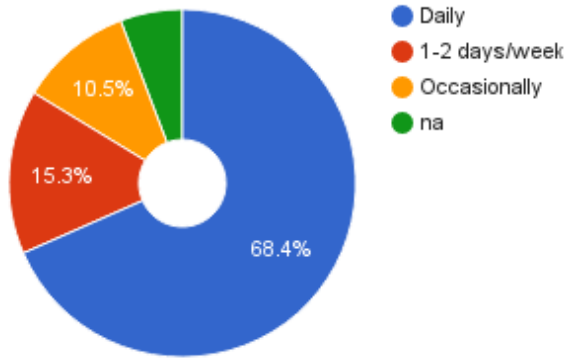


Common comments in the “other” section included the availability of bike storage, help going up and down the hills of Ithaca, and better weather.

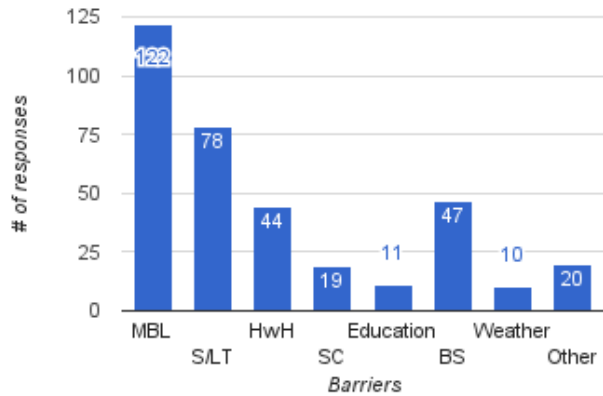
2. Bike to Work and School 2014

This survey of 190 unique respondents was conducted during the May 2014 National Bike to Work and School Day in Ithaca, NY. As with the 2013 event, most respondents were from the Ithaca area and some from surrounding towns, had their bikes and had experience riding on the road. The survey contained both open-ended and multiple choice questions, and was designed to record participants’ biking habits and their perceived barriers to biking more frequently. Open-ended questions included from which location participants rode their bikes, their commute time, and how often the participant rode their bike. For the purposes of analyzing this survey and comparing it to other surveys, participants who rode their bike 3 or more times per week are listed as riding “daily”, those who rode 1-2 times per week as “1-2 times/week”, those who biked less than 1-2 times/week as “occasionally”, and those who did not respond are listed as “na”. The multiple-choice section asked participants what improvement in their biking experience would encourage them to ride their bike more: more bike lanes (“MBL” in chart), less/slower traffic (“L/ST”), help with hills (“HwH”), shorter commute (“SC”), education, bike storage (“BS”), and “other”. Better weather was not a multiple-choice option, but is included separately in the charts below because it was mentioned several times in the “other” section. Relevant results from this survey are shown in the charts below:

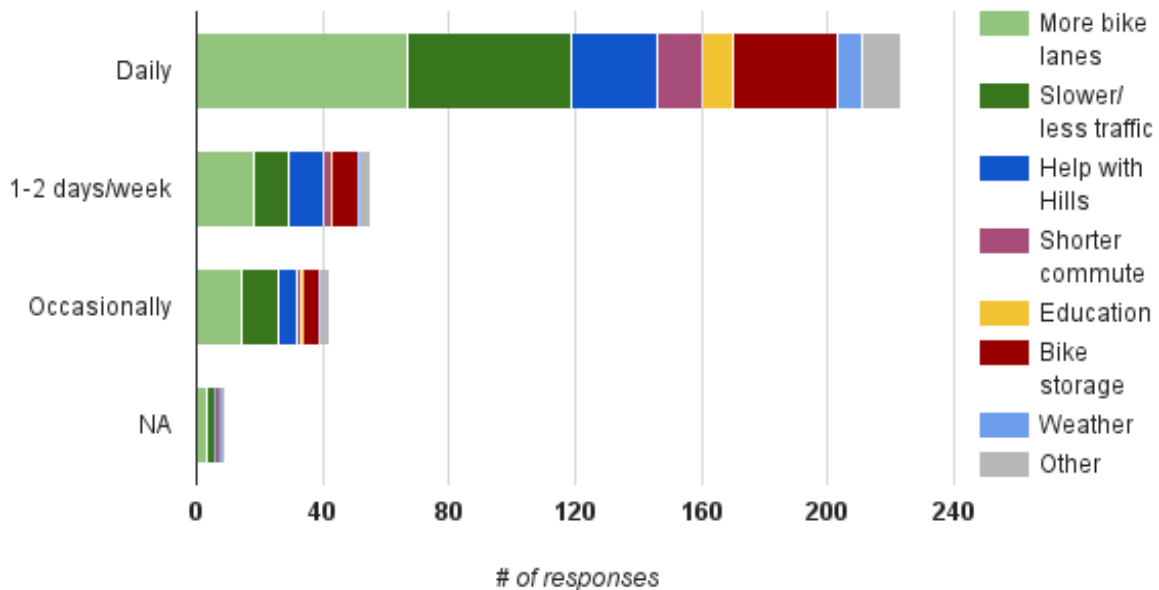
How Often Do You Bike?



What Would Help You Bike More Often?



Frequency of Biking vs. Barriers



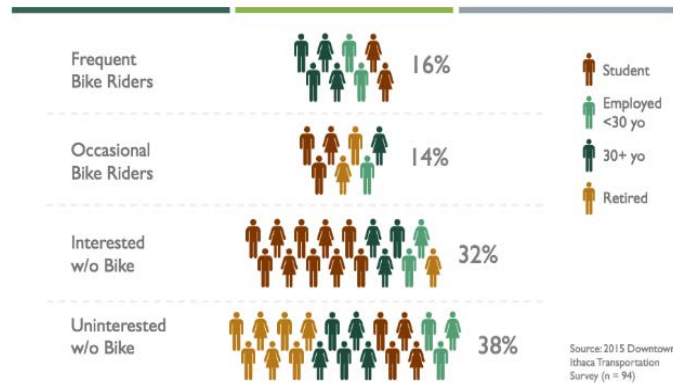
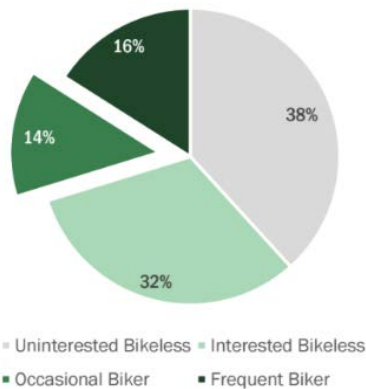
Overall, more bike lanes (reported by 64.2% of respondents) and slower/less traffic (41.1%) were the most commonly listed as the top improvements that would encourage respondents to bike more frequently. As seen in the chart above, this was true for frequent and occasional cyclists. Other highly selected options include bike storage and help with hills. To a lesser, yet significant extent, bike storage appears to be a larger barrier to biking for those who bike daily or a few times per week.

3. 2015 Downtown Ithaca Survey

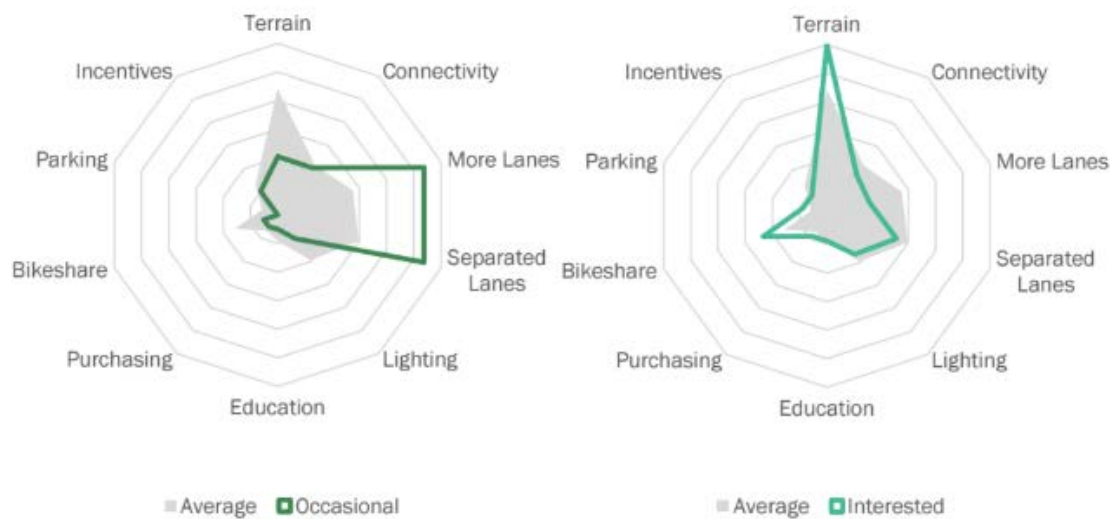
This survey was conducted in 2015 in downtown Ithaca by Way2Go of Cornell Cooperative Extension of Tompkins County as part of a NYSERDA-funded research project on alternatives to car ownership. The results of the portion of the survey related to biking are summarized below.

Ninety-four individuals were surveyed about their biking habits and potential improvements that would encourage them to bike more frequently. As shown in the charts below, respondents were categorized by biking frequency and opportunity—16% were frequent cyclists, 14% were occasional riders, 32% were interested in biking but did not own or have access to a bike, and 38% were neither interested nor owned a bike. Respondents were further categorized by demographic group (students, employed <30, employed >30, and retired)—about 60% of interested but bike-less individuals were students and about a 35% of uninterested and bike-less people were retired. Ranking of biking improvements were analyzed for occasional and interested groups, and compared to the average to highlight the specific challenges faced by each sub-group.

Biking State of Change of Respondents



Ranking of Biking Improvements

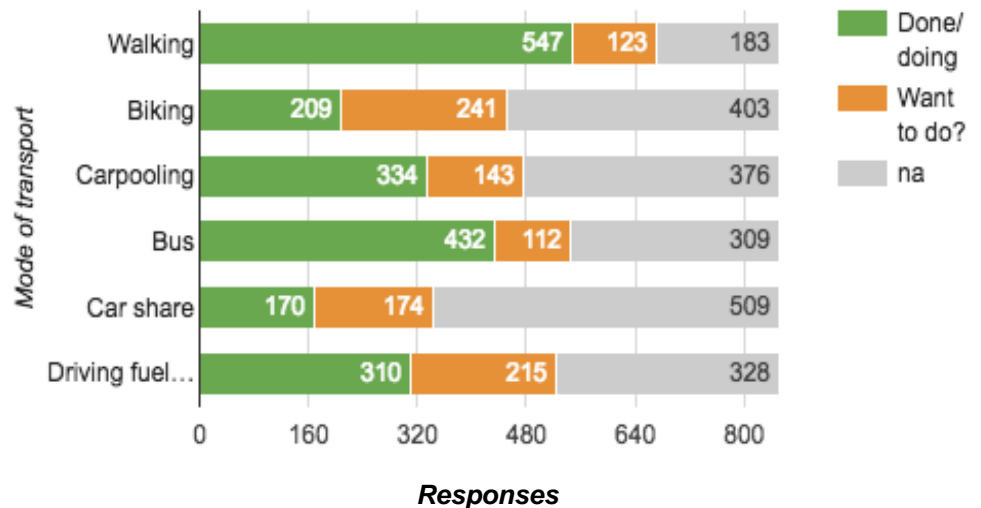


As shown above in the chart “Ranking of Biking Improvements”, the results indicate that on average (area shaded in grey), improvements in terrain and separated bike lanes rank as top priorities. Occasional bikers—represented by the dark green line on the left and who may most likely be encouraged to bike more by implementing biking improvements—reported that additional bike lanes and separated bike lanes would encourage them to bike more frequently. Interested but bike-less respondents—represented by the lighter green line on the right—mostly chose improvements in terrain and a bike share program as elements that would encourage them to bike more. A large portion of the interested and bike-less respondents were Cornell students, who face a steep hill to get to campus, which may have skewed “terrain” to be such a popular response.

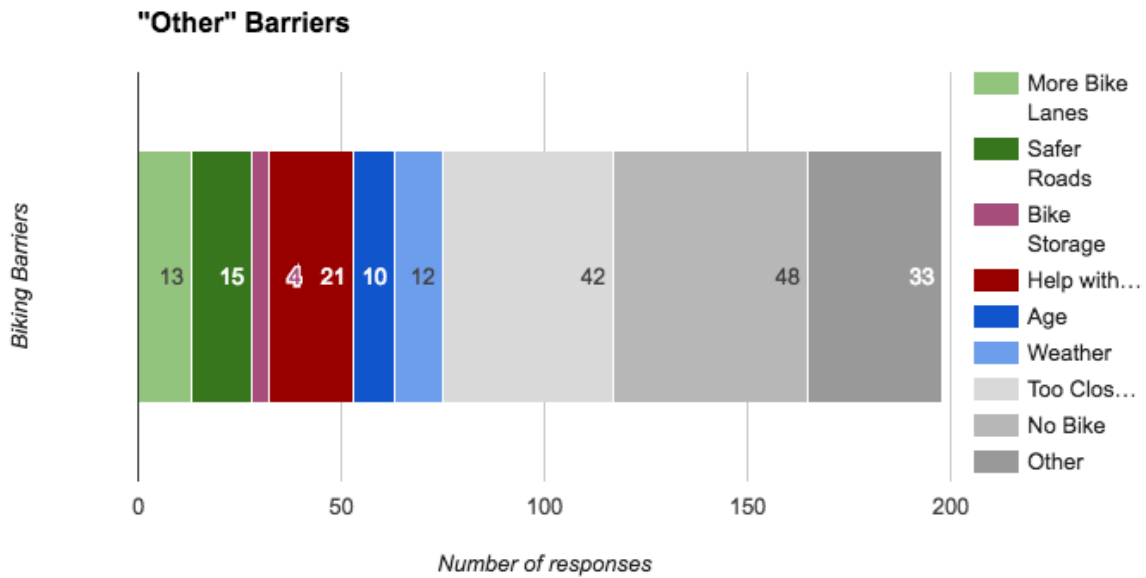
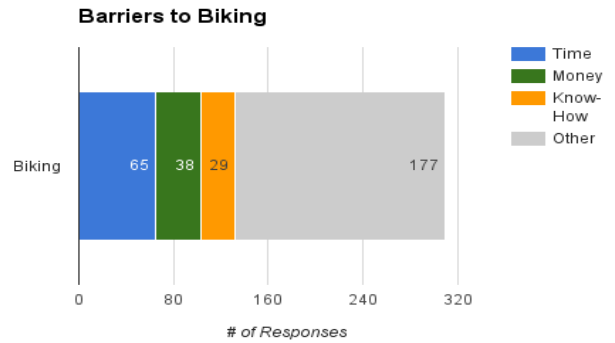
4. 2014 Get Your GreenBack Survey

This survey of 853 unique respondents was conducted one Saturday in October 2014 by about 200 volunteers in 15 different locations throughout Tompkins County, including pedestrians in urban and village centers, shopping centers, and parks. 69.2% of respondents were from Tompkins County and 30.8% were from outside Tompkins County. The survey asked about over a dozen pro-environmental behaviors, of which biking was one. For each behavior, respondents were asked whether they do it/have done it already, would like to, or other. For barriers for each of the pro-environmental behaviors, respondents were given three multiple-choice options (time, money, and know-how), in addition to an “other” comment section.

As shown in the chart to the right, while biking for transportation had one of the smallest shares of people doing it currently (24.5% of total respondents), it garnered the largest share of people who expressed interest in doing so (28.3%)—more than any other mode of transportation provided on the survey (walk, carpool, bus, car share, and driving fuel efficient vehicle).

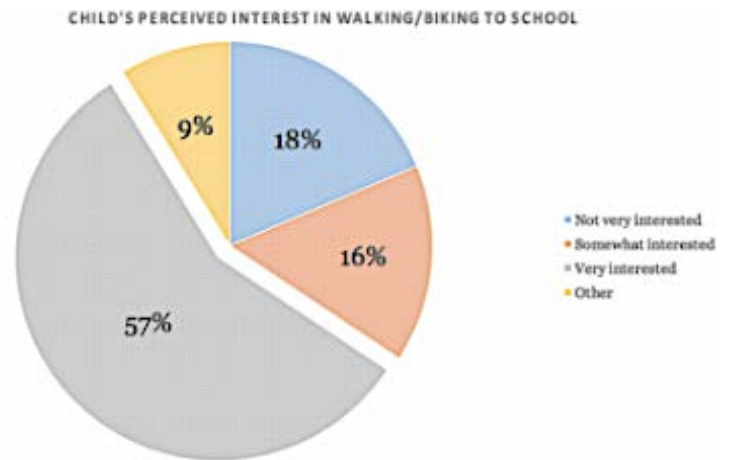


Moreover, as shown in the “Barriers to Biking” chart to the right, of the 309 people who responded to the barrier survey question there were only 132 responses to the multiple-choice barriers to biking provided; of those, “time” was the most popular choice. As shown in the “Other’ Barriers” chart below, the remaining 177 people selected “other” and described a variety of other challenges they faced that discouraged them from biking more frequently. Some of these more popular “other” answers include not having a bike (48), being too close/far from their destination to ride (42), safety (more bike lanes, safer roads [28]), and hills (21).

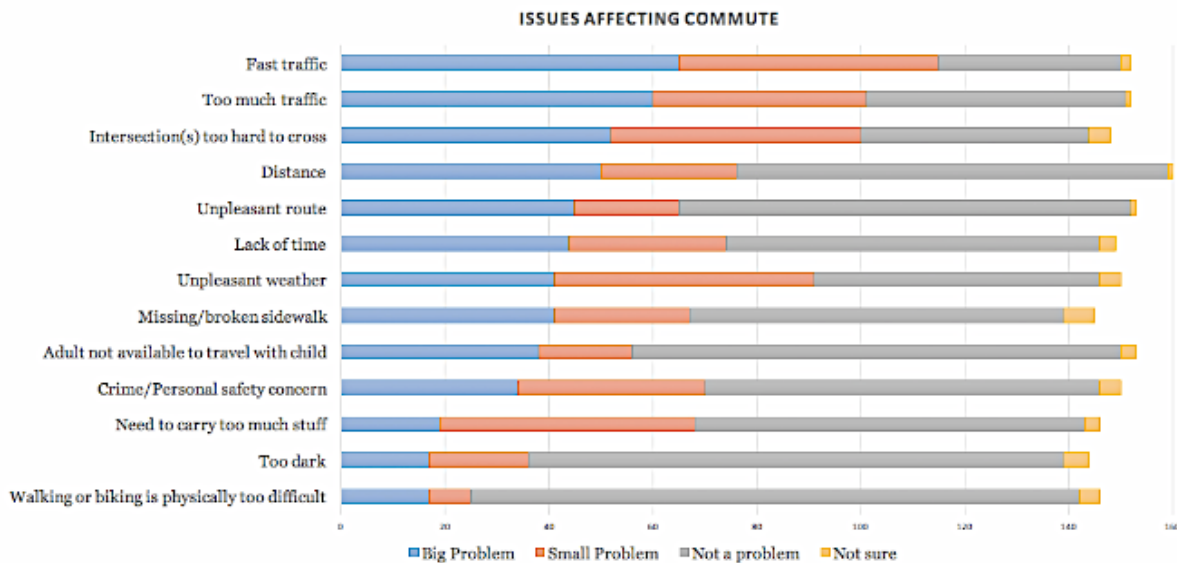


5. Safe Routes to School

The City of Ithaca received a federal Safe Routes to School grant to fund infrastructure improvements to improve the safety of biking and walking routes for three downtown public schools: Boynton Middle School, Beverly J. Martin Elementary School, and Fall Creek Elementary School, and to encourage families to use these modes of transportation to school. In June 2014, to learn more about barriers that might prevent students from walking or biking to school, surveys were given to the parents of students in these three schools. A total of 169 responses were received. The survey asked questions about demographics, the neighborhood in which they lived, distance from school, current transportation habits, parents' opinions on the child's ability to walk/bike to school, the child's interest in walking/biking to school, and barriers to walking/biking to school. As can be seen in the chart to the right, 74% parents perceive that their child is very or somewhat interested in walking or biking to school.



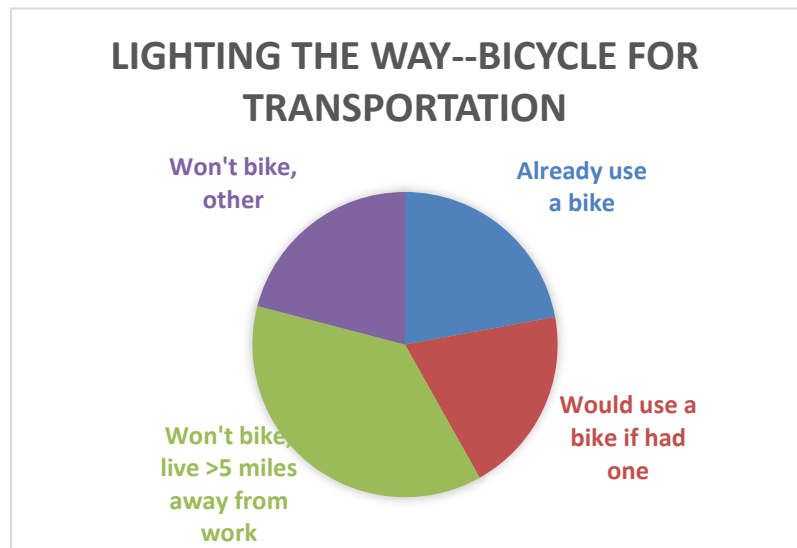
Currently, however, only about 46% of students walk or bike to school most of the time. The "Issues Affecting Commute" chart below shows the barriers that parents reported for their child walking/biking to school. The two barriers that were most reported overall and most reported as a "Big Problem" were fast traffic and too much traffic. Another major barrier reported, "Intersections too hard to cross", was also safety related.



6. Lighting the Way

This 2016 survey was conducted by Get Your GreenBack Tompkins to better understand the transportation needs of low-income people who do not have reliable and affordable modes of transportation in Ithaca. In this project, 91 participants were interviewed, with an equal focus on rural residents, recent immigrants, and/or formerly incarcerated individuals. While the survey asked about overall transportation issues (car, bus, etc.), a few questions asked specifically about biking habits and barriers.

19 respondents already used a bicycle for transportation, often to get to work. Of the 67 who did not have a bicycle, 17 said that they would use a bicycle if they had one. Of the 50 who would not use a bicycle for transportation, 32 individuals lived over 5 miles away from work. Other reasons that people mentioned that deter them from riding are health issues, not knowing how to ride, and fear of riding in heavy traffic.



7. Daziano & Motoaki Study

The survey in this academic study was conducted in January 2013 at Cornell University with Cornell students, faculty, and staff. Description of results and analysis of the survey were compiled by the Cornell professors Daziano and Motoaki in a study on factors that encourage skilled and unskilled bikers to bike more, and the differences in biking barriers for these two groups. Some of the details of the survey and key results of this study are summarized below.

The online survey was completed by 599 participants and contained 23 different questions. Participants were asked about their travel characteristics (such as amount of bicycle use, distance from campus, frequency of commute, normal mode of transport, frequency of exercise, access to bicycle, purpose of bicycling), obstacles to biking, opinions on improvements to biking (support, environmental, or facility factors), perception of biking, and demographics. The survey also contained choice problems, which gave participants two photographs of the same road on campus but with different scenarios (differing weather conditions, bike infrastructure, incline, and traffic conditions) and asked them to choose in which scenario (or neither) they would bike. An example of a choice problem is shown on the right. In this example, the picture to the left represents a steep slope, no bike lane, a 10-minute commute, and a heavy traffic level while the picture to the right represents a moderate slope, no bike lane, a 20-minute commute, and light traffic. In both scenarios the weather is 75 degrees and rainy. Respondents were asked to choose which scenario (or neither) they would prefer to bike in.



Some of the key results of this study were that, compared to more experienced cyclists, less experienced bikers are 3 times more affected by slope, 2 times more by the presence of traffic, 2.4 times more by rain, and 4 times more by snow. Also, they found that bike lanes were appreciated 1.6 times more by less experienced cyclists than more experienced cyclists. In terms of cycling infrastructure, the report’s findings were in line with findings from past research—that bike lanes may encourage an increase in the modal share of cycling, especially for those who bike infrequently or mostly recreationally.

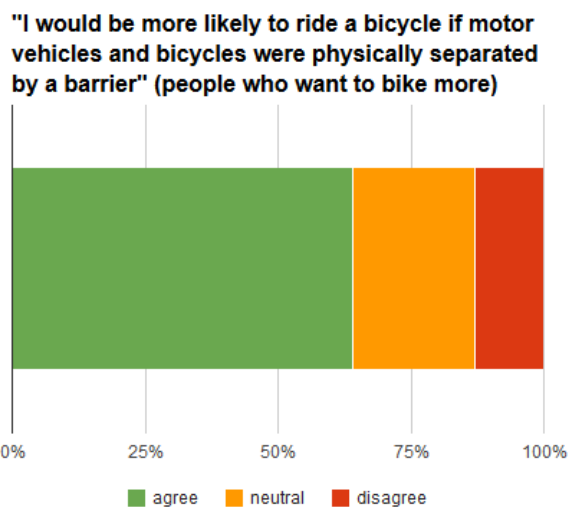
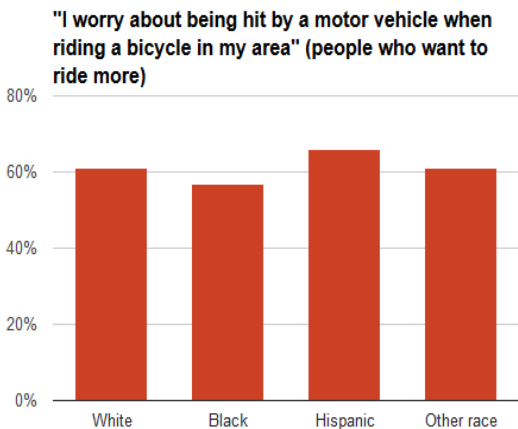
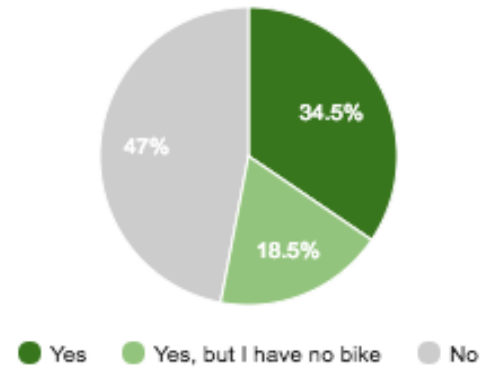
8. US Bicycling Participation Benchmarking Report

To put the findings from our local surveys in context, we include the results of a 2015 national survey with statistically significant populations and more robust survey methods. The organization People For Bikes hired a public research firm to conduct a national benchmark survey about Americans’ biking habits, opinions on biking, and their barriers to biking. 9,376 adult participants, anonymous and selected randomly, took an online survey regarding biking. Responses were filtered for integrity and weighted by age, gender, region, ethnicity, and income to make it representative of the US population.

Some of the key results of this survey included:

- 53% of Americans say that they would like to ride more; however, 35% of these interested people don't own or have access to a bike (see chart on right). This problem of not having a (or access to) at least one working bike per household is significantly higher for low income households--about 20% of households earning \$100k+/year did not have a bike, while about 40% of households earning less than \$20k/year did not have a bike. In addition, one-third of people who would like to bike more are dissatisfied with their existing bike infrastructure (bike lanes, paths, trails).
- Safety was a major concern of respondents—about 60% of every group (across genders, ethnicity, region) responded that they are worried about being hit by a motor vehicle while riding a bicycle in their area. Not surprisingly, 64% people who would like to bike more say that protected bike lanes would make a difference in their transportation choices.
- The fear of being personally targeted (mugged, etc.) is another major safety related barrier, especially for riders of color. White respondents are least likely to have this concern (38%), while Hispanic respondents are most likely (52%).

Would You Like to Bike More?



A few key charts summarizing these results are shown below:

V. Discussion

As we compiled and analyzed the surveys, we identified three key barriers to biking.

A. Safety—The BIG One

Based on the surveys we compiled, safety appears to be the biggest barrier to biking. Concern about safety was the most frequent concern, mentioned in every survey that we looked at, and in many cases, the top concern. Concern for safety was expressed in many of the surveys through interest in (separated) bike lanes, as well as worries about traffic and motor vehicle speed.

In the two surveys from Bike to Work and School, the biking improvements reported that would encourage participants to bike most frequently were more bike lanes and safer roads/slower traffic. While these surveys primarily engaged people who were predisposed to cycling, other surveys benefitted from more diverse respondents and showed similar results. The Downtown Ithaca Survey, for example, surveyed a sample of downtown Ithaca residents, and showed that for occasional bikers, safety remained a major concern. The 2014 GYGB survey also suggests safety is a major concern along with bike access and distance from destination. In the Safe Routes to School survey, safety was again the main barrier preventing parents from letting their children walk and bike to school, with parents choosing too much traffic and too fast traffic as the top two barriers. In the Lighting the Way survey, although it was not the main barrier mentioned, a fear of riding in traffic was mentioned in comments by some low-income respondents. In the Daziano & Motoaki Study, traffic was one of the four major barriers to biking for Cornell students/staff that the researchers identified. This concern with safety for bikers in Ithaca was in line with the national study done by PeopleForBikes, which found that around 60% of people worry about getting hit by traffic in their area when cycling, and that 64% of people who would like to bike more say that having protected bike lanes would make a difference in their daily transportation choices.

Clearly, safety is a major concern for both interested and even experienced cyclists in Ithaca and nationwide. Fortunately, unlike barriers such as weather, terrain, and distance, biking safety is an issue that can be remedied by policies that encourage cycling education and develop bicycle-friendly infrastructure.

B. Not Owning/Having Access to a Bicycle

Not owning or having access to a bike is another major barrier that prevents many people from biking. While many of the surveys done in Ithaca were completed by participants of biking events who already had a bicycle (e.g. Bike to Work and School 2013 & 2014) or didn't necessarily ask about bike ownership (Safe Routes to School, Daziano & Motoaki), there is evidence that lack of bike access is major barrier. For instance, in the 2015 Downtown Ithaca Survey, 32% of downtown Ithaca respondents were interested in biking, but had no bike. In the Get Your GreenBack 2014 report, more people said they would like to bike than any other form of transportation, yet the biggest barrier based on participants' comments was not having a bicycle. The Lighting the Way survey showed that 25% of bike-less respondents would use a bike if they had access to one, and most of those who were uninterested in using a bike lived more than 5 miles away from their work. The national PeopleForBikes survey showed similar results: while 53% of people would like to bike, 35% of those interested do not own a bicycle. The survey further showed that this issue of bicycle ownership is a larger problem for low-income families who may benefit the most from this form of affordable and healthy transportation.

C. Terrain & Weather

Ithaca is a hilly area with cold and snowy winters. Thus, it is not surprising that terrain and weather conditions were reported as barriers to biking in most of the surveys done in Ithaca, though often taking a secondary position next to concerns about safety. Terrain was a top concern of one population group in the Downtown Ithaca survey, where interested but bike-less people in the downtown Ithaca area mentioned terrain was their main barrier to biking. As we noted earlier, many of these were Cornell students, who face a significant hill for their commute. Interestingly, the Cornell survey showed that weather and terrain were much more significant barriers for inexperienced cyclists, which suggests that this barrier can be addressed indirectly, for example, through cyclist education.

It is important to note that these three biking barriers are interconnected. While not owning/having access to a bicycle is a major barrier, improving cycling safety (or the perception of this safety) through bike-friendly infrastructure may encourage more people to buy bikes. Infrastructure and safety are also connected to terrain and weather; bike-friendly roads and infrastructure could make cycling more comfortable for those who wish to ride in weather or terrain that is not ideal. Moreover, by encouraging young people to bike or walk to school by investing in safety-related infrastructure and education, a culture of cycling and walking could be fostered for generations to come.

VI. Recommendations & Conclusion

By compiling various surveys about biking behavior and barriers, we set out to better understand the concerns of Ithacans, and propose some policies to remedy these concerns. Consistent with national surveys, it was found that many local residents do wish to bike more but are hesitant because of safety issues, primarily because they don't feel safe cycling on roads with fast-moving and numerous motorized vehicles without adequate bike infrastructure. In addition, not owning a bike prevents significant numbers of people from riding, especially those with limited incomes. Finally, hills and weather were mentioned as obstacles by some. We have three specific recommendations to encourage Ithacans to bike more:

1. Comprehensive Bike Network

A comprehensive bicycle network should be built to enable residents from all neighborhoods to reach all major destinations comfortably, safely, and conveniently. The network would contain a mix of infrastructure relevant to each route, such as separated biking facilities for routes that have heavy vehicular traffic with relatively high speeds, and bike boulevards for low-traffic low-speed neighborhood streets. There are a number of resources to help design roads to meet the needs of all their users; NACTO (<http://nacto.org/>) is one of them.

The network's key principle is that *even tentative riders, young and old, can safely and conveniently navigate the entire city*. This implies that a tentative rider should be the design user. Routes connecting neighborhoods to schools should be given priority, so that kids can safely commute to school, and a strong culture of biking and walking to school can be cultivated for children. Routes to employment

centers such as downtown, Cornell, and the Southwest corridor along Meadow St/Route 13, should also receive priority, to facilitate travel to work for those who rely on bikes for transportation.

2. Free or affordable bikes

Programs that provide free or affordable bicycles to people who could use them, such as Recycle Ithaca's Bicycles (RIBs) should be supported as they provide low-income residents access to this affordable form of transportation.

3. Significant and Stable Funding

Stable funding streams should be established to help build and maintain bike infrastructure and programs to support cycling. Municipal transportation budgets should include line-item funding for bike-related transportation, at least in proportion to the number of residents using this infrastructure, if not in proportion to the goal for bike ridership that they would like to see.

Ithaca has a responsibility to provide safe, reliable, and accessible transportation options to all its residents. Ithacans want to bike more and Ithaca already has a culture of cycling (its 1.8% cycling rate is the highest in New York state). However, deficits in biking and safety infrastructure are preventing more people from biking. Many innovative and creative solutions to biking safety and infrastructure have already been implemented in cities across the United States and around the world; we know what to do. It is now up to Ithaca to invest in these solutions to make biking a real transportation option for all community members who would like to try this non-polluting, healthy, affordable, and fun mode of travel.