

# Buffalo CarShare: Two Years in Review

**A look at the non-profit organization's growth, membership, usage and impacts**

Final Report C-08-24

November 2011

Prepared for:



The NYS Energy Research and Development Authority & NYS Department of Transportation

Joseph Tario, Project Manager

Robert Ancar, Project Manager

Prepared by: Creighton Randall, Executive Director – Buffalo CarShare

Contributors: Adam Blair, BCS Co-founder and Research Assistant  
Ari Sahagun, WNY Americorps  
Thomas Wasko, Cornell University ILR School

## NOTICE

This report was prepared by Buffalo CarShare, an affiliate organization of the Wellness Institute of Greater Buffalo and Western NY, Inc. in the course of performing work contracted for and sponsored by the New York State Energy Research and Development Authority and the New York State Department of Transportation (hereafter the "Sponsors"). The opinions expressed in this report do not necessarily reflect those of the Sponsors or the State of New York, and reference to any specific product, service, process, or method does not constitute an implied or expressed recommendation or endorsement of it. Further, the Sponsors and the State of New York make no warranties or representations, expressed or implied, as to the fitness for particular purpose or merchantability of any product, apparatus, or service, or the usefulness, completeness, or accuracy of any processes, methods, or other information contained, described, disclosed, or referred to in this report. The Sponsors, the State of New York, and the contractor make no representation that the use of any product, apparatus, process, method, or other information will not infringe privately owned rights and will assume no liability for any loss, injury, or damage resulting from, or occurring in connection with, the use of information contained, described, disclosed, or referred to in this report.

## DISCLAIMER

This report was funded in part through grant(s) from the Federal Highway Administration, United States Department of Transportation, under the State Planning and Research Program, Section 505 of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the United States Department of Transportation, the Federal Highway Administration or the New York State Department of Transportation. This report does not constitute a standard, specification, regulation, product endorsement, or an endorsement of manufacturers.

1. Report No. <b>C-08-24</b>	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle <b>Buffalo CarShare: Two Years in Review</b> <b>A look at the organization's growth, membership, and Impacts</b>		5. Report Date <b>November 2011</b>	
		6. Performing Organization Code	
7. Author(s) <b>Creighton H. Randall</b>		8. Performing Organization Report No.	
9. Performing Organization Name and Address <b>Buffalo CarShare</b> <b>14 Allen St, Buffalo, NY 14202</b>		10. Work Unit No.	
		11. Contract or Grant No. <b>NYSERDA Contract No, 11100</b>	
12. Sponsoring Agency Name and Address <b>NYS Department of Transportation</b> <b>50 Wolf Road, Albany, New York 12232</b>		13. Type of Report and Period Covered <b>Final Report</b>	
		14. Sponsoring Agency Code	
15. Supplementary Notes <b>Project funded in part with funds from the Federal Highway Administration</b>			
16. Abstract <p>Buffalo CarShare (BCS) began operations in June 2009 with 4 vehicles and 30 pioneering members. In the two years since then, the organization has grown to over 400 members and 11 vehicles. Members have made 8,600 trips totaling 32,000 hours and 241,000 miles through August 2011. Based on results of two member surveys conducted in the spring of 2010 and summer of 2011, we have estimated that 109 private cars have been taken off the road, and that our members have avoided using 24,359 gallons of gas since becoming members, have travelled nearly 500,000 less vehicle miles.</p> <p>Unique to the industry, BCS has achieved these environmental accomplishments while serving a diverse membership base in terms of age, race, and income. Nearly two thirds of our members represent households earning \$35,000 or less, and half report incomes of less than \$25,000. Over the coming years, we hope to continue to broaden our membership base and publicize the results of these efforts so that our success may someday be replicated in Upstate NY cities and other struggling regions.</p>			
17. Key Words Car Sharing, Buffalo CarShare, Transit, Livability, Alternative Transportation, Access, Mobility, Transportation Equity		18. Distribution Statement <b>No Restrictions</b>	
19. Security Classif. (of this report) <b>Unclassified</b>	20. Security Classif. (of this page) <b>Unclassified</b>	21. No. of Pages <b>33</b>	22. Price

## ABSTRACT

Buffalo CarShare (BCS) began operations in June 2009 with 4 vehicles and 30 pioneering members. In the two years since then, the organization has grown to over 400 members and 11 vehicles. Members have made 8,600 trips totaling 32,000 hours and 241,000 miles through August 2011. Based on results of two member surveys conducted in the spring of 2010 and summer of 2011, we have estimated that 109 private cars have been taken off the road, and that our members have avoided using 24,359 gallons of gas since becoming members, have travelled nearly 500,000 less vehicle miles.

Unique to the industry, BCS has achieved these environmental accomplishments while serving a diverse membership base in terms of age, race, and income. Nearly two thirds of our members represent households earning \$35,000 or less, and half report incomes of less than \$25,000. Over the coming years, we hope to continue to broaden our membership base and publicize the results of these efforts so that our success may someday be replicated in Upstate NY cities and other struggling regions.

## ACKNOWLEDGEMENTS

The Buffalo CarShare team would like to thank the New York State Energy Research and Development Authority, and New York State Department of Transportation for their support of this project. Project Managers Joseph Tario and Robert Ancar offered guidance, encouragement and praise for our efforts throughout the process of launching this business, and both continue to show interest in the continuation of our efforts beyond the startup stage. Philip Haberstro, the Executive Director of the Wellness Institute, has been our chief steward and mentor throughout our incubation as a non-profit social enterprise. More than anyone, Phil has supported our growth in every imaginable way, from guiding our staff growth and operational decisions to connecting us with opportunities and allies across the region.

Our growth to self-sufficiency would not be possible without the tireless work of our Director of Operations, Michael Galligano. Mike has provided critical insight, consistency, and persistence to all aspects of the organization.

Our founding Board of Advisors was there since the beginning as well, offering wise advice and critical volunteer support; Stuart Angert, Justin Booth, Kelly Dixon, Daniel Hess, Razy Kased, Vincent Rondinelli, Carl Sadowski, Todd Salansky, Jim Simon, and Tim Trabold. Much credit for research efforts goes to Tom Wasko and Ari Sahagun, who worked to construct and administer the survey, and analyze results. Thanks also to Adam Blair in helping to guide our research and evaluation, and for communicating our results with peer organizations.

## TABLE OF CONTENTS

<b>Summary of Membership, Utilization, and Impacts</b> .....	<b>1</b>
Program Growth and Utilization .....	3
Types of Use .....	4
Member Satisfaction .....	5
On Becoming a Member .....	6
Behavior Change.....	7
Demographics .....	8
Environmental and Economic Impacts .....	9
<b>Completion of Project Tasks</b> .....	<b>10</b>
<b>Detailed Demographics, Utilization and Impacts Information</b> .....	<b>17</b>
Survey Methodology .....	18
Impacts Analysis .....	19
Geographic Representation of Membership and Use .....	21
Research Questions Posed.....	22
<b>New Markets Exploration</b> .....	<b>27</b>
Integration of Car Sharing with Other Modes.....	27
Applying the BCS Model in Other Cities.....	28
<b>Concluding Thoughts</b> .....	<b>29</b>

## LIST OF FIGURES

Figure 1: Change in Vehicle Ownership .....	1
Figure 2: Types of Use (see also fig. 5) .....	1
Figure 3: Member Income (see also fig. 9) .....	2
Figure 4: Growing in Member to Vehicle Ratio.....	3
Figure 5: Types of Use .....	4
Figure 6: Reasons given for joining .....	6
Figure 7: Vehicle ownership after becoming members.....	7
Figure 8: Use of transit to access vehicles .....	7
Figure 9: Members' Household Income .....	8
Figure 10: Growth in Membership .....	13
Figure 11: Member and vehicle locations .....	21
Figure 12: Change in driving after joining BCS.....	23

## Summary of Membership, Utilization, and Impacts

Buffalo CarShare (BCS) is proud to report our progress toward goals of social equity, environmental sustainability, and economic justice. Our members tell us that our service allows them to reduce their transportation costs while enjoying increased mobility. **Many of our 400 members rely on the service to access healthy food, medical care, and employment opportunities.**

Members walk, bike, and take transit more, and 34% report either giving up a vehicle or deciding not to buy one after becoming members. **That's over 100 cars we help to take off the road!**

- 61% of member households own no vehicle
- 59% have used public transit to get to a car, and 17% use it every time they reserve.
- 28% of members walk more than before joining BCS, and 25% use transit more.

Generally, although BCS does not radically change members' daily walking, bicycling, or transit routines, it adds flexibility and convenience to these options;

- 69% now combine errands into one trip,
- 67% report feeling more independent,

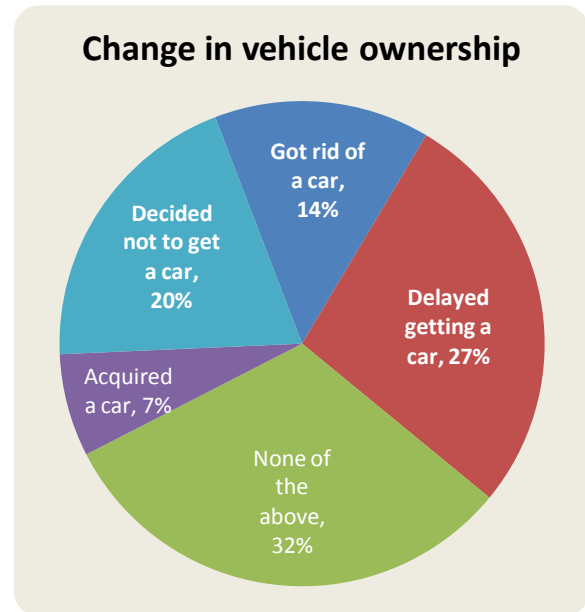


Figure 1: Change in Vehicle Ownership

We asked members what they used the service for, and how often. Below is a highlight of the answers:

- 75% of members use the service to access medical care
- 85% of members use the service to get to the grocery store
- 46% used it at least once to get to a job interview

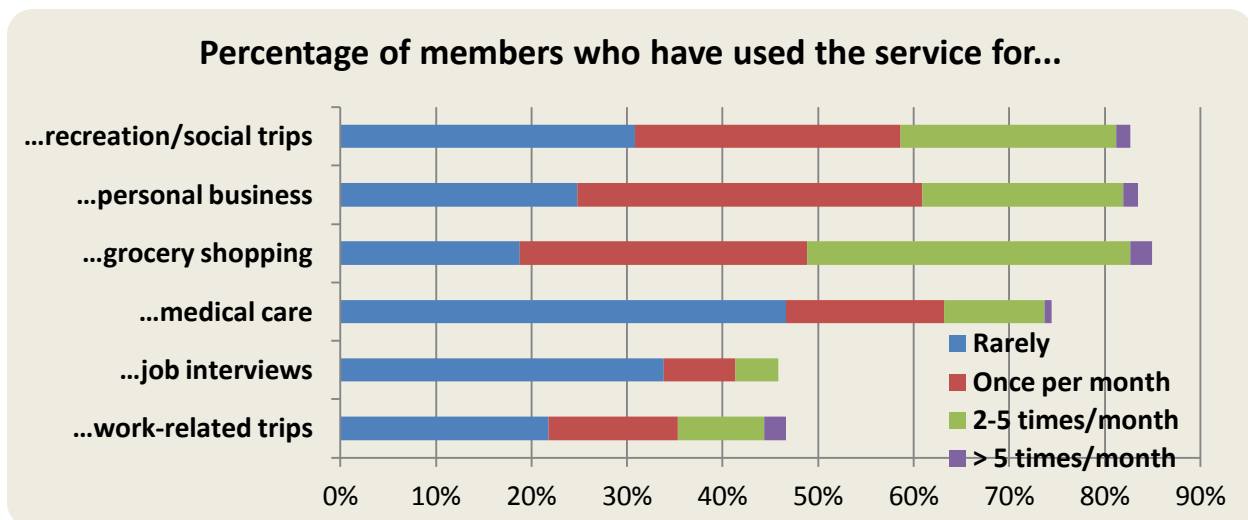


Figure 2: Types of Use (see also fig. 5)

Buffalo has unique challenges in terms of vehicle access; 31% of households in the City do not own a car. In many cases the costs to own and maintain even an older car are simply too much to bear. In some of the lowest-income urban neighborhoods, as many as 60% of households own no vehicle.

This presents a challenge; marketing car sharing as a means of added mobility and an option that is cheaper than a taxi and a back-up to the bus and rail network, rather than an alternative to ownership. BCS meets this challenge head on, and our membership reflects this:

- BCS increasingly serves low-to-moderate income households; **two-thirds of members report household incomes of less than \$35,000**. One in four member households earn less than \$15,000;
- This is in sharp contrast with much of the industry. A 2010 survey of U.S. car sharing organizations cites that 24% of members come from households earning \$40,000 or less, and only 8% of U.S. car sharing households earn less than \$20,000;
- Our membership is spans a broad age range; **28% of members are 50 or older**, and 27% are under 30;
- Members’ racial diversity mirrors the neighborhoods where cars are located. **68% of identify as White/Caucasian, 22% as Black/African-American, 8% as Hispanic.**

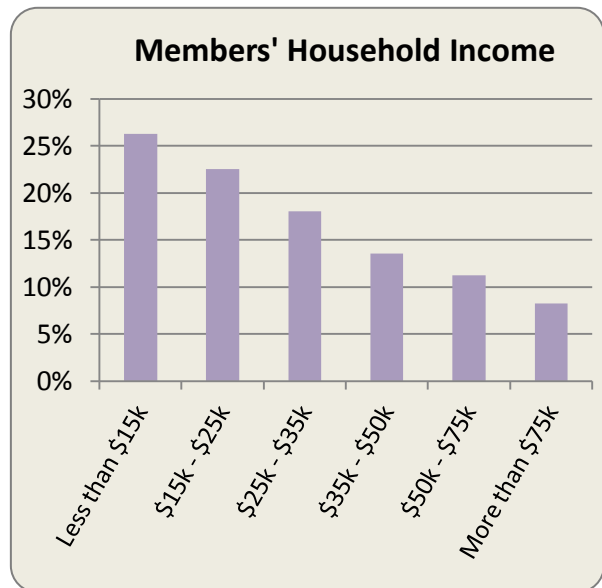


Figure 3: BCS Member Income (see also fig. 9)

Borrowing methods from our peers at PhillyCarShare, we’ve estimated the impacts of our first 2 years:

- **Our members have taken 109 cars off the road since joining, relying on our service instead,**
- Members drive nearly one-half million less miles than they would with their own vehicles,
- From these changes, **\$377,000 in members’ savings is being recycled in the local economy!**

Despite this track record, BCS is has much work yet to do. Lack of access to food, health care, and job opportunity is one of the chief challenges facing the City of Buffalo. With 400 members, BCS is only making a dent in the problem. **Many neighborhoods that are not yet served by car sharing – such as the East Side, Black Rock, and Lower West Side – are those in which mobility is most restricted.**

Buffalo CarShare is not alone in striving for a diverse membership. Non-profit operators from Chicago to San Francisco to Ithaca, NY are active in broadening their membership base, but there is much work to be done particularly from big players in the industry. **It is our hope that by continuing to build a stable business that serves a racially and economically diverse membership, we can help move the industry in a more inclusive direction.**

**By broadening the market in this way and proving success in a mid-size “rust belt” city like ours, we can be an example for the industry in its quest to grow from the niche to the mainstream.**

## Program Growth and Utilization

Buffalo CarShare has seen steady growth since its launch in June 2009. As of August 2011, the program serves over 400 members including individuals, families, businesses, and non-profit organizations. The service has grown from 4 vehicles at launch to 10 cars and a pickup truck in 2011.

Consistent with other members of other car sharing organizations, members tend to reduce their use of the program within a few months of joining (see below).

When the program launched, there was roughly an even split of members in the two membership levels, "Buffalo Roamer" and "Buffalo Settler". Settlers now outnumber Roamers two to one (see sidebar). This is a welcome development, as each car can serve more members.

If BCS continues to grow "organically", adding 3 to 5 cars in the next year, according to current trends **our fleet will accommodate 600-700 members through 2012**. Based on member feedback from this survey and member address and utilization data, areas currently under consideration for short-term growth include **Amherst St., Kensington-Bailey, and the Lower West Side**.

### Membership Type

<b>Individual</b>	<b>286</b>
"Settler" (low-use)	195
"Roamer" (high-use)	91
Family	18
Non-profit	22
Private Business	5

The typical Buffalo Settler member reserves once every month or two, for a few hours.

Buffalo Roamer members tend to use the service once a week or more.

The median case of a Roamer member takes 5 CarShare trips per month of 3.7 hours each.

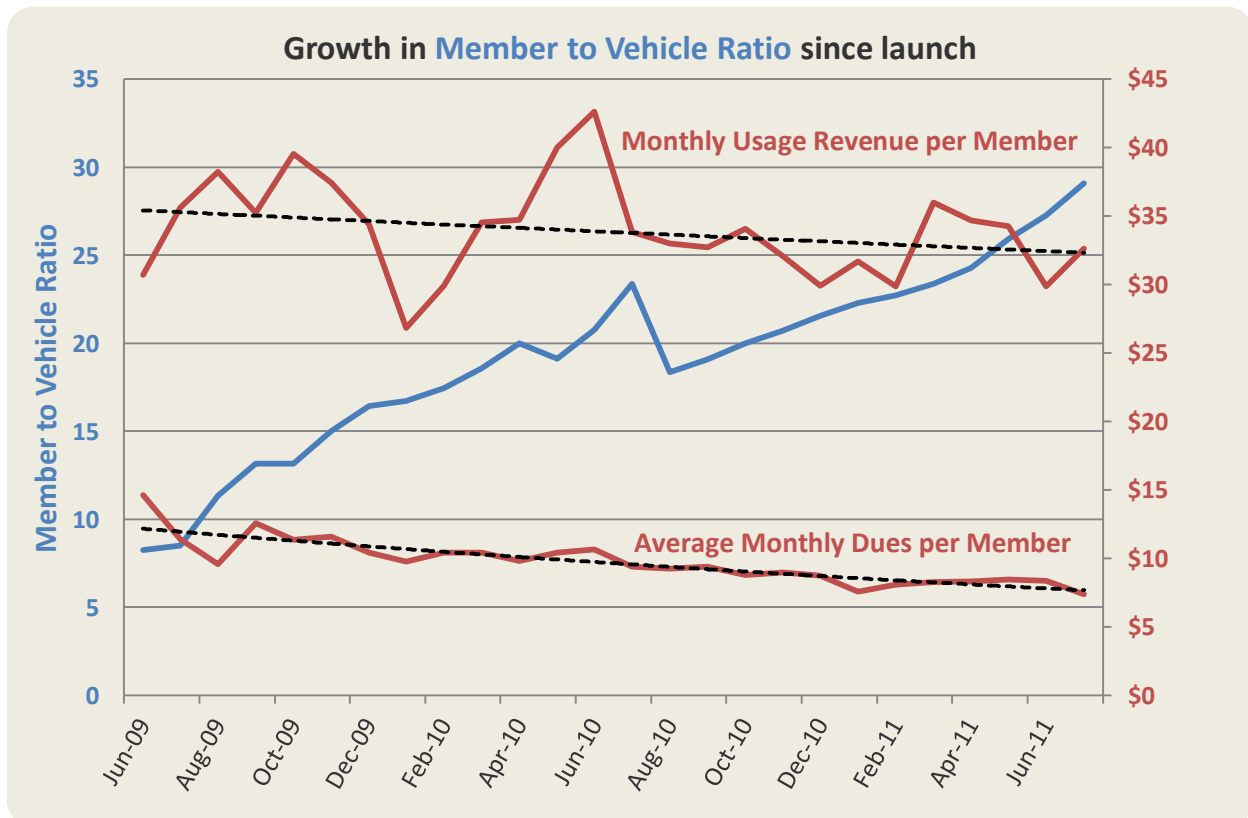
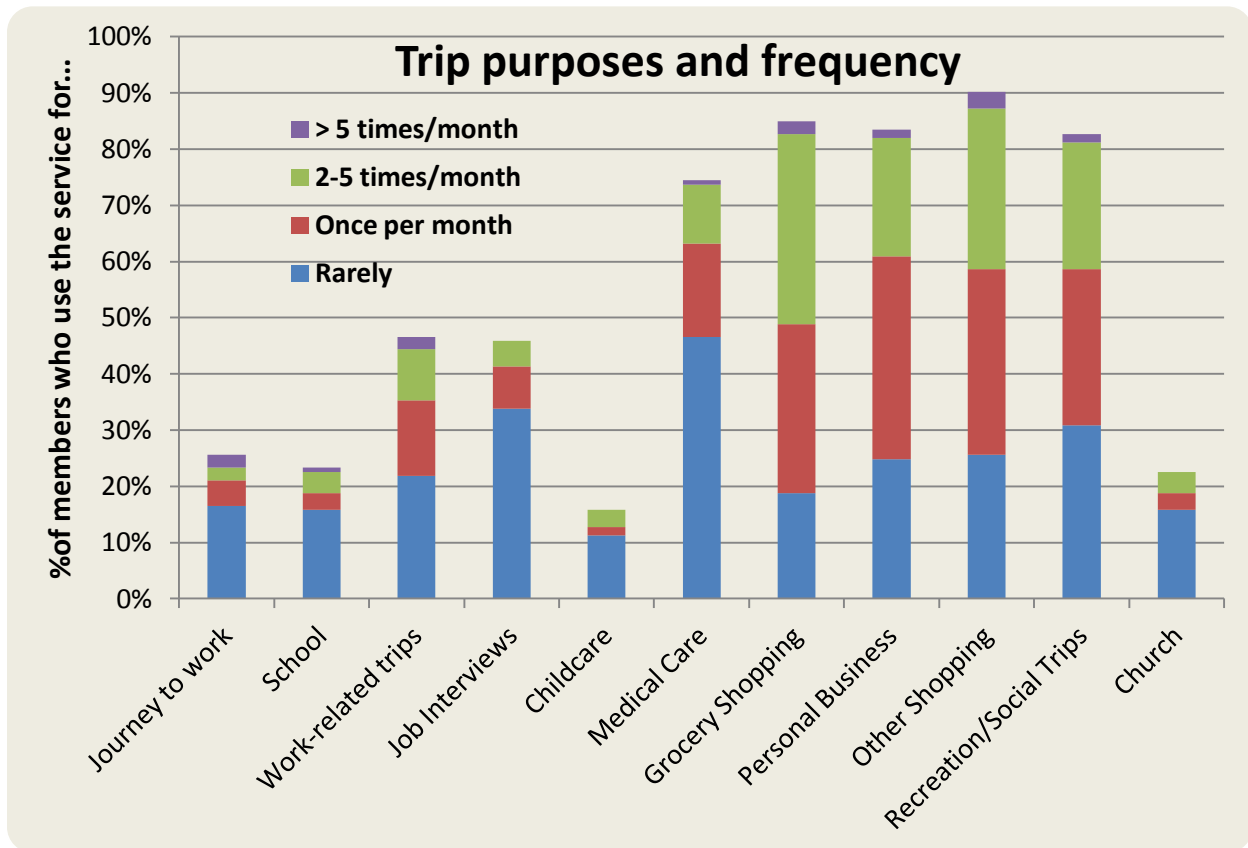


Figure 4: Growing in Member to Vehicle Ratio



## Types of Use

Figure 5: Types of Use



Buffalo CarShare members use the service for a variety of reasons, but the most common trips are for shopping and personal errands. **The following patterns speak powerfully about how CarShare is used:**

- 75% of members use the service to access medical care, and 30% of members rely on the service to access frequent care (at least once per month);
- 85% of members use the service to get to the grocery store, and more than a third do so at least twice per month. Similar patterns are seen for other shopping and “personal business” trips;
- 47% of members have used the service for work-related trips, and 46% used it at least once to get to a job interview. For one in five members, it even offers direct access to work occasionally;
- Over 80% have used the service for recreation or social trips.

**CarShare trips are rarely used for people to go to work, school, and/or religious services** (results above show that less than 5% of members used the service more than once per month for any of these reasons). This indicates that, by and large, members do not use the cars for regularly scheduled commutes, but as a backup to their commuting patterns.

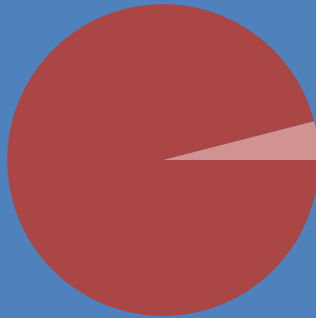
From a planning/policy perspective, this is encouraging, as it confirms that **car sharing and transit can work in complement, with transit covering commuter trips, and car sharing covering errands, shopping, and recreational trips.**

## Member Satisfaction

# 96%

of Buffalo CarShare members have recommended the service to others

99% were satisfied or very satisfied with the service



When asked to rate the service overall, BCS members replied the following ways:

- **65% were very satisfied**
- **34% were satisfied**
- **1% was unsatisfied**
- **none were very unsatisfied**

A vast majority of CarShare members report being “very satisfied” or “satisfied” across all indicators:

- Price per trip (25% very satisfied, 63% satisfied), Price of membership (30% v. satisfied, 63% satisfied)
- Cleanliness of cars (23% v. satisfied, 56% satisfied), Condition of cars (49% v. satisfied, 50% satisfied)
- Choice of vehicles (38% v. satisfied, 55% satisfied), availability of vehicles (36% v. satisfied, 50% satisfied)
- Location of vehicles (44% v. satisfied, 44% satisfied)
- Making reservations online (66% v. satisfied, 33% satisfied), By phone (54% v. satisfied, 42% satisfied)
- Contact with us by phone (67% very satisfied, 32% satisfied)

Many members offered suggestions for ways we could improve service:

*“How about a debit card type of bus pass for carshare members?”*

*“I am very pleased with Buffalo CarShare. Now we need bike sharing!”*

*“I feel embarrassed driving around in the car share with all of the advertising. I wish it were just a plain car so that I could drive around with some dignity.”*

Others offered encouragement of the work being done:

*“I love the community. I think I was driving around last weekend and I bumped into a few other CarShare drivers (as they were driving) and everyone enthusiastically greeted each other. It was really nice. If you didn't know many people in Buffalo, it made you feel like you were part of something.”*

*“Buffalo CarShare is a great idea, and experience - while I personally use it less now that I have a car on the road, when I didn't it was a life saver and I intend to maintain my membership as a sign of support (and in case my clunker breaks down again!)”*

*“I feel a lot better about not needing to buy a car (I was shopping for one when I decided to use you) and also not needing to get a ride from someone every time I'm in a situation where a car is necessary.”*

*“Since day one, y'all's attitude has remained the same. You show compassion for people from all backgrounds.”*

*“I have been able to take my children on special outings & to the grocery store...before car share, getting around via bus/cab was expensive or extremely time consuming.”*

## On Becoming a Member

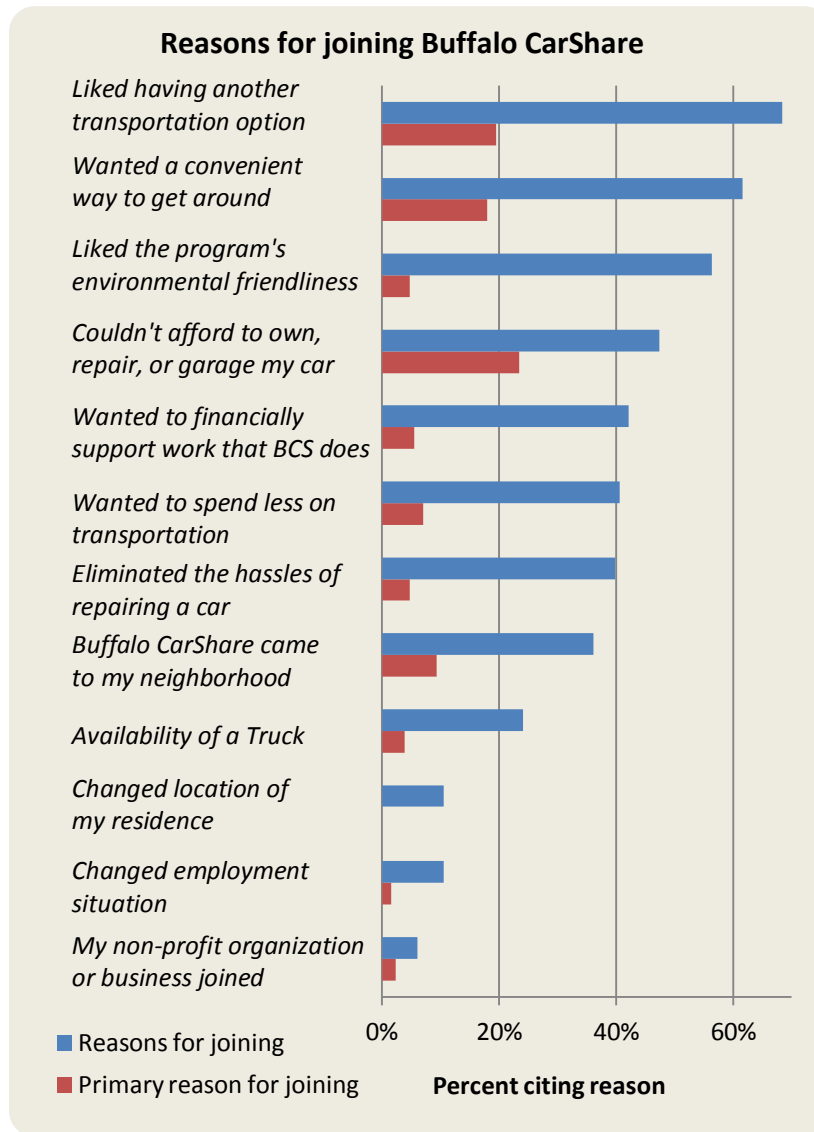


Figure 6: Reasons given for joining

As shown in the chart, the most popular reason for joining BCS was **“having another transportation option”**. 68% of the respondents chose this option (respondents could choose more than one option). The program’s mission and convenience also factored into members’ decision making.

We also asked what members’ **primary** reason for joining BCS was. The most frequent primary reason for joining BCS was **not being able to own, repair, or garage one’s car** with nearly a quarter of respondents choosing this as their primary reason.

The convenience and flexibility of car sharing in conjunction with transit and other options was also a primary reason for many members joining, but the mission and environmental impact of the service was not.<sup>1</sup>

Not surprisingly, most CarShare members live in households with no private vehicle. Only 10% of member households own two or more cars.

Vehicle Ownership	2010	2011
No Vehicle	60%	61%
One Vehicle	31%	29%
2+ Vehicles	9%	10%

These numbers are essentially unchanged from 2010, and are similar to national industry averages.

<sup>1</sup> 38% of members listed either “Liked having another transportation option” or “wanted a convenient way to get around” as their primary reason for joining Buffalo CarShare. Only 10% listed “I wanted to financially support the work that CarShare does” or “The program’s environmental friendliness” as their primary reason for joining (although 56% indicated that the environmental impacts of the program did factor into their decision to join).

## Behavior Change

14% of BCS members have gotten rid of cars, 20% have decided not to get a car, and 27% have postponed getting a car since joining.

By our math, BCS has helped to take over 100 cars off the road!

Notice the change in the chart at right – members were far more likely to go car free after BCS' second year of business.

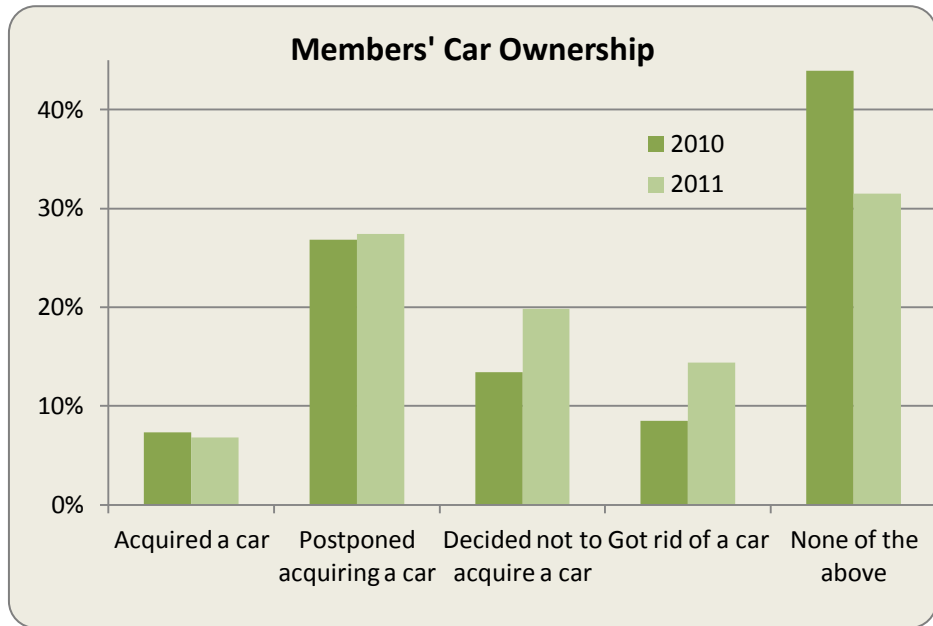


Figure 7: Vehicle ownership after becoming members

### Since joining Buffalo CarShare...

...29% of members walk more

...70% combine their errands into one trip

...25% use public transit more

...34% go to new places more often

...45% spend less money on transportation

...48% are able to travel more

...37% have reduced their reliance on automobiles

...67% feel more independent

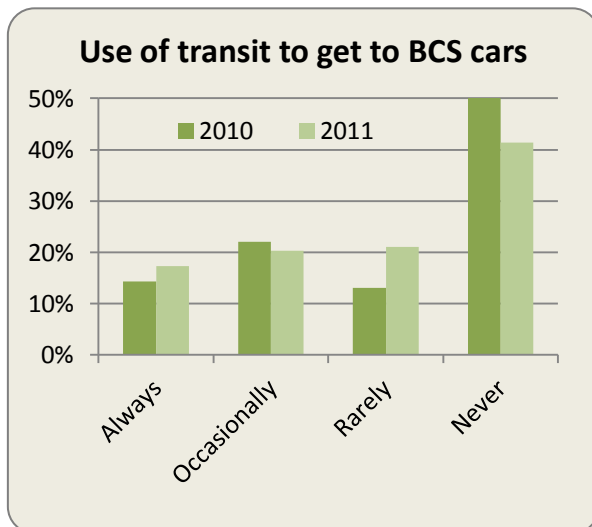


Figure 8: Use of transit to access vehicles

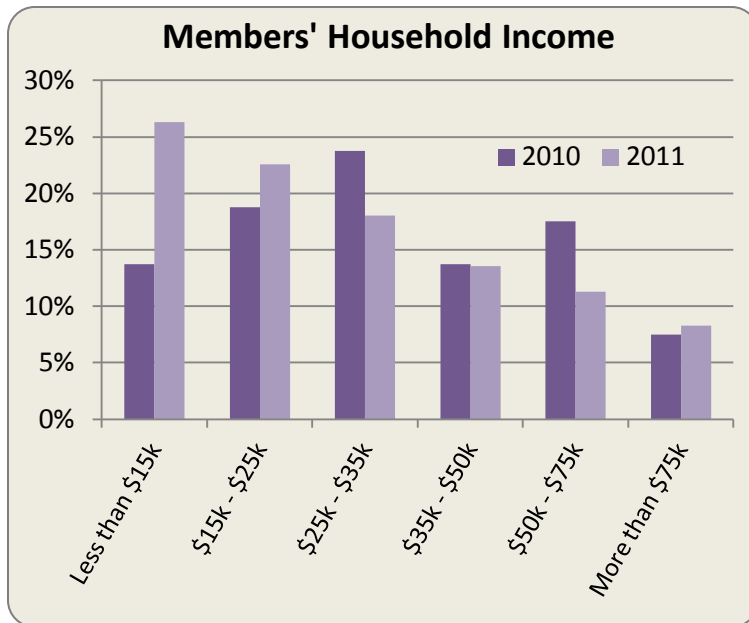
59% of CarShare members have used public transit to get to a BCS vehicle. This is up from 49% in 2010.

17% use NFTA every time they reserve.

The majority of members (53%) report that BCS has no significant impact on their transit routine. This is consistent with the types of use reported earlier.

Many members report that the program saves them time and headaches on various errands for which transit is not well suited, such as shopping in bulk. In particular, a moderate number of late night trips occur when public transit stops running.

## Demographics



Perhaps the most striking change in service between the first and second year is the **rapid growth of service to low-income households.**

**Half of BCS members now come from households earning \$25,000 or less.**

This may be partially attributable to service growth in West and East Side neighborhoods. In addition, recent marketing efforts have been focused on transit advertising, appealing primarily to transit riders themselves. This campaign may have also influenced a demographic shift.

Figure 9: Members' Household Income

Comparing the two years' surveys regarding the household/living situation of members:

- **College students make up only 13% of members.** This is lower than typical for car shares, and is an area of potential growth;
- Although single-person households are common (42% of members), **25% of members are in households w/children.**

BCS membership is becoming more racially diverse. This may also be attributable to growth of our service to new neighborhoods.

Survey responses for educational attainment are in stark contrast with statistics for the City of Buffalo – city-wide, 18% of residents have a Bachelor's or advanced degree, versus 63% of those responding to the survey. 21% percent of City residents, but only 1% of respondents, have less than a G.E.D.

We caution that the selection bias (discussed on page 18) may have resulted in a slight misrepresentation of our membership base.

Living Situation	2010	2011
Retired or semi-retired	14%	14%
Full-time College student	16%	13%
Lives Alone	44%	42%
Lives with Children	20%	25%
Is Disabled	-	15%
Racial Identity	2010	2011
White/Caucasian	77%	68%
Black/African-American	17%	22%
Asian	1%	2%
More than one race	3%	6%
Other answer	3%	3%
Educational Attainment	2010	2011
High School / GED or Less	5%	6%
Some College	18%	20%
Assoc. or Bachelors Degree	31%	38%
Post-Grad work / Adv. Degree	46%	36%
Age	2010	2011
Under 30	25%	27%
30 – 39	28%	29%
40 – 49	16%	16%
50+	31%	28%

## Environmental and Economic Impacts

Total impacts from the two years since were calculated by borrowing heavily from the methodology of PhillyCarShare's Impact Study, performed by the Econsult Corporation, which can be found at:

<http://www.phillycarshare.org/wp-content/uploads/2010/07/pcs-impact-study.pdf>

	Measurable	Estimated	Not quantified
Environmental Impacts	<p><b>Direct</b></p> <p>225,851 vehicle miles traveled (VMT) in BCS vehicles, or about 7,300 gallons of gas.</p> <p>About 2,400 gallons saved by use of BCS vehicles instead of less efficient cars that members would otherwise own.</p>	<p>109 cars off the road (members reporting either getting rid of a car or deciding not to buy one).</p> <p>489,500 less VMT from those members who gave up or decided not to buy vehicles.</p>	<p>Trips by foot or bike that would be auto trips w/out BCS. Of those surveyed, 29% report walking more, 6% walk less.</p> <p>Increased transit ridership from members' use of NFTA bus/rail to get to vehicles. 59% report using NFTA to get to a vehicle.</p> <p>Vehicle taken by car that would otherwise be taken by bus/rail.</p> <p>Trips by carless members that would not be taken w/out BCS.</p>
	<p><b>Indirect</b></p>	<p>Unknown: quantity of avoided Greenhouse Gas emissions from congestion reduction as a result of VMT reduction (above)</p>	<p>Shifts in transit use, and effects on the transit system. 25% of members surveyed report using bus/rail more, 22% use it less.</p> <p>Trips eliminated by "chaining". 70% of members report combining errands into a single trip more often since joining.</p>
Economic Impacts	<p><b>Direct</b></p> <p>\$441,000 spent on direct BCS expenses over two years</p> <p>\$28,234 paid to NYS in sales/car rental taxes from vehicle use.</p>	<p>\$262,800 induced economic spending in Western New York*</p> <p>\$126,270 induced economic spending on the rest of NYS*</p>	
	<p><b>Indirect</b></p>	<p>\$377,000 in savings to members who otherwise would use (and pay for) private vehicle</p> <p>\$260,000 in induced spending from the above funds not spent on private vehicles*</p> <p>\$314,200 in induced economic spending on New York State (including Western NY)**</p>	<p>Impact of BCS availability and price on shopping habits (i.e. local vs. online vs. "big box")</p>

**\*These figures rely on economic multipliers developed for the PhillyCarShare study, and are specific to the Philadelphia Metro region. As Buffalo CarShare grows, this analysis should be informed by a more accurate Input-Output analysis of impacts on the Buffalo-Niagara region and New York State.**

**\*\*This figure relies on 2009 Consumer Expenditure Data, also analyzed for the Philadelphia region. Again, a larger BCS study should attempt to also perform this analysis based on local conditions.**

## Completion of Project Tasks

Buffalo CarShare has hovered between two and four full time staff in its' first two years, having the opportunity to work with volunteers, interns, and students from a variety of colleges, universities, and agencies such as Americorps. This extra staff support has allowed BCS to critically review operations, grow the organization, and seek out promising partnerships. The fruits of these efforts are detailed here.

## Project Management

The tasks related to project launch and capital investment were:

Project Facilities – Since launch, Buffalo CarShare has rented shared office space in the city's Allentown neighborhood. The sharing of not only rent, but phone, internet and other utilities has helped keep overhead to a minimum. In addition, **a storefront location in a busy neighborhood has also attracted many drop-in visitors – as many as one third of members make their first contact with us in person.**



Vehicles – The first four vehicles were acquired from Northtown Automotive in early May 2009, with the first day of use being June 3<sup>rd</sup>. As these four (4) vehicles (three Toyota Yaris's and one Corolla) entered into service, each was swapped out to have the BCS logo applied (or "wrapped") on the exterior of the car.

At the end of June, BCS purchased three (3) additional Toyota Yaris's from West Herr Automotive Group. These vehicles went into service in mid-July 2009.

In 2010, BCS received a grant from the Community Foundation for Greater Buffalo to purchase a Ford F-150 pickup truck. Also in 2010, BCS purchased three additional vehicles including a small minivan and a hybrid Toyota Prius, bring the fleet total to 11 vehicles.

Parking – As vehicles were added, BCS leased parking spaces through individual lease agreements with a variety of lot owners, including churches, small businesses, and apartment complexes. The locations of the eleven vehicles are shown in the graphic on the opposite page.

Subcontracts – Software and Hardware – BCS has contracted with Metavera Solutions of Toronto, Ontario to provide an all-purpose software platform called Autovera. Autovera, which is employed by many of the smaller car sharing organizations, features fleet and member management functions as well as billing / account maintenance. The in-vehicle hardware, which communicates with the software and members' personalized electronic "keyfobs", is provided by Opencar Networks from San Fransisco.



Insurance – Philadelphia Insurance covers the BCS vehicles and drivers, with Porter and Curtis, LLC serving as the broker. Like many of the independent operators in the business, BCS provides a high level of coverage to its drivers, including up to \$1 million in personal injury and liability protection. Drivers must maintain a valid and relatively clean driving record, as all members are covered on this policy for use of the shared vehicles. Drivers under 21 must carry supplemental coverage.

## **Organizational Development**

Business Plan Development – BCS drafted and refined a business plan prior to launch. This plan was critical to the conversations with both area banks and auto dealerships in terms of extending lines of credit. With the start of operations, this plan was amended several times to reflect the realities of the marketplace and a more conservative rate of business growth was adopted

Board Development and Legal Structure – A Board of Advisors oversees the growth and direction of BCS, and the organization officially operates under the auspices of the Wellness Institute of Greater Buffalo, a 501(c)(3) non-for profit organization. Operating as a non-profit gives BCS access to grant opportunities, volunteer programs such as Americorps, and tax-exempt status on purchases. BCS has and continues to work towards a stand-alone organization with the current Advisors constituting a more formal Board of Directors. The most likely structure for this is a separate 501(c)(3) organization.

Staff Recruitment and Management – Creighton Randall assumed the role of Executive Director in March 2009, and Michael Galligano began the role of Director of Operations beginning shortly before launch, thus constituting the “core staff” for the first two years. Looking towards the fourth and fifth years of program, three (3) full-time staff or their equivalent should be able to adequately manage a program of 20 to 30 cars serving 1000 or more members. Not unlike many of the other small car sharing organizations, BCS will likely see a division of staff duties as follows:

### **Executive Director**

- Coordination with partner orgs
- Sales exec. on large accounts
- Public relations
- Reporting to Board of Directors
- Budgeting and accounting
- New markets research
- Fundraising and grant writing

### **Operations Director**

- Member orientation
- Accounts receivable
- Tracking fleet growth and performance
- Oversight of member and fleet services
- Marketing and Ads

### **Fleet/Member Svc. Asst.**

- Cleaning, washing and inspection vehicles
- Assisting Op. Director with member service
- Routine marketing
- Assisting with office administrative duties

Through various volunteer opportunities both structured and unstructured, BCS has also been provided with over 3000 hours of service. This service has come in the form of the federal Americorps program, various service learning and extension programs with colleges and universities, and member volunteers.



## Data Collection and Benchmarking

Benchmarking on utilization has been conducted with relative ease throughout the course of the first two years due to the wealth of information on trip length, duration, and frequency. In addition to reports on utilization (included in all previous reports and summarized in the service provision section below) BCS invested considerable time in tracking members' impression of the service and the effect of the service on their routines related to transportation, spending, and health.

The two surveys were completed by over 200 members between the two years, with nearly a 50% response rate in 2010, and a 38% response rate in 2011. While the surveys were primarily available online, we did make an effort to reach out to members with limited internet access. This survey methodology is described in greater detail on page 18.

## Systems Installation

Installation of on-board computers from Opencar Networks was completed by an auto sound shop. These installations cost less than \$200 and require about two hours. The hardware rarely has issues with functionality, and staff can generally troubleshoot these issues as they arise.

## Membership Recruitment

Recruitment and marketing have been approached from a number of angles over the past two years, and where approaches have been intensified, such as through direct mail or transit advertising, there has been an increase of anywhere between 5 and 15 additional new members per month over baseline growth. This effect is illustrated in Figure 10 on the following page.

Baseline marketing efforts have included:

- **Refer-a-friend incentives** – word of mouth is the single most effective and consistent driver of new membership; 96% of members have recommended the service to others. While most would do this anyway, BCS offers \$20 in driving credit to any member whose referral generates a new membership. Over 30 members have taken advantage of this promotion.
- **Informational brochures** – staff will distribute these materials to businesses' storefronts and in public information areas, such as public libraries.
- **Various press coverage** – BCS has benefitted tremendously from publicity coming from a variety of media, including television and print news, radio, and neighborhood newsletters. Press releases, particularly around the time of launch, were effective in generating interest.



*Members have been the best form of promotion*

- **Ongoing print advertising** – In recent months, a barter agreement has been piloted with a local newsweekly, The Challenger, which caters to Buffalo’s African-American community. In exchange for advertising, BCS provides a vehicle for weekly distribution of newsletters.

More intensive marketing efforts have included:

- **Direct mail campaign** to addresses within ½ mile of BCS hubs (12,000 households)
- 3-month **transit advertising campaign** along the NFTA Metro Rail line. Four of our vehicles are directly adjacent to subway stops, and 2 others are within a 10-minute walk.
- Various promotion opportunities at **summer festivals** (mainly tabling)
- Sustained advertising in a student publication at Canisius College (a partner institution)



A Metro Rail advertising campaign showing the connection between car sharing and transit

To join, a new member goes through a two step process. They first fill out a form (available online and in our office) that is used to screen members for eligibility, which includes a driving record check. Second, the member completes an in-person orientation covering service, billing, and insurance details. The second step is critical particularly for individuals with limited internet access and financial sensitivities.

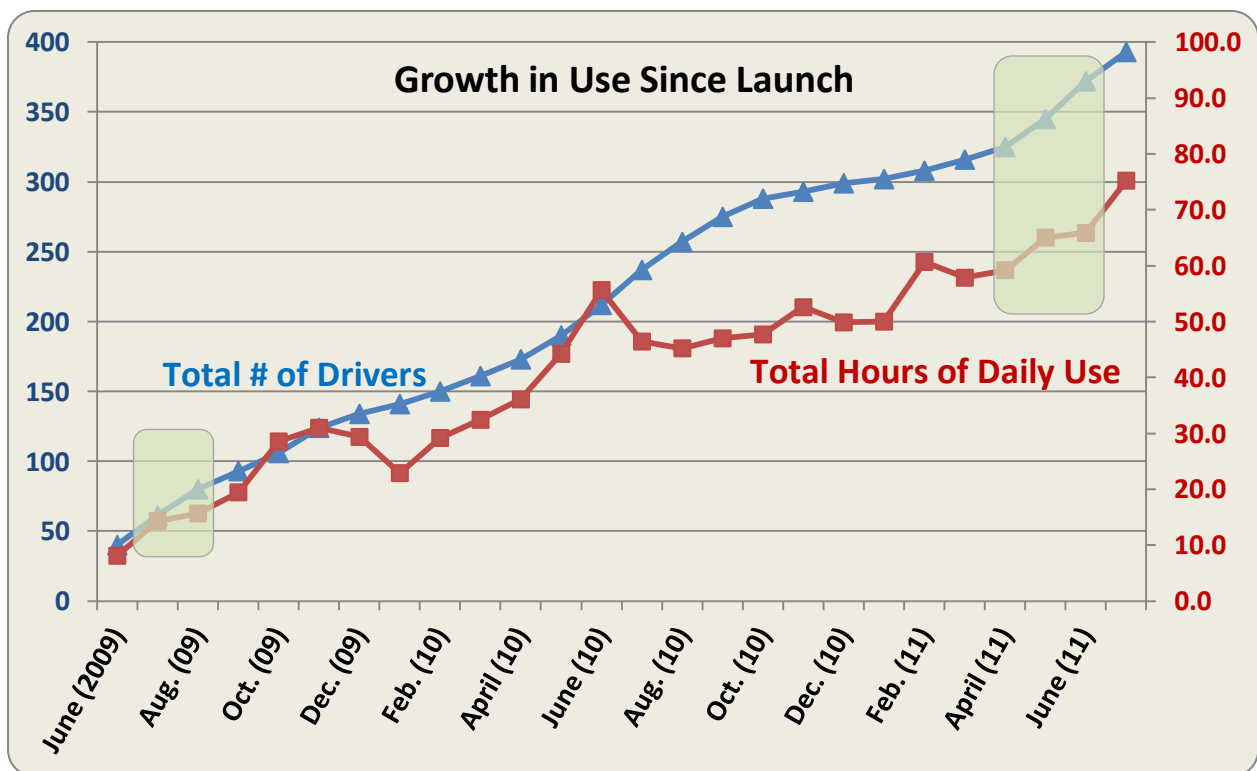


Figure 10: Growth in Membership

= Period of intensive marketing

## Service Provision

Staff workload related to service provision is very irregular but manageable with two staff members in the office during normal business hours. Vehicle maintenance and cleaning are scheduled, when possible, to coincide with the work schedules of part-time staff.

Mr. Randall and Mr. Galligano alternate “on-call” shifts for handling reservations, emergencies, and general interest inquiries. Emergencies calls go through a dedicated line, while non-emergencies are routed through the BCS office line to staff members’ private cell phones for call screening.

BCS staff have developed a routine of maintenance for each vehicle:

- Thorough cleaning twice per month on Mondays or Tuesdays following heavy weekend use.
- Washing on an as-needed basis, but generally once per month
- Oil changes and tire rotation every 4,000 to 5,000 miles (one car per week)
- Winter preparations in October including checking conditions of wiper blades, batteries, and tires, filling windshield wiper fluid, and putting ice scrapers in every vehicle

A complex billing protocol has been developed and refined to ensure that the program can be affordable to a wide range of members when they need it, while maintaining a viable business model and minimizing the need for third party collections. This basic tenets of this protocol are:

- Members must pay for their trip at the time of the reservation (not at the start of the trip)
- Members are charged automatically on the 12<sup>th</sup> of each month for any trip-related surcharges (i.e. late fees, extra mileage on trips) and for the current month’s membership fees.
- If a member cannot pay for their monthly bill, their account will be placed on hold until they contact the office to make payment arrangements.
- Members with high outstanding balances are not permitted to use the service until payment arrangements are at least partially satisfied.

## Partnership Development

Since launching service, Buffalo CarShare has gradually developed a number of key partnerships. A few of these partnerships are highlighted, with examples from the public, private, and non-profit sectors:

Vehicle access for Non-Profit Organizations (*Community Foundation for Greater Buffalo*) – As of August 2011, more than 25 non-profit organizations are BCS members, and primarily use the pickup truck for a variety of needs from tree plantings to moving furniture. These member organizations also use the minivan and cars from time-to-time, and many have expressed interest in a 12-passenger van for transporting staff, clients, and volunteers.

Purchase of the pickup truck a Ford F-150, was made possible by the Community Foundation of Greater

Buffalo in 2010. Through a partnership with the Community Foundation, BCS was able to initially offer free membership to non-profit organizations and a reduced rate for use of the truck. As the program took off and usage of the truck picked up among individual BCS members (over 120 of whom have used the truck in the past year), the non-profit discounts were able to be extended indefinitely.

BCS looks forward to continuing to work with the Community Foundation as we explore the need for van transport for non-profit organizations.



*Non-profit member Grassroots Gardens uses the truck*

Major area employment center (*Buffalo Niagara Medical Campus*) – The BNMC is home to several major employers and roughly 8,000 employees. This population will grow to over 12,000 employees in early 2012, so there is a significant need for a range of transportation options on campus. Beginning in 2010, the BNMC began working with BCS to develop a range of initiatives to meet this coming demand:

- **The Medical Campus hosts two BCS vehicles**, donating key parking spaces adjacent to transit facilities. BNMC frequently promotes BCS through various means to employees and visitors.
- **BNMC is working with the NFTA** (see below) to develop a reduced rate monthly transit pass for employees. The rollout of this plan may include a joint offer for BCS membership.
- **BNMC is leading a \$327,000 Community Transportation Program** funded by the Federal Transit Administration and set to kick off in early 2012. The program is a collaboration between the BNMC, BCS, and Green Options Buffalo and is aimed at facilitating and encouraging the use of a range of transportation modes by employees of the Medical Campus and residents of low-to-moderate income communities near the campus. The project promises to provide a major boost to the marketing efforts of BCS through door-to-door outreach and a range of other marketing techniques focused on neighborhoods that are either served or are soon to be served by BCS.
- **BCS has partnered with the BNMC to develop a business plan for a bicycle sharing system.** The Medical Campus has pledged to support the launch of this endeavor on the campus, and has offered BCS critical financial and technical assistance to develop the business plan.
- In collaboration with BCS, the NFTA, and Ecology and Environment, Inc., the BNMC has begun to explore piloting a vanpooling program with a dual purpose; transporting individuals to work at the BNMC from neighborhoods with inadequate transit options and service

Regional Transit Agency (Niagara Frontier Transportation Authority) – BCS continues to grow its collaboration with the NFTA on multiple levels. The transit agency has offered BCS a number of in-kind marketing opportunities on busses, rail, and in stations. BCS will work with to likewise market NFTA service through the BNMC Community Transportation Program.

In addition, as mentioned above, NFTA and BCS are investigating opportunities for car sharing vehicles to address gaps (both geographic and in terms of scheduling) in the current transit network. This includes continued expansion of BCS service along the Metro Rail line as well as exploration of vanpooling.

The NFTA and Buffalo CarShare share a focus on providing transportation options to low-income residents, and in particular low-wage workers. This shared focus will be the foundation for continued partnership between the two organizations.

Metropolitan Planning Organization (Greater Buffalo Niagara Regional Transportation Council) – The GBNRTC has been and continues to be a strong supporter of BCS, both in terms of promoting the service to public sector agencies and helping the organization to identify funding opportunities. Funding streams that BCS has considered or applied for include the *Jobs Access Reverse Commute (JARC)* and *New Freedom* programs from the Federal Transit Administration and the *Congestion Mitigation and Air Quality (CMAQ)* program of the Federal Highway Administration.

Active Transportation Advocates (Green Options Buffalo) – BCS has worked with Green Options Buffalo on a number of promotional and marketing projects, and will continue to do so in the future, with the JARC program representing a major opportunity.

BCS and Green Options Buffalo have also collaborated on the business planning and fundraising process for bicycle sharing, and will split operational responsibilities of running the prospective service.



*New bicycle racks are placed near BCS hubs*

## **Project Continuation**

Beginning in mid-2011, BCS has been running without core operating assistance, and this is sustainable at least in the short term with an 11-vehicle fleet. However, with a staff of only two full time employees, the workload can be overburdening at times, and a shoestring marketing budget is all that can be afforded. To be operating “comfortably”, growth to at least 15 vehicles is ideal, given the additional revenue that a larger fleet and membership base would attract.

As stated earlier, growth to a fleet of between 20 and 30 vehicles by the fifth year of service is a realistic goal given the neighborhoods in which interest for the service is showing up (see Figure 11 on page 21). Growth in fleet size will depend on the general trend of a growing member base. Assuming this, BCS will have the capacity to sustain itself indefinitely with a full time staff of three and a more robust marketing budget.

## Detailed Demographics, Utilization and Impacts Information

While Buffalo CarShare has hovered between two and four full time staff in its' first two years, much of the staff (and volunteer) support has been focused on research and analysis of the unique aspects of our service. We can therefore provide some of the detailed information from this research. Looking forward, there are two major areas of research that, in our opinion, bear further study:

- Integration with other modes of transportation, including transit, carpooling/vanpooling, and bicycle sharing
- Replication of the BCS model of recruiting broad-based membership in other small to mid-size cities in New York State and elsewhere.

We ask the reader to keep these two questions in mind while reading through the results on the following pages. The final section of this report, **New Markets Exploration**, suggests further actions that Buffalo CarShare may explore in either an advisory or active role.



## Survey Methodology

We have focused mainly on presenting results from the second annual member survey, but many of the questions are consistent with those of the first year survey. Second year results are compared to year one where appropriate. The survey was administered primarily online (via an email link), although a handful of responses were collected during office visits by members or over the phone.

**This survey had 134 respondents, representing more than a third of our members.** Despite a strong response, we believe there was a moderate amount of *selection bias* in the results. There are two readily identifiable sources of this bias:

- **Non-response** – Some of our members lack the internet access needed to complete the survey. According to our records, **14% of our members do not have an email address. Far more have only limited access.** Although we lack a way to measure the degree to which members' internet access is limited, **about 35% of reservations are made by phone** as opposed to online. We can reasonably assume that some of these calls come from members who can get online at work or the library, but lack access at home, thus limiting their ability to respond to the survey.
- **Voluntary response** – Our results show an interesting paradox: while half of respondents come from households making \$25,000 or less, 63% have a bachelor's degree or higher (although only 13% are full-time students). While it is certainly possible that our membership base is highly educated, we speculate that those members lacking college degrees were less likely to volunteer for this survey (in addition to lacking ability to respond as indicated above).

As a recent national report states, a persistent gap in internet access among households is attributable to differences in education levels, race, and income.<sup>2</sup> Without considerable staff time devoted to these efforts, this survey bias will continue, and we will not get a true representation of our membership base. We hope in future years to be able to build a more representative sampling of our members.

Despite this potential bias, the results that follow are in sharp contrast to the rest of the industry, particularly in terms of the race and household income of our members. This is all the more reason for Buffalo CarShare to seek resources to more completely administer our survey in the future.

---

<sup>2</sup> A October 2010 survey of internet access from the U.S. Department of Commerce, available at [http://www.ntia.doc.gov/files/ntia/publications/ntia\\_internet\\_use\\_report\\_february\\_2011.pdf](http://www.ntia.doc.gov/files/ntia/publications/ntia_internet_use_report_february_2011.pdf) indicates that despite the rapid growth in broadband availability, there are still major gaps in access along lines of race, income, education level, employment and age.

## Impacts Analysis

	2009 (Jun-Dec)	2010 (Full year)	2011 (Jan-Jul)	Total (26 months)
<b>Direct Economic Impacts</b>				
<i>Staff FTE</i>	1.5	2.5	2.25	
Direct Expenses	108,000	207,000	126,000	441,000
<i>Estimated multiplier (Regional)<sup>1</sup></i>	1.7	1.6	1.5	
Regional Induced Impact	75,600	124,200	63,000	262,800
<i>Est. multiplier (Statewide)<sup>2</sup></i>	1.2	1.25	1.3	
NYS Induced Impact (non-regional)	36,720	51,750	37,800	126,270
<i>Total est. multiplier</i>	2.04	2	1.95	
<b>Total Direct Impact</b>	<b>220,320</b>	<b>382,950</b>	<b>226,800</b>	<b>\$830,070</b>
<b>Indirect Economic Impacts</b>				
<i>Cars off the road</i>	22	56	109	
Member Savings <sup>3</sup>	36,575	159,600	180,880	377,055
(members who cannot afford to own a car) <sup>4</sup>				(?)
(average spending on taxi, rental, other) <sup>5</sup>				(?)
Est. Direct Spending <sup>6</sup>	25,215	110,027	124,698	259,939
Est. Induced Spending <sup>6</sup>	30,479	133,000	150,733	314,213
<b>Total Indirect Impact</b>	<b>55,694</b>	<b>243,027</b>	<b>275,431</b>	<b>\$574,152</b>

1. In the PhillyCarShare (PCS) Impacts study (<http://www.phillycarshare.org/wp-content/uploads/2010/07/pcs-impact-study.pdf>), Econsult used a local multiplier of 1.67. Since BCS and PCS share a common insurance broker and insurer that is located in Philadelphia, we adjusted our estimate downward from this estimated multiplier. Our multiplier is modified upward in 2009, and to a lesser extent in 2010; this is due to a higher percentage of expenses being attributable to staffing with a smaller fleet and lower utilization in early months.
2. Econsult used a statewide multiplier of 1.33. We use more conservative multipliers initially, but approach this figure in 2011, as our revenue (and thus direct NYS tax payments) escalates.
3. We also directly borrow from the PCS study in calculating our members' savings in switching from a personal vehicle to carshare use.
4. Though we do not ask this at the time of the survey, we do ask if it was a reason for joining. 47% state it is a contributing factor, and 23% cite it as their primary reason for joining
5. We have heard many examples of \$30/hr taxi trips that we can replace at less than \$10/hr. We hope to quantify this shift in the future.
6. For the sake of completeness, we are following the PCS study's assumption regarding direct and induced spending as a result of savings incurred versus a private vehicle. We must caution that this estimate carries a very large margin of error due to the fact that our membership base is far different than that of PCS, and thus so is are discretionary spending patterns of our members.



<b>Environmental Impacts - Mineta Transportation Institute Method<sup>8</sup></b>	2009 (Jun-Dec)	2010 (Full year)	2011 (Jan-Jul)	Total (26 months)
<i>Members (average over period)</i>	94	213	334	
Direct VMT Reduction	72,369	281,117	257,140	610,626
Gallons of gas avoided from VMT Reduction	3,245	12,606	11,531	27,382

Unknown: GHG emissions saved from congestion avoided w/less cars on the road

Unknown: GHG emissions saved from avoided production costs of new vehicles

<b>Gallons of gas avoided (total)</b> (including MPG differences versus private vehicles)	<b>4,700</b>	<b>18,257</b>	<b>16,700</b>	<b>39,657</b>
--	--------------	---------------	---------------	---------------

<b>Environmental Impacts - PCS / Econsult Method<sup>7</sup></b>	2009 (Jun-Dec)	2010 (Full year)	2011 (Jan-Jul)	Total (26 months)
<i>Cars off the road</i>	22	56	109	
<b>Direct VMT Reduction</b>	<b>47,483</b>	<b>207,200</b>	<b>234,827</b>	<b>489,510</b>
Gallons of gas avoided from VMT Reduction	2,129	9,291	10,530	21,951
<i>Gallons of gas used in car share trips</i>	772	3,525	2,989	7,286
Gallons of gas saved w/higher MPG vs. private cars	255	1,165	988	2,408

Unknown: GHG emissions saved from congestion avoided w/less cars on the road

Unknown: GHG emissions saved from avoided production costs of new vehicles

<b>Gallons of gas avoided (total)</b>	<b>2,385</b>	<b>10,456</b>	<b>11,518</b>	<b>24,359</b>
---------------------------------------	--------------	---------------	---------------	---------------

- Econsult uses the assumption made regarding only drivers that gave up a vehicle after joining or decided not to buy one, assuming those drivers (on average) are reducing their annual VMT from 4700 to 1000 miles. Other members' driving changes are not considered. We take this estimate as a conservative calculation of the driving habits of the BCS membership as a whole.
- The Mineta Transportation Institute recently completed a study titled "The Greenhouse Gas Emissions Impacts of Car Sharing in North America" ([http://transweb.sjsu.edu/MTIportal/research/publications/documents/Carsharing%20and%20Co2%20\(6.23.2010\).pdf](http://transweb.sjsu.edu/MTIportal/research/publications/documents/Carsharing%20and%20Co2%20(6.23.2010).pdf)). On average, members reported a reduction of in greenhouse gas emissions of 0.58 Tons GHG Equivalent per year directly attributable to VMT reduction, and 0.84 Tons GHG equivalent total reduction per year (when MPG differences between BCS vehicles and personal vehicles are factored in).

**We have selected the Econsult methodology to report emissions reductions for Buffalo CarShare.** While this method does not include calculations for members that do not give up their vehicle or decide against buying one, by using this method we are assuming that those members who drive less and those who drive more among this set are cancelling each other out. Excluding respondents that stated they had "got rid of a car" and/or "decided not to acquire a car", 28% of members reported driving less after joining and 32% report driving more.

## Geographic Representation of Membership and Use

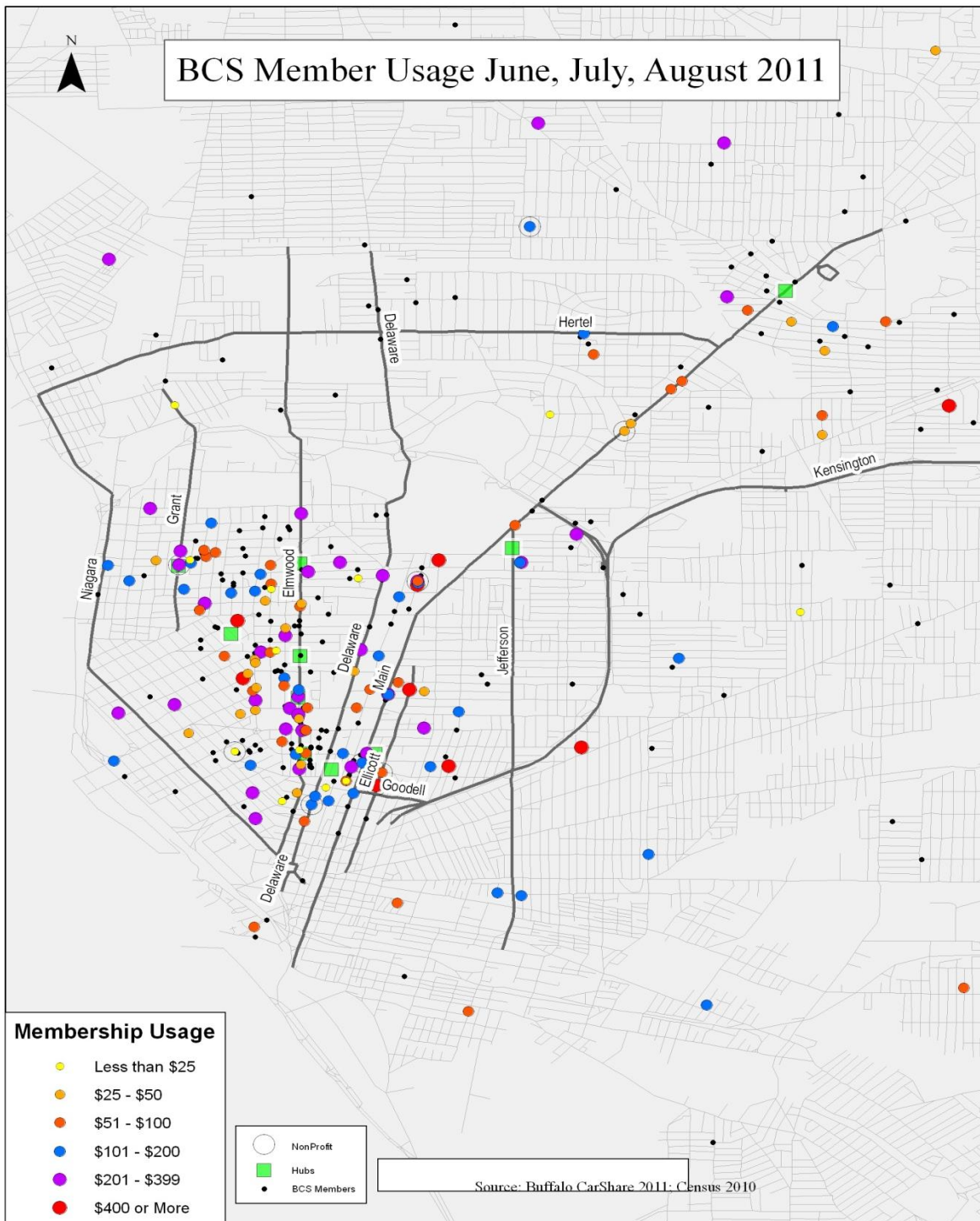


Figure 11: Member and vehicle locations

The colored dots above show members who have used the car at least once in the last three months. The black dots indicate less active members, and the green squares represent vehicle hubs.

## Research Questions Posed

Given the unique market being tested in the Buffalo region, the NYSERDA-NYSDOT partnership proposed a series of specific research questions. Some of the questions were addressed in earlier sections, but are answered here for the sake of completeness.

### ***Q. What travel changes are made in response to car share availability?***

**BCS members tend to drive less frequently, but “trip chain” or link different errands together when they do travel with a CarShare vehicle. In terms of net impact, members drive less, walk more, and use transit more.** However, members’ situations vary widely based on their car ownership and income.

The survey results show that 70% of members are more likely to combine trips after joining. However, because 60% of members have no vehicle in their household, and many of these households owned no car before becoming members, a significant number of drivers reported that they drove more (30%) and use transit less (22%) after joining.

The following results were observed from the two member surveys (2010 and 2011):

“I drive...”	2010		2011	
About the same	33	44%	43	32%
Less	19	25%	50	38%
More	23	31%	40	30%

“I spend...”	2010		2011	
About the same	35	49%	43	32%
Less	17	24%	60	45%
More	20	28%	30	23%

“I use transit...”	2010		2011	
About the same	49	64%	71	53%
Less	15	20%	29	22%
More	12	16%	33	25%

“I chain trips...”	2010		2011	
About the same	24	32%	35	26%
Less	0	0%	5	4%
More	51	68%	93	70%

“I walk...”	2010		2011	
About the same	60	78%	87	65%
Less	4	5%	8	6%
More	13	17%	38	29%

“I can travel...”	2010		2011	
About the same	42	56%	57	43%
Less	3	4%	12	9%
More	30	40%	64	48%

In 2010, there were actually more members reporting driving more than less. This changed in year two, but is likely due to members reducing their use over the course of their membership, as they become more accustomed to transit, “trip chaining”, etc. The year two survey showed further increases in walking and transit use, and decreases in spending on transportation versus year one. This is consistent with first and second year surveys conducted for City Car Share in San Francisco<sup>3</sup>.

<sup>3</sup> City CarShare Second Year report: <http://www.communauto.com/images/TRB2004-002025.pdf>

In the first year survey, we were also able to pose the question of how much more or less driving was done before and after joining (since all respondents had joined within the last year. Although as stated before, more members reported driving more after joining than less in this first year, those reporting less driving suggested a much greater difference in miles traveled than those reporting more.

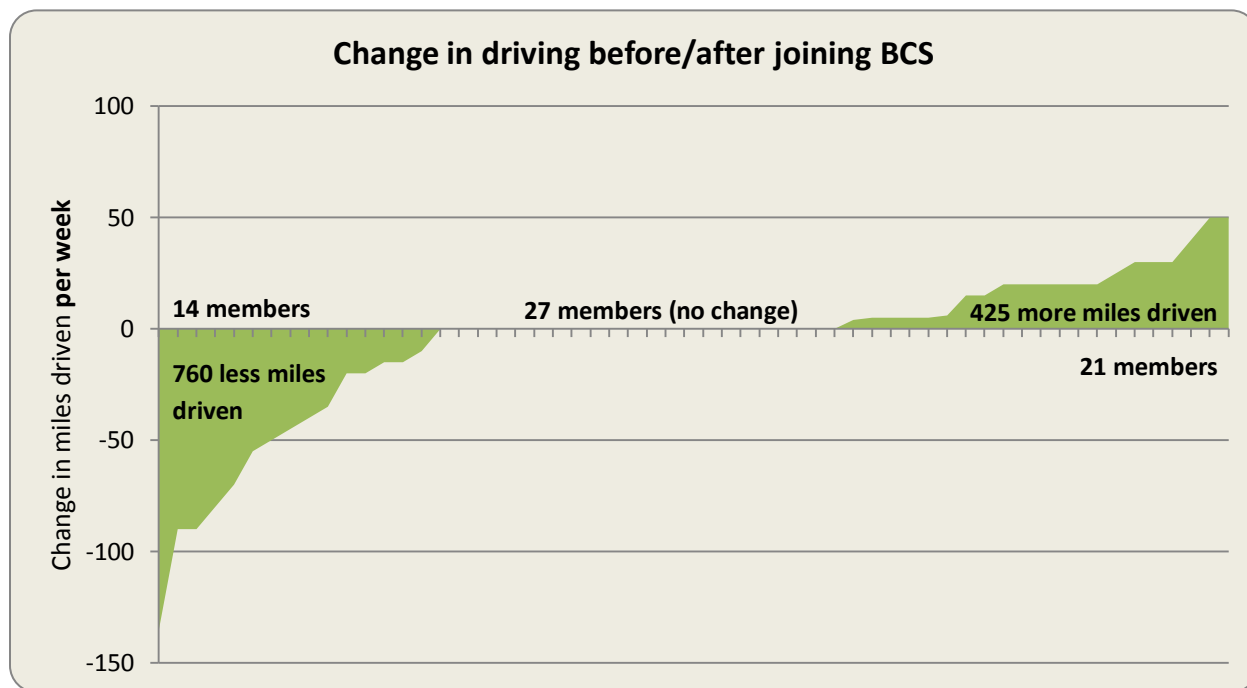


Figure 12: Change in driving after joining BCS

The 62 respondents to this question drove 335 less miles per week (net). Extrapolating these results to the current membership base suggests an overall impact of over 162,000 less miles driven, which is about 30% less than the 226,000-mile reduction estimated in the impacts report above. This is consistent with the two-year findings from City CarShare (referenced earlier) showing that members, on average, reduce their driving even further after participating in the program for several months.

This “before, after” question was not posed directly to members in the 2011 survey, as it was assumed that most respondents had been members for too long to accurately estimate their weekly driving patterns before becoming members. In the future, this question could be asked separately of those members who have recently joined.

**Q. How does auto ownership and use change in response to car share availability (e.g. number of cars in household, number of licensed drivers in household, did they own a car, reduction in ownership, increased use of transit)?**

Please see Figures 1 and 5 in the preceding section, as well as the tables in the previous question.

**Q. What are the general car share use patterns in varying city sizes and demographics? (e.g. VMT reduction in any, typical trip lengths, weekday or weekend, frequency of use, trip purposes etc.) Early growth in the service will coincide with 2010 census, strengthening the overall conclusions drawn from the eventual data analysis.**

Although 2010 census data is not yet available, BCS has compared the demographics of the BCS membership to the City of Buffalo, and to the car sharing industry as a whole. As stated earlier, the main difference between carsharing in Buffalo and other cities is reflected in membership, not use. The types of use shown in Figure 5 are very similar to the types use seen among the industry as a whole:

	CSOs	BCS	City of Buffalo
<b>Total Population/Survey Respondents*</b>	4229 <sup>4</sup> /978 <sup>5</sup>	138	259,143
<b>Median Age</b>	35 <sup>4</sup>	37	34.2
<b>Race: White</b>	87% <sup>5</sup>	68%	52%
<b>Race: Black or African American</b>	4% <sup>5</sup>	22%	39%
<b>Race: Other Answer</b>	3% <sup>5</sup>	10%	9%
<b>Income: &lt; \$25,000</b>	< 13% <sup>4</sup>	49%	43%
<b>Income: &gt; \$100,000</b>	23% <sup>4</sup>	3%	8%
<b>Education: High school graduate or higher</b>	98% <sup>4</sup>	99%	80%
<b>Education: Bachelor's degree or higher</b>	83% <sup>4</sup>	63%	21%
<b>Education: Percent college students</b>	4.6% <sup>4</sup>	13%	10%

On the following page is a comparison of census data for Buffalo and seven additional cities with large Car Sharing Organizations (CSOs)<sup>6</sup>. We compared the populations of neighborhoods (census block groups) with car share hubs to the cities' total populations. **Hubs in all seven cities studied were located in neighborhoods whose residents were of higher incomes and less racially diverse than the cities as a whole.**

While this was merely a preliminary analysis, it presents a partial explanation for the lack of diversity among the industry as a whole, but only a partial one; as an example, 31% of households in car sharing neighborhoods in the seven cities studied earn less than \$25,000, yet only 13% of car sharing members (industry-wide) are in this income bracket. While this is a comparison of different data sets (the latter pulls from the two published studies cited below), this difference is striking and bears further study.

<sup>4</sup> Susan Shaheen – The Impact of Carsharing on Household Vehicle Holdings, results from a North American shared use vehicle survey (2010) [http://76.12.4.249/artman2/uploads/1/Martin-Shaheen-Lidicker-Carsharing\\_Vehicle\\_Holdings-2010-TRR.pdf](http://76.12.4.249/artman2/uploads/1/Martin-Shaheen-Lidicker-Carsharing_Vehicle_Holdings-2010-TRR.pdf)

<sup>5</sup> Transit Cooperative Research Project – Car Sharing: Where and How it Succeeds (2007) [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_108.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_108.pdf)

<sup>6</sup> Data from U.S. Census (2000) for Buffalo, Boston, Chicago, Washington D.C., Philadelphia, Portland, Seattle, and San Francisco. All of these cities have Zipcar, a nationwide CSO; Chicago, Philadelphia, and San Francisco also have local independent CSOs (all of these CSOs were included in the study). Each of these cities has over 100 hubs.

	CSO Neighbor- hoods	CSO Cities <sup>7</sup>	BCS Neighbor- hoods	Buffalo
<b>Block groups</b>	1,440	11,746	10	409
<b>Total population</b>	1,936,983	12,741,025	8,202	292,648
<b>Race &amp; Ethnicity: White</b>	62%	47%	64%	55%
<b>Race &amp; Ethnicity: African American or Black</b>	17%	34%	28%	37%
<b>Race &amp; Ethnicity: Asian</b>	12%	8%	2%	1%
<b>Race &amp; Ethnicity: Hispanic/Latino</b>	11%	19%	10%	7%
<b>Income: Individuals below 1999 poverty level</b>	17%	19%	23%	27%
<b>Income: 0-\$25k</b>	31%	33%	52%	51%
<b>Income: \$100k+</b>	17%	13%	6%	4%
<b>Education: High school graduate or higher</b>	85%	75%	81%	75%
<b>Education: Bachelor's degree or higher</b>	51%	29%	26%	18%

We thus submit that broadening the member base of car sharing requires not only an expansion of car sharing into low-income and minority neighborhoods, but that this expansion must overcome barriers that have less to do with geography. This may involve a variety of marketing and member service techniques. BCS is only beginning to explore these techniques, but we have assembled a partial list on the following page.

***Q. Why were car share customers attracted to the service (no car, reduce cost vs. owning, increase mobility, environmentally sound, etc.)?***

Please see Figure 6 on page 6.

***Q. What were the car share challenges faced to be ADA compliant and how were they addressed?***

Since BCS is not a public transit authority, it is not required to provide ADA-accessible vehicles. That said, we strive to accommodate the needs of elderly and disabled individuals. Our second year survey results show that 15% of members identify as disabled, and 18% are over 60.

Recently, BCS has begun the process of outreach to senior/disabled housing and recreation center to determine whether car sharing can provide a more tailored solution to the transportation needs within these communities. This may involve relocation of vehicles to ease access for members with limited mobility (e.g members with canes or walkers), or even modification of vehicles to accommodate drivers

<sup>7</sup> Combination of three cities independent CSOs: Chicago (I-GO), Philadelphia (PhillyCarShare), and San Francisco (City CarShare), and seven Zipcar cities: Boston; Chicago; Washington, DC; Philadelphia; Portland; San Francisco; and Seattle. Demographic data represent the averages for these cities.

in wheelchairs. BCS has applied to the Federal Transit Administration’s New Freedom program to fund this needs study, which would begin in mid-2012 and is expected to take 6 to 12 months to complete.

**Q. What are the detailed barriers to car share program expansion?**

**BCS, like many smaller independent car sharing organizations, struggles with the general lack of capital as a barrier to expansion, but the table below focuses on the more programmatic barriers found in expanding to serve a broader membership base:**

Barrier to Car Sharing	Avenue to Broadening Membership Base
<p><b>Lack of Familiarity with Car Sharing:</b> potential members may be unfamiliar with the concept, and are often looking to address a short-term need. They may have misconceptions about car sharing, expecting to make multi-day reservations or be one-time users rather than members. Elderly callers may confuse with driver/taxi service.</p>	<p><b>Address Misconceptions:</b> clarify the basics of car sharing, emphasizing short-term trips and detailing associated costs.</p> <p><b>In-Person Orientations:</b> meet with new members to review the basics of car sharing and address any questions members might have. If possible, take them to a hub to show them how parking spaces are marked, where the keys are, etc.</p> <p><b>Community Presence:</b> work to make your presence known in the community by distributing brochures, participating in community events, and partnering with local organizations.</p>
<p><b>Affordability (Actual and Perceived):</b> potential members may over- or underestimate the costs of car sharing. Car sharing requires somewhat of a “trial and error” experience on the part of the member, which can be costly.</p>	<p><b>Clear Explanations:</b> take time to explain all associated costs (application fees, dues, hourly and mileage fees). Compare car sharing to other transportation modes.</p> <p><b>Subsidized Memberships:</b> partner with community organizations who would be willing to subsidize their clients’ car sharing; alternatively, pursue external funding (e.g. JARC)</p>
<p><b>Payment Requirements:</b> applicants may not have credit or debit cards, or if they do may keep very low balances. Also, the monthly billing cycle may present a burden for members.</p>	<p><b>Multiple Payment Plans:</b> allow for prepaid accounts; accept payment by other means such as checks and money order. On occasion, allow trip extensions by offering temporary credit.</p> <p><b>Encourage Prepayment for Long Trips:</b> Members making longer trips that will see mile surcharges should be asked to prepay.</p>
<p><b>Internet Access:</b> potential members may not have ongoing, reliable access to the internet.</p>	<p><b>Broaden Communication Options:</b> allow members to reserve in-person during business hours, over the phone on weekends and evenings, and via an Interactive Voice Response (IVR) system.</p>
<p><b>Language Barriers</b></p>	<p><b>Community Partnerships:</b> collaborate with multilingual agencies with staff that can translate and otherwise advocate for people as they sign up begin to use car sharing services.</p> <p><b>Multi-Lingual Materials AND Staff Commitment to Fluency:</b> make brochures and websites available in multiple languages. Remember that potential members will expect to be able to communicate with staff in those languages.</p>



## **New Markets Exploration**

Somewhat linear growth of the neighborhood based car sharing model is expected to continue for the next several years in Buffalo. As we project our growth in the context of peer organizations in Minneapolis, Minnesota and Madison, Wisconsin, our expectation is to add three to five vehicles, and 150 to 300 members per year. Growth in partnerships with major employers can be expected. In particular, if gas prices continue to increase car sharing will become significantly less expensive than reimbursing employees for mileage.

Thus by 2015, we may accommodate 1000+ members with 20 to 30 vehicles in this traditional model (we hope to conduct a neighborhood-by-neighborhood analysis of opportunity to refine this projection).

Opening new markets in a broader sense, however, may yield much more significant growth but of course carries new risk. A number of these growth opportunities are explored in the following pages.

## **Integration of Car Sharing with Other Modes**

Bicycle Sharing – in the last few years, this mode of transport has grown exponentially, particularly within North America. In 2011, systems launched in Boston, Toronto, and several other cities, with systems in New York City and Chicago expected in 2012. Bicycle sharing is prohibitively expensive for many smaller cities to launch in its current form. It is also expensive to maintain relative to the income the service produces.

Buffalo CarShare is working with Social Bicycles, a Brooklyn-based startup company, to launch a network of low-cost but high-tech bicycles that can be integrated into the existing BCS business model thereby cutting the costs of service provision. BCS has applied for NYSERDA-NYSDOT funds through Program Opportunity Notice (PON) 2314 to assist in the startup of this service in 2012.

Vanpooling – This service is popular in cities such as Los Angeles and San Francisco, where a combination of smog, congestion, long commutes, and high prices for parking make the mode a preferred option for many commuters. The service is not as economically feasible in northern cities like Buffalo where these “push” factors do not exist. That said, many transit providers have begun to take a second look at vanpooling as an alternative to providing costly bus service to remote locations.

The Buffalo-Niagara Transportation Authority (NFTA) recently approached BCS about the prospect of managing a vanpool program. BCS agreed under the condition that the vanpool vehicles could also be made available as CarShare vehicles outside of the timeframe of their fixed-route service. Depending on the type of vehicle and specifics of the vanpool route, combining these services may reduce the typical cost of vanpooling to the consumer by as much as 40% while providing a stable revenue stream for BCS.

Overnight and multi-day rentals – BCS, like many other car sharing providers, receives many requests for overnight, day-long, and multi-day rentals. Because of the limited size of the fleet, we have chosen to keep the 24 hour rate prohibitively high, and do not allow trips longer than 48 hours. As the fleet grows and becomes more redundant, we may reduce day rates to become competitive with rental agencies. Other car sharing organizations tend to have day rates that are 10-30% less expensive than BCS.



## Applying the BCS Model in Other Cities

Our hope is that our initial success, and the information provided in this report and other work to come from our organization can be used to inspire car sharing startups in other cities that have been largely overlooked as markets in the past. In particular, the demographic distinction in the BCS membership base in comparison to the industry at large suggests far broader applicability of the model.

### Application of the BCS model in Upstate New York:

Upstate cities such as Rochester, Albany, Syracuse and Utica share much in common with Buffalo. The demographics of these cities and the traditional urban design dating back to the 19<sup>th</sup> century provide the high density and low auto-ownership that is a prerequisite for car sharing success. By applying the BCS model, these cities may be able to provide a service to a broad range of residents while growing a membership base that can sustain the city's car sharing operations.

The seed funding necessary to launch operations in these cities will be largely dependent on the size of the initial fleet and the projected market for the service in each city. It is our recommendation that a considerable amount of background investigation is necessary before these cities enter a business planning phase to launch a service. This investigation could include census research, "windshield" surveys, and resident focus groups and/or surveys.

Launching stand-alone car sharing operations, as has been done in Buffalo, Ithaca, and Syracuse, NY, requires a significant startup cost. Some of these costs – in particular those related to back office functions – can be reduced by working with existing carshare operators. BCS is open to considering such a partnership, but only following adequate market research on the part of these other cities.

### Application of the BCS model outside of New York State:

**14 of the 30 most transit-dependent<sup>8</sup> cities do not have neighborhood-based car sharing services.**

These cities include:

Newark, New Jersey	St. Louis, Missouri
Hartford, Connecticut	Cleveland, Ohio
Paterson, New Jersey	Bridgeport, Connecticut
New Orleans, Louisiana	Cincinnati, Ohio
Yonkers, New York	Springfield, Massachusetts
Miami, Florida	Detroit, Michigan
Rochester, New York	Richmond, Virginia

Many of the cities on this list have a very similar profile to Buffalo as discussed above, and most on the list are larger than Buffalo, and many would be great candidates for applying the BCS model.

---

<sup>8</sup> i.e. those with the lowest household auto ownership rates as reported in the 2000 Census. See also [http://en.wikipedia.org/wiki/List\\_of\\_U.S.\\_cities\\_with\\_most\\_households\\_without\\_a\\_car](http://en.wikipedia.org/wiki/List_of_U.S._cities_with_most_households_without_a_car)

## Concluding Thoughts

BCS has plenty of work to do in building an organization that is accessible to all Buffalo neighborhoods. Many neighborhoods that are not yet served by BCS hubs – such as the East Side, Black Rock, and Lower West Side – are those in which mobility is most restricted. In the coming years, we will work with our network of partners in the region who will help us broaden the service we provide. But, it is important that we take a moment to celebrate the impact our service has on the daily lives of our members.

**One of the chief challenges facing the City of Buffalo is lack of access to food, health care, and jobs.** Such access is particularly challenging for low-income households and communities of color. As this report describes, **these needs are being well served by BCS for individuals from all walks of life.** When viewing our service as an alternative to car ownership, members save thousands of dollars annually and significantly reduce their impact on the planet. The local economy also benefits from this product-to-service transition, as much of the funds that would otherwise be spent on foreign oil or steel are retained in the region. **New York State's investment in this project will be repaid many times over** through sales tax revenues and induced economic activity.

**The BCS team is extremely grateful for the opportunity NYSDOT and NYSDOT have provided for us to test and define this innovative brand of car sharing.** The funding stream by this NY State partnership is one that continues to bear fruit for innovative transportation projects and research, and should be considered as a model for other states. Perhaps more importantly, though, **this partnership's focus on innovation has had the unintended consequence of launching what we hope may grow to be national success story for social entrepreneurship.**

In our current economic and political climate, transit agencies nationwide are facing cuts while ridership is on the rise, and there are no easy answers given the significant operating deficits that accompany even the most efficient transit service. **BCS, however, is in a unique position of providing a service that advances the principles of transportation equity with little to no ongoing public burden. For a fraction of the cost of constructing a single lane-mile of road, a city can launch a car sharing service modeled after the impacts we have witnessed.** We would be honored to assist in making this happen.



**We cannot conclude without thanking our members. Their generosity, enthusiasm, and moving stories are what keep us motivated, and they are truly the future leaders of this organization.**