



Capital Bikeshare 2011 Member Survey Report



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EXECUTIVE SUMMARY

Overview

This report presents the results of the 2012 Capital Bikeshare Customer Use and Satisfaction Survey conducted for the Capital Bikeshare program (Capital Bikeshare). Capital Bikeshare, a program jointly owned and sponsored by the District of Columbia and Arlington County, VA and operated by Alta Bicycle Share, Inc., offers short-term use of more than 1,500 bicycles to registered members and day-pass users at more than 165 stations in the District of Columbia and Arlington County. Users register for an annual or 30-day membership and receive a Capital Bikeshare key that allows them to unlock a bike at any station. Users can return the bike to the same station or to any other station in the network, facilitating both return and one way trips.

Capital Bikeshare's management were interested in users' experience with the program and exploring bikeshare's impact on users' travel patterns. The survey was conducted for four primary purposes:

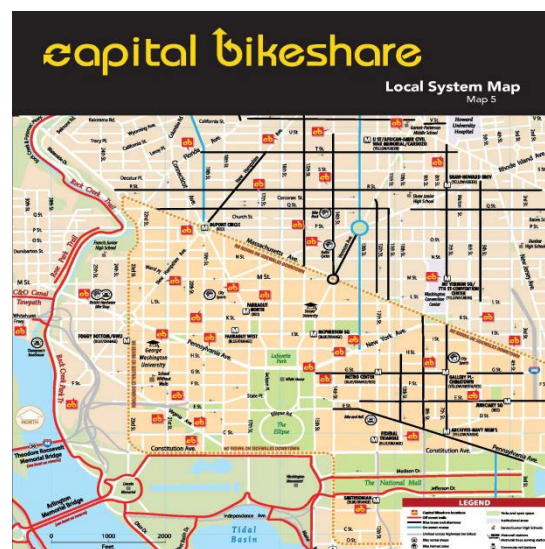
- Examine demographic characteristics of Capital Bikeshare users
- Examine use characteristics of Capital Bikeshare trips
- Examine travel changes made in response to Capital Bikeshare availability
- Examine users' satisfaction with Capital Bikeshare features

The survey was administered online to registered Capital Bikeshare members. Capital Bikeshare staff sent an email to its approximately 18,000 members that informed them of the online survey and provided the link to the survey website. During the approximately one-month period that the survey website was active, 5,464 members completed the survey, for a total response rate of 31%.

Key Conclusions

Several overall conclusions related to the travel impacts and personal travel benefits of bikesharing rise to the top of importance.

- Capital Bikeshare members benefit through easier, faster access to destinations and access to a wider range of destinations – Almost half of respondents had made a trip in the past month that they would not have made without bikeshare. Of these respondents, 64% said they would not have made the trip because it was too far to walk, so bikeshare broadened their travel destination options. Other respondents reported reasons related to characteristics of the destination or time of travel: no transit/inconvenient transit to the destination or at that time of day, limited/expensive parking at the destination, too much traffic at destination, or don't like to drive at that time of day. For these members, bikeshare expanded their easy and convenient travel options.
- More than half (56%) of recent bikeshare trips were for non-work purposes – About 22% of respondents used bikeshare most recently for a social/entertainment trip and 13% made an errand/personal appointment trip. About four in ten recent trips were to go to work (19%) or go from work (19%).



- A large share of Capital Bikeshare members increased their use of bicycling – Eighty percent of survey respondents said they bicycled more often now than they did before joining Capital Bikeshare and 70% of respondents who increased bicycle use said Capital Bikeshare had been important in helping or encouraging them to ride more often.
- Capital Bikeshare availability influenced net reductions in auto use by program members – Four in ten survey respondents drove a car less often and 94% of respondents who reduced driving indicated that Capital Bikeshare had been at least somewhat of a factor contributing to the reduction in driving. Thirty-eight percent of respondents who had access to a personal vehicle reduced their annual driving miles – by an average of 523 miles annually. Based on this individual reduction, the 18,000 bikeshare members (in November 2011) reduce nearly 5 million driving miles per year.
- Bikeshare members appear to have shifted some trips to bicycle from taxi, transit, and walking – More than half (56%) of respondents reduced their use of taxi, 47% ride Metrorail less often, and 39% reduced their use of bus since joining Capital Bikeshare.
- Bikeshare members who used Capital Bikeshare frequently reported the greatest reduction in use of non-bicycle modes – A net 44% of respondents who said they bike more often reduced use of a car compared to a net 26% of those who had no change in bike use, a gap of 18 percentage points. The gap in percentage reduction was similar for use of taxi (16 percentage points) and Metrorail (17% points), and only slightly smaller for bus (13 points).
- On average, each Capital Bikeshare member saves \$819 per year on personal travel cost – Respondents reported saving an average of \$15.75 per week on personal transportation costs as a result of their bikeshare use, about \$819 over the course of the year. Across the estimated 18,000 Capital Bikeshare members in November 2011, the collective saving is almost \$15 million each year.
- Respondents gave high marks to most bikeshare features – More than three-quarters gave ratings of 4 or 5 (Excellent) to the Capital Bikeshare website, safety of stations, map at stations, and mechanical repair of bikes. Seventy-three percent rated the call center as a 4 or 5. Respondents were less satisfied with the nighttime lighting at stations; 58% gave a rating of 4 or 5 to this feature.

Bikeshare Users Demographic and Membership Characteristics

Bikeshare users do not mirror the adult population of the Washington metropolitan region – More than nine in ten survey respondents were employed, while the U.S. Census reports only about seven in ten adults in the Washington region are employed. But bikeshare survey respondents also differ from the general



employed population. Compared to all commuters in the region, they are, on average, considerably younger, more likely to be male and Caucasian, highly educated, and slightly less affluent.

Bikeshare visibility and referrals are important marketing tools for Capital Bikeshare – Respondents were most likely to have heard about Capital Bikeshare by seeing a Capital Bikeshare station (39%), seeing someone riding a Capital Bikeshare bike (22%), or through a referral from a friend or family member (26%). The other important source was the “Living Social deal.” It was named by 15% of respondents overall, but 25% of those who joined between April and June 2011.

The primary motivations for joining Capital Bikeshare were access and speed – More than eight in ten (85%) respondents said they were motivated by the ability to get around more easily or more quickly. Two-thirds said they liked to bike or thought biking was a fun way to travel and 46% cited a desire to save money on transportation.

Bikeshare Use Characteristics

Capital Bikeshare use was distributed evenly across frequency categories, showing demand for the service at many use levels – About two in ten (18%) respondents had made one or two bikeshare trips in the past month, 21% made between three and five trips, and 17% made between six and ten trips. About 24% were frequent users, making 11 or more trips in the past month. On average, respondents made about 8.1 trips per user in the past month.

Survey respondents used bikeshare most often for personal / non-work trips – Overall, the top two bikeshare trip purposes were social/entertainment and errands/personal appointments; about two-thirds of respondents had made a trip at some time for each of these purposes. More than half (56%) had used bikeshare for a trip to a restaurant or other location where they had a meal, 40% made a bikeshare trip to shop, and 36% used Capital Bikeshare for an exercise or recreation trip. Six in ten respondents used bikeshare to make a commute trip, that is, either to go TO work (55%) or to go FROM work (59%) and 31% used bikeshare to go to a meeting.

Capital Bikeshare also served as a feeder service to reach transit stops – More than half of all respondents used Capital Bikeshare to get to or from a Metrorail station and about two in ten used it to access a bus stop. Bikeshare was more often used to get FROM transit than TO transit. This could reflect greater interest in using bikeshare for evening or late night trips home, when respondents are especially safety conscious.



More than half (56%) of respondents' recent bikeshare trips were made for non-work purposes – About 22% said their most recent bikeshare trip was for a social/entertainment purpose, 13% made an errand/personal appointment trip, seven percent made their most recent trip to go to a restaurant, and seven percent made a trip for exercise. About four in ten recent bikeshare trips were to go to work (19%), go from work (19%), or go to a meeting (6%). Work trips were among the most common recent trips, but they were less common overall than some other purposes. This suggests they are frequent trips, but concentrated among a smaller share of respondents.

Forty-five percent of respondents would have ridden a bus or train if Capital Bikeshare had not been available for the most recent trip – Three in ten (31%) would have walked to their destination. Only seven percent of respondents would have driven or ridden in a personal vehicle, but since almost half of respondents did not have a personal vehicle regularly available, this would not have been an easy option for many. Six percent would have used a taxi and six percent would have ridden a personal bike.

Respondents' options for making these trips differed by the type of trip they were making – Six in ten respondents whose last trip was to go to or from work would have used transit for the trip. Respondents whose last trip was for errands or shopping were more likely to say they would have used a personal

vehicle or walked than were respondents generally. Respondents also were more likely than average to use a personal vehicle for a trip to a restaurant. Respondents whose last Capital Bikeshare trip was to go to a meeting were substantially more likely than other respondents to say they would use a taxi.

Use of Capital Bikeshare to “Induce” Trips

In the past month, 44% of respondents used bikeshare to make at least one trip they would not have made (“induced” trips) if bikeshare had not been available – Four in ten respondents made an induced social/entertainment trip, about three in ten made trips to restaurants and errand/personal appointment trips, and a quarter made an induced shopping trip. But only one percent of respondents mentioned making an induced trip to go to work and two percent made a trip to go from work, but this seems reasonable, as work-related trips would not generally be considered discretionary trips.

The vast majority of induced trips were made to destinations in the District of Columbia – Downtown DC was the most common destination overall; three in ten (30%) respondents made an induced trip to this area. About a quarter (25%) made a trip to Capitol Hill and two in ten made trips to Shaw / U Street (20%) or Georgetown (19%).

Nearly two-thirds (64%) of respondents said they would not have made the trips without Capital Bikeshare because it was too far to walk – This suggests respondents might have substituted some induced trips to distant destination for trips they might have made to locations closer to their origin location. In this way, Capital Bikeshare broadened the travel destination options. Other common reasons were related to characteristics of the destination or time of travel: no transit/inconvenient transit to the destination or at that time of day, limited/expensive parking at the destination, too much traffic at destination, or don’t like to drive at that time of day. Two in ten (19%) wanted to get exercise and 17% didn’t have a car.



Capital Bikeshare access makes establishments more attractive to Bikeshare members – More than eight in ten respondents said they were either much more likely (31%) or somewhat more likely (52%) to patronize an establishment that was accessible by Capital Bikeshare. The remaining 17% said bikeshare access was not a factor in their choice of establishments.

Respondents who gave high ratings for the value of bikeshare access made induced trips at a much higher rate than did those who gave lower ratings – Sixty-two percent of respondents who said they were *much more likely* to patronize a Capital Bikeshare-accessible establishment had made in induced trip, compared with 43% who said they were *somewhat more likely*, and only 20% of those who said they were *not more likely* to patronize the establishment. This suggests that the decision to make some, and perhaps many, of the induced trips was motivated by the establishments’ accessibility.

Change in Mode Use Since Joining Capital Bikeshare

More than eight in ten respondents increased bike use since joining Capital Bikeshare – More than a third (36%) said they bicycled *much more often* and 46% said they bicycled *more often*. Seventy percent of respondents who increased bicycle use said Capital Bikeshare had been important in helping or encouraging them to ride more often. Respondents who reported a greater increase in overall bike use also reported more frequent Capital Bikeshare use. Respondents who said they bike much more often made an average of 12.0 trips in the past month, compared with 6.2 trips for respondents who bike more often, and 4.4 trips for those who did not change bike use.

Bikeshare members substantially reduced their use of Metrorail, bus, and taxi since they joined Capital Bikeshare – Nearly half (47%) ride Metrorail less often and 39% ride a bus less often. Only seven percent of respondents increased use of Metrorail and six percent increased bus use. Respondents also decreased their use of walking, overall, but the reduction was not as substantial as for transit. Thirty-one



percent said they walk less often, but 17% of respondents now walk more often. Fifty-three percent reduced their use of taxi.

Bikeshare members substantially reduced their use of car – Four in ten (41%) survey respondents drove a car less often; no respondents increased use of car. More than nine in ten respondents who reduced driving indicated that Capital Bikeshare had been a factor contributing to the reduction.

Bikeshare members who used Capital Bikeshare frequently reported the greatest reduction in use of non-bicycle modes – For example, a net 44% of respondents who said they bike more often reduced use of a car compared to a net 26% of those who had no change in bike use, a gap of 18 percentage points. The gap in percentage reduction was similar for use of taxi (16 percentage points) and Metrorail (17% points), and only slightly smaller for bus (13 points).

Nearly four in ten respondents reduced their annual driving miles – Respondent who had access to a personal vehicle also were asked approximately how many miles they drove per month in the year before they joined Capital Bikeshare and since joining Capital Bikeshare. Thirty-eight percent reduced their driving miles; 14% reduced driving by more than 1,000 miles. About half (56%) of respondents who reported their mileage made no change in driving miles; only six percent increased their driving miles.

Capital Bikeshare members reduce nearly five million driving miles annually – On average, survey respondents who reported both a current and pre-Capital Bikeshare mileage drove about 4,015 miles per year before joining Capital Bikeshare and 3,492 per year since joining, for a reduction of about 523 miles annually. When these survey results are applied to the estimated 18,000 bikeshare member population in November 2011, the month in which the survey was conducted, the results are as follows:

- | | |
|--|-------------------------------|
| • Number of bikeshare members (November 2011) | 18,000 |
| • Bikeshare members with vehicle available (53%) | 9,540 |
| • Estimated annual VMT reduced per member | 523 |
| • Estimated total annual VMT reduced | 4,989,400 annual miles |

On average, each Capital Bikeshare member saves \$819 per year on personal travel cost – Nearly all (90%) respondents thought Capital Bikeshare had saved them money. Two-thirds saved between one dollar and \$20 per week, 25% saved more than \$20. On average, respondents saved \$15.75 per week, or about \$819 over the course of the year. Across the estimated 18,000 Capital Bikeshare members in November 2011, the aggregate savings are nearly \$15 million per year:

- Number of bikeshare members (November 2011) 18,000
- Estimated annual cost saving per member \$819
- Estimated total annual cost saving **\$14,742,000 annually**

Bikeshare Members' Commute Travel Patterns

Capital Bikeshare members travel an average of 6.2 miles to work one-way, less than half of the average 16.3 miles distance of commuters region-wide – Two in ten bikeshare respondents travel fewer than two miles to work and 63% travel fewer than five miles. By contrast, only 17% of all regional commuters travel fewer than five miles.

Capital Bikeshare members drive alone to work much less than do commuters region-wide – The overwhelming majority of employed respondents use a non-drive-alone mode of travel to get to work: 47% by public transit, 23% by biking, and 13% by walking. Only 12% of commute trips were made by driving alone, well below the 65% drive alone mode share for all commuters in the Washington region.



About a quarter of employed respondents started or increased use of a non-drive alone mode since joining bikeshare – Fifteen percent started or increased use of bicycle, six percent made a change to public transit, and three percent made a continued change to walk. And additional 32% of respondents tried a new drive-alone mode or use a new mode occasionally.

Access to bicycle support services appeared to influence use of bicycle for work travel – Bikeshare survey respondents were twice as likely to report that their employers offered bike racks, showers, personal lockers, and other bicycle-support services (53%) as were all commuters region-wide (26%) and were more likely to have bicycle services than were other commuters in the jurisdictions where they worked. Respondents who had access to bicycle-support services biked to work at a higher rate than did respondent who did not have access to these services; 33% of respondents who said bicycle services were available bicycled to work, compared with 21% of those who did not have bicycle services.

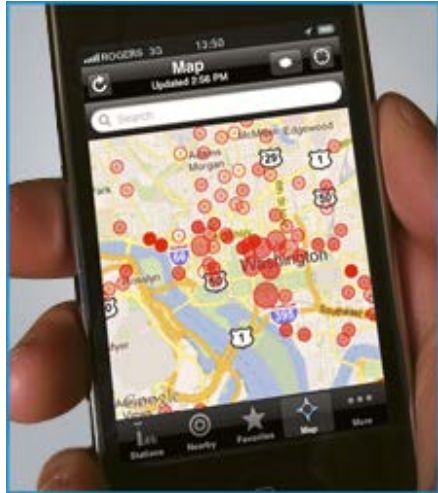
Satisfaction with Capital Bikeshare

Respondents gave generally high marks to bikeshare features – More than three-quarters gave ratings of 4 or 5 (Excellent) to Capital Bikeshare website, safety of stations, map at Capital Bikeshare stations, and mechanical repair of bikes. Seventy-three percent rated call center as a 4 or 5. Respondents were less satisfied with the nighttime lighting at the stations; 58% of respondents rated this feature as 4 or 5.

Capital Bikeshare offers numerous ways that members can obtain information about the service and manage their use of the service – Seven-six percent of respondents said they had used the Capital Bikeshare

online map in the past month to locate a station to pick up or drop off a bike; 30% used the map one or two times, 22% had used the map between three and five times and 24% had used the map at least six times. A very large share (87%) of respondents said they were aware of the smart phone app called SpotCycle, with which members could locate Capital Bikeshare stations and learn if a bike was available at the station. Seventy-two percent had used the app.

About four in ten respondents reported some problem with using Capital Bikeshare services – A quarter (25%) said they had issues accessing a bike with the membership key, 24% said they had a mechanical issue with the bike, and 22% said they had an issue with a bike dock.



Likelihood to encounter problems was connected to when respondents joined Capital Bikeshare and how often they used the service –

Respondents who joined in the early period of the program encountered more problems overall than have respondents who joined more recently. The percentage of respondents who reported each of these problems has since declined, but it is not possible to know if the decline reflects that the system has become more trouble-free or if it reflects more recent members' shorter time exposure to the system. Respondents also were more likely to say they had encountered one or more of these issues if they were more frequent bikeshare users. More than half (55%) of respondents who made 11 or more Capital Bikeshare trips in the past month had encountered a problem with the service, compared with 37% of respondents who made just one or two Capital Bikeshare trips in the past month.

TABLE OF CONTENTS

SECTION 1 – INTRODUCTION	1
Overview and survey objectives	
Survey methodology summary	
 SECTION 2 – SURVEY RESULTS	 3
Demographic characteristics	3
Participation and program membership characteristics	10
Typical bikeshare use	18
Most recent bikeshare use	30
Use of Capital Bikeshare to “induce” trips	33
Role of Capital Bikeshare in encouraging patronage of Bikeshare-accessible establishments	38
Changes in use of bicycling since joining Capital Bikeshare	40
Changes in use of non-bicycling modes since joining Capital Bikeshare	44
Changes in vehicle ownership and driving miles since joining Capital Bikeshare	51
Work-related travel of bikeshare users and changes since joining Capital Bikeshare	57
Bikeshare information services	69
Satisfaction with bikeshare	72
 APPENDIX A – SURVEY QUESTIONNAIRE	 78

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SECTION 1 INTRODUCTION

Overview and Survey Objectives

This report presents the results of the 2011 Capital Bikeshare Member Survey conducted for the Capital Bikeshare program. Capital Bikeshare, a program jointly owned and sponsored by the District of Columbia and Arlington County, VA and operated by Alta Bicycle Share, Inc., offers short-term use of more than 1,500 bicycles to registered members and day-pass users at more than 165 stations in the District of Columbia and Arlington County.

Users register for an annual or 30-day membership and receive a bikeshare key that allows them to unlock a bike at any station. Use of a bike is free for the first 30 minutes of any trip. Trips lasting longer than 30 minutes incur trip fees that increase as the length of the trip increases. This pricing system encourages the use of bikes for short trips. Users can return the bike to the same station or to any other station in the network, facilitating both return and one way trips.

Several governmental and community organizations in the Washington Metropolitan region, including the District of Columbia Department of Transportation, Arlington County Commuter Services, BikeArlington, goDCgo, the Virginia Department of Rail and Public Transportation, and the Federal Highways Administration, sponsor or support Capital Bikeshare. These entities were interested in learning more of bikeshare users' experience with the program and exploring Capital Bikeshare's impact on users' travel patterns. The survey was conducted for four primary purposes:

- Examine demographic characteristics of bikeshare users
- Examine use characteristics of bikeshare trips
- Examine travel changes made in response to Capital Bikeshare availability
- Examine users' satisfaction with bikeshare features

Survey Methodology Summary

Sample Selection

The Capital Bikeshare survey was administered online to registered members. On November 14, 2011, Capital Bikeshare staff sent an email to its approximately 18,000 annual and monthly members that informed them of the online survey and provided the link to the survey website. The email indicated that Capital Bikeshare was offering entry into a drawing to win an iPad to members who completed the survey. To increase the response rate further, Capital Bikeshare sent a reminder in the monthly e_newsletter to all members. During the approximately one-month period that the survey website was active, 5,464 members completed the survey, for a total response rate of 31%.

Questionnaire Development

The survey questionnaire was developed jointly by Capital Bikeshare staff. A copy of the final questionnaire is presented in Appendix A. The questionnaire, which was designed for online self-administration, collected data on the following major topics:

- Capital Bikeshare participation background and motivation for registering
- Capital Bikeshare use patterns
- Details of last Capital Bikeshare trip

- Trips made by Capital Bikeshare that would not have been made without the service
- Role of Capital Bikeshare in influencing use of bike and other types of transportation
- Changes in vehicle ownership and driving miles since joining Capital Bikeshare
- Work travel patterns and changes in work travel pattern changes since joining Capital Bikeshare
- Use of Capital Bikeshare online services and mobile apps
- Ratings for quality of Capital Bikeshare features
- Issues encountered while using Capital Bikeshare bikes and stations
- Demographics

Survey Analysis

Section 2 presents key results of the survey. The findings present the percentages of respondents who gave each response. Figures and tables also show the base for the percentages, the number of respondents who actually answered the question, presented as (n=___).

The total number of completed interviews (5,464) was substantial enough that it was possible to examine results for various sub-groups of the total respondent population. Several respondent characteristics, including age, sex, home location, race / ethnicity, period of time in which the respondent joined Capital Bikeshare, frequency of Capital Bikeshare use, and other characteristics, were found to be important in this analysis.

Additionally, when comparable data were available, results also are presented from the State of the Commute survey conducted by the Commuter Connections program of the Metropolitan Washington Council of Governments in 2010 (2010 SOC). Although the SOC survey interviewed only employed residents of the Washington metropolitan region, it provides a reasonable dataset for demographic comparisons because 94% of the Capital Bikeshare survey respondents said they were employed.

SECTION 2 SURVEY RESULTS

This section presents an overview of the survey findings. The survey collected data in several primary topic areas. Results for these topics are presented below:

- Demographic characteristics
- Capital Bikeshare participation and membership characteristics
- Typical Capital Bikeshare use
- Most recent Capital Bikeshare trip
- Trips made by Capital Bikeshare that would not have been made without the service
- Role of Capital Bikeshare in influencing use of bike and other types of transportation
- Vehicle ownership and driving miles
- Work travel patterns and travel changes
- User ratings and service issues

Demographic Characteristics

The demographic characteristics of respondents are presented below. When data were available, results also are presented from the State of the Commute survey conducted by Commuter Connection in 2010 (2010 SOC). Although the SOC survey interviewed only employed residents of the Washington metropolitan region, it provides a reasonable dataset for demographic comparisons because 94% of the Capital Bikeshare survey respondents were employed.

In general, bikeshare users did not mirror the adult population of the Washington metropolitan region. More than nine in ten bikeshare survey respondents were employed, while the U.S. Census reports that only about seven in ten Washington metropolitan region adults are employed. But bikeshare survey respondents also differed from the general employed population. Compared to all commuters in the region, they were, on average,

- Considerably younger
- More likely to be male,
- More likely to be Caucasian,
- Very highly educated,
- Slightly less affluent than the regional employee population,
- Much more likely to live and work in the urban core of the region – Washington DC, Arlington County, VA, or Alexandria, VA,

The program is likely to continue to attract additional member with these general demographics, however some of the extreme differences are being mitigated as the Capital Bikeshare membership grows. Survey respondents who joined the program more recently appeared to have different demographics than did early users, as described later in this section.

Home and Work Locations

Table 1 presents the distributions of Capital Bikeshare survey respondents by their home and work jurisdictions. More than eight in ten respondents said they lived in the District of Columbia. Arlington County, VA was home to about seven percent of respondents. Smaller percentages of respondents said they lived in Montgomery County, MD, Fairfax County, VA, Prince George's County, MD, or the City of Alexandria, VA.

Table 1
Home and Work Locations

State/County	Home Location (n = 5,159)	Work Location (n = 4,931)
District of Columbia	83%	80%
Arlington County (VA)	7%	6%
Montgomery County (MD)	3%	7%
Fairfax County (VA)	2%	3%
Prince Georges County (MD)	1%	<1%
Alexandria City (VA)	1%	2%
Other *	3%	1%

* Each response in the "Other" category was mentioned by less than one percent of respondents.

The distribution of respondents by work jurisdictions was similar to that for home location, but a slightly higher share of respondents worked in Montgomery County and a slightly lower share worked in the District of Columbia.

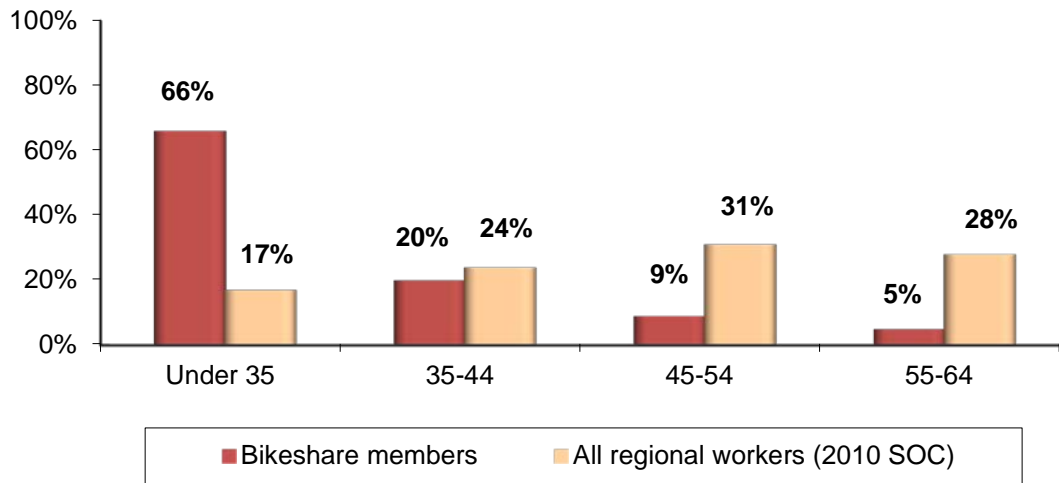
Age

As shown in Figure 1, Capital Bikeshare survey respondents were considerably younger than were all regional employees, as measured through the 2010 SOC survey. One in ten (12%) bikeshare respondents were under 25 years old and two-thirds (66%) were under 35 years old. By comparison, only 17% of the regional employee population was under 35 years old.

Age distributions also were examined for the two jurisdictions that represent the dominant share of bikeshare members, District of Columbia and Arlington, VA. The SOC survey found that 16% of all commuters who lived in Arlington and 19% of District commuters were under 35 years of age. These percentages were not statistically different from the 17% of commuters region-wide in this age group.

But the percentage of bikeshare members who were young people was dramatically higher in both of these jurisdictions when compared to the total SOC respondents who lived in these two jurisdictions; 65% of Arlington bikeshare members and 70% of Washington bikeshare members were under 35 years old. Thus, with respect to age, bikeshare members were more like each other, regardless of their home area, than they were like other commuters in their home jurisdictions.

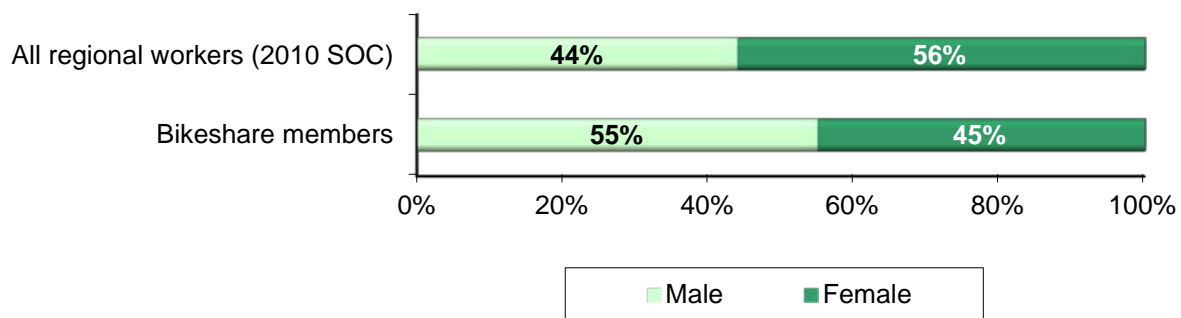
Figure 1
Respondent Age Distribution – Bikeshare Members and All Regional Employees
(Bikeshare n = 5,185, 2010 SOC n = 6,506)



Sex

Slightly over half (55%) of bikeshare survey respondents were male and 45% were female. (Figure 2)
This was the reverse of the 2010 SOC distribution, in which 56% of employed residents were female.

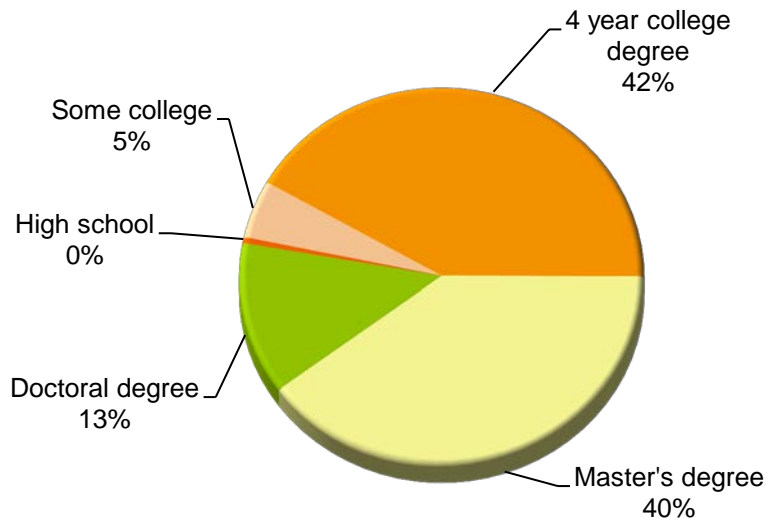
Figure 2
Respondent Sex Distribution – Bikeshare Members and All Regional Employees
(Bikeshare n = 5,167, 2010 SOC n = 6,506)



Highest Educational Level

Bikeshare members had achieved quite high levels of formal education. (Figure 3) Nearly all (95%) had completed a four-year college degree and 53% had completed an advanced degree.

Figure 3
Highest Level of Education – Bikeshare Members
 (n = 5,157)



Student Status – Fourteen percent of respondents said they were currently college students; eight percent were full-time students and about six percent were part-time students. The colleges and universities represented and the percentage of students who mentioned the university included:

- George Washington University 27%
- Georgetown University 17%
- University of Maryland 9%
- American University 8%
- Johns Hopkins University 6%
- George Mason University 3%
- Catholic University 2%
- Virginia Tech 1%
- University of the District of Columbia 1%
- Other University 24%

Ethnic Background

Caucasians represented, by far, the largest ethnic group of bikeshare survey respondents; accounting for 81% of respondents. Asian, Hispanic/Latino, and African-American respondents accounted for about seven percent, five percent, and three percent, respectively. These results are shown in Table 2. The table also shows the ethnic background distribution of all regional employees. Bikeshare members were disproportionately Caucasian; African-Americans and Hispanics were underrepresented, compared to the regional employee population.

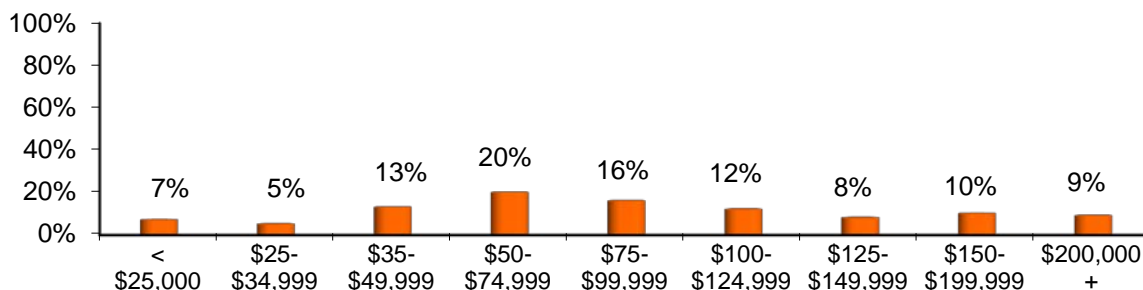
Table 2
Ethnic Background – Bikeshare Members and All Regional Employees

Ethnic Group	Bikeshare Survey (n = 5,101)	2010 SOC Survey (n = 6,308)
White/Caucasian	81%	53%
Asian	7%	10%
Hispanic/Latino	5%	11%
African-American	3%	23%
Other / Mixed	5%	3%

Income

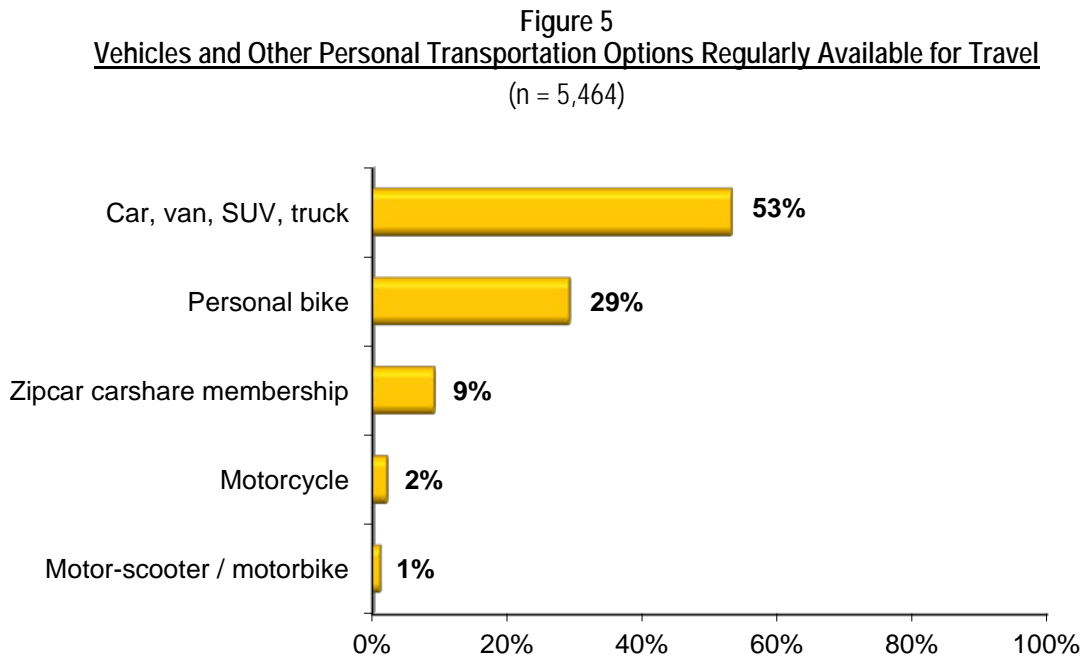
A quarter (25%) of respondents had household incomes of less than \$50,000 per year, 36% had incomes of \$50,000 to \$99,999, and 39% had incomes of \$100,000 or more per year. (Figure 4) Bikeshare survey respondents had lower household incomes than did the regional employee population, as measured by the 2010 SOC survey. Nearly two-thirds (65%) of all regional workers had incomes of \$100,000 or more, compared with 39% of bikeshare members.

Figure 4
Annual Household Income – Bikeshare Members
(n = 4,994)



Availability of Vehicles and Other Personal Transportation Options

The survey asked respondents if they had access to any of five types of personal transportation on a regular basis for their travel: car / van / SUV / truck; personal bike, Zipcar carshare membership, motorcycle, or motor-scooter/motorbike. (Figure 5)



Fifty-six percent of all respondents said they owned a personal vehicle – car, van, SUV, or truck, but a slightly lower share (53%) said the vehicle was available to them for regular use. Presumably, they share this vehicle with another household member. This percentage was well below the rate of vehicle availability in the Washington Metropolitan region. According to the 2008 Household Travel Survey conducted by Metropolitan Washington Council of governments, 94% of households in the region have at least one vehicle and 84% of household have a vehicle for each driver in the household.

But bikeshare members' vehicle availability rate (53%) is essentially the same as the rate for the District of Columbia, where a large majority of bikeshare users live. The Household Travel Survey found that 52% of households in the District of Columbia had a vehicle for each driver in the household.

Three in ten (30%) respondents said they owned a personal bike. Nine percent were members of the Zipcar carsharing service, which offers short-term rental of vehicles primarily based throughout the District of Columbia and Arlington County.

Vehicle Availability by Demographic Characteristic – Because it is expected that Capital Bikeshare membership would be more attractive and more influential to respondents who have fewer travel options than to those who have many, the analysis examined differences in availability of personal vehicles and personal bicycles by various demographic characteristics.

As shown in Table 3, availability was not uniformly distributed across all respondents. For example, Arlington County residents were more likely to have both a personal vehicle and a personal bicycle available than were residents of the District of Columbia. Male respondents were more likely than were female respondents to have access to a personal vehicle or bicycle. And a higher share of respondents who were White reported access to both a vehicle and a bicycle than did respondents who were Non-white.

Table 3
Personal Vehicle and Bicycle Availability by Respondents' Demographic Characteristics

Respondent Characteristic	Vehicle Available	Personal Bicycle Available
Home location		
- Arlington County (n = 335)	74%	41%
- District of Columbia (n = 4,239)	50%	26%
Sex		
- Male (n = 2,840)	57%	33%
- Female (n = 2,327)	51%	27%
Race / Ethnicity		
- White (n = 4,109)	55%	32%
- Non-white (n = 992)	48%	21%
Age		
- Under 25 years (n = 541)	26%	9%
- 25 – 34 years (n = 2,156)	48%	24%
- 35 – 44 years (n = 1,018)	70%	44%
- 45 – 54 years (n = 491)	74%	51%
- 55 and older (n = 253)	81%	55%
Income		
- Under \$50,000 (n = 1,214)	29%	13%
- \$50,000 - \$99,999 (n = 1,816)	50%	25%
- \$100,000 - \$150,000 (n = 1,003)	65%	39%
- \$150,000 or more (n = 952)	79%	49%

(Statistical differences noted with orange highlighting)

But the most striking differences were related to respondents' age and income. Among respondents who were under 25 years of age, only a quarter (26%) said they had a personal vehicle available for regular travel, compared with 48% of those who were 25 to 34 years of age, and at least seven in ten respondents who were 35 years of age or older.

Availability of a personal bicycle was similarly tied to respondents' age; fewer than one in ten respondents who were under 25 years old said they had a personal bicycle, compared with 24% who were 25 to 44 years of age, 44% of those between 35 and 44, and more than half who were 45 years of age or older.

A similar pattern was noted by respondents' annual household income. Vehicle availability ranged from a low of 29% of respondents whose incomes were under \$50,000 to a high of 79% among respondents with incomes of \$150,000 or more. Availability of a bicycle showed a similar pattern; 13% of respondents with incomes of under \$50,000 had a personal bicycle available, compared with almost half (49%) of those with the highest income level.

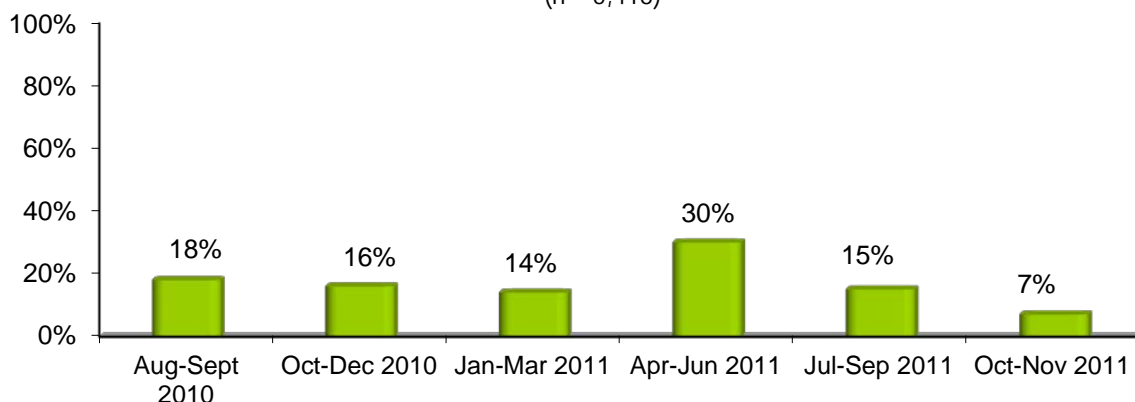
Participation and Program Membership Characteristics

An early section of the survey asked respondents about their bikeshare membership, such as when and why they joined Capital Bikeshare and how they heard about the program. Responses to these questions also were compared for various subgroups of survey respondents, to see if any differences existed that might be important to guide marketing efforts in the future.

When Joined Bikeshare

As shown in in Figure 6, Capital Bikeshare membership growth has been quite steady since its start in August 2010. About 18% of current members joined in the two-month period after the program began in August 2010. A similar share of members joined in each of the subsequent three-month periods, with one exception. Between April and June 2011, Capital Bikeshare membership experienced a significant spike; fully 30% of all Capital Bikeshare members joined the program during this period.

Figure 6
When Joined Capital Bikeshare
(n = 5,418)



Changing Member Profile – It is common to expect that the people who are attracted to a program when it is new might be different in various respects from those who join at a later time. This idea was tested for the Capital Bikeshare survey respondents by comparing the demographics of respondents who joined early in the program (August 2010 – March 2011), to those who joined in the “spike” period from April through June 2011, and in the most recent months, from July through November 2011.

The conclusion from this analysis is that the profile of new bikeshare members appears to be changing in several demographic characteristics to become less dominantly male, less white, younger, and less “bicycle-centric.”

- *Sex* - Of the members who joined between August 2010 and March 2011, 60% were men and 40% were women. Since April 2011, the membership has shifted to a nearly equal split of 51% men and 49% women, suggesting either that women are now more aware of the program or that the program is more attractive to women now that it was at the start.
- *Age* – Young people and students account for a larger share of new members. About 62% of respondents who joined between August 2010 and March 2011 were younger than 35 years old. Among responders who joined between July and November 2011, 71% were under 35 years old.
- *Student Status* – Students comprised about one in 10 of the members who joined between August 2010 and March 2011, but 21% of those who joined between July and November 2011.
- *Ethnicity* – Non-whites comprised 23% of members who joined between July and November 2011, a significant increase from the 18% nonwhite members who joined between August 2010 and March 2011.
- *Regular Access to a Personal Bicycle* – Among the members who joined before April 2011, 34% had access to a personal bicycle for regular travel. But only 27% of respondents who joined between April and June of 2011 and 22% who joined after June 2011 had access to a bike of their own, indicating that the program is attracting more members who were not regular bike users.
- *Regular Access to a Car / Personal Vehicle* – Members who joined Capital Bikeshare recently were less likely to have a car, van, SUV, or other personal vehicle available on a regular basis for their travel. More than half (54%) of respondents who joined between August 2010 and June 2011 had regular access to a vehicle, compared with 48% of those who joined after June 2011.

How Heard About Bikeshare

Table 4 presents the sources of information noted by Capital Bikeshare members for how they heard of the program. Two primary sources were related to seeing Capital Bikeshare in action; 39% of respondents said they learned of the program by seeing a bikeshare station and 22% said they saw someone riding a Capital Bikeshare bike. About a quarter (26%) said a friend or family member referred them and 15% said they heard about Capital Bikeshare from a Living Social deal promotion. Other common sources include blogs and newspaper or magazine articles, named by about one in ten respondents, the Capital Bikeshare website (7%), WABA (6%), and employers. Each of these sources was named by about one in twenty respondents.

The wide range of sources indicates success with a broad marketing pattern and perhaps the role of multiple program partners. It also is notable that a third of respondents cited more than one referral source; 16% mentioned two sources, 10% noted three, and seven percent named four or more.

Table 4
Bikeshare Information Sources

(Overall n = 5,464, multiple responses permitted)

(Aug 2010-Mar 2011 n = 2,610, Apr-Jun 2011 n = 1,618, Jul-Nov 2011 n = 1,190)

Bikeshare Information Source	Overall	When Joined Capital Bikeshare		
		Aug 2010- Mar 2011	Apr 2011- Jun 2011	Jul 2011- Nov 2011
Saw bikeshare station	39%	31%	43%	50%
Referral from friend/family member	26%	22%	27%	33%
Saw someone riding a Capital Bikeshare bike	22%	15%	26%	32%
Living Social deal	15%	10%	25%	11%
Blog	13%	18%	11%	6%
Newspaper or magazine article	11%	13%	11%	8%
Capital Bikeshare website	7%			
Washington Area Bicyclists Assoc. (WABA)	6%	8%	4%	2%
Employer / information at work	5%			
Previously member of Smartbike	2%			
Newspaper or magazine ad	2%			
Capital Bikeshare brochure	2%			
Twitter	2%			
Community event	2%			
District DOT website	2%			
Other *	5%			

(Statistical differences noted with orange and green highlighting)

"Other" responses all were named by fewer than 2% of respondents.

Change in Sources Over Time – Table 4 also shows how respondents learned of Capital Bikeshare by the time period in which they joined the program: August 2010 through March 2011, April through June 2011 and July through November 2011. These time periods were used to explore what might have contributed to the spike between April and June 2011. Information sources for which there were significant differences in these time periods are highlighted. Green highlighting show sources that increased in importance over time and orange highlighting shows sources that decreased in importance.

Three sources – "saw bikeshare station," "referral from friend or family member," and "saw someone riding a Capital Bikeshare bike" – demonstrated increased importance. Clearly, this shows how the visibility of the bikes and word-of-mouth referrals can be important marketing tools. The other source that showed an increased importance was the "Living Social deal," which was named by 25% of respondents who joined between April and June 2011, compared to only one in ten respondents who

joined during the earlier and later time periods. It is reasonable to assume that this source alone was responsible for a significant part of the spike in membership growth during these three months.

Conversely, several sources seem to have declined in importance since the early months of the program. "Blogs," which were named by 18% of respondents who joined during the first eight months, were noted by 11% of respondents who joined from April through June 2011, and only 6% of members who joined since July 2011. Similarly, the Washington Area Bicyclist Association (WABA) and newspaper or magazine articles were noted by fewer respondents who joined Capital Bikeshare in the latter two time periods. This suggests that some of the marketing and promotion for the program, which was important during program rollout, has ended or is reaching fewer people.

Sources Noted by Demographic Sub-groups – There also were some differences in how respondents learned of Capital Bikeshare by where they lived and by their sex, age, and ethnicity. Some differences also were noted for different income groups, but these largely paralleled the age patterns.

Home Location:

- *Referrals* – Respondents who lived in the District of Columbia (District) noted referrals (28%) at a higher rate than did respondents who lived in other areas (20%).
- *See Capital Bikeshare bike* – District members also were more likely to say they saw someone riding a Capital Bikeshare bike (23%) than were other respondents (16%).
- *Employer* – Respondents who lived outside the District mentioned learning about Capital Bikeshare from employer at a higher rate (7%) than did District residents (3%).
- *Blogs* – Blogs were mentioned more often by Arlington (11%) and District (15%) respondents than by respondents who lived elsewhere (7%).
- *BikeArlington* – 14% of Arlington respondents mentioned BikeArlington as a source, compared with 1% of respondents who live in other areas.
- *WABA* – 14% of respondents who lived in the Maryland counties of Montgomery and Prince George's named WABA as their source compared with only about five percent of respondents who lived in other areas.

Sex: Women and men reported differences in several sources.

- *Article* – Higher shares of men named seeing a newspaper or magazine article (12%) or a blog (17%) as their source compared to women (article – 10% and blog – 10%).
- *Referrals* – Women were more likely to mention referral (31%) than were men (23%).
- *See Capital Bikeshare Bike* – Women also were more likely to mention seeing a Capital Bikeshare station (41%) or seeing someone riding a Capital Bikeshare bike (24%) than were men (station – 37% and bike – 21%).
- *Living Social* – A higher share of women (17%) named the Living Social deal as their source; only 13% of men mentioned this source.

Age: Four sources showed distinct downward trends as respondents' ages increased: referrals, blogs, Living Social deal, and social media.

- *Referrals* – 29% of respondents who were younger than 35 mentioned referrals, compared with 24% of respondents who were between 35 and 44, and only about five percent of respondents who were 45 or older.
- *Blogs* – 15% of respondents under 35 mentioned a blog, compared with 13% who were between 35 and 44, and six percent who were 45 or older.
- *Living Social deal* – Seventeen percent of the under-35 age group noted this source. By comparison 12% of respondents 35 to 44 and 9% of respondents 45 or older noted this deal.
- *Social media* – While the percentages of respondents in all age groups who mentioned either Facebook or Twitter were small, these were particularly noted by young respondents. About four percent of respondents who were under 35 mentioned one of these sources, compared with only about one percent of respondents who were 45 or older.

Three sources showed distinct upward trends as respondents' ages increased: Capital Bikeshare brochure, newspaper or magazine article, and WABA.

- *Article* – Two in ten (21%) respondents 45 or older mentioned a newspaper or magazine article as a source. This was among top information sources for this age group. In contrast only eight percent of respondents who were under 35 noted this source.
- *WABA* – Ten percent of respondents who were 45 or older cited WABA, compared with about three percent of respondents who were under 35.
- *Brochure* – This source was mentioned by seven percent of respondents were 55 or older compared to only one percent of respondents who were under 35.

Ethnicity:

- *Article or Blog* – White respondents noted seeing a newspaper or magazine article (12%) or a blog (15%) as their source more often than did Non-white respondents (article – 8% and blog – 9%).
- *See Capital Bikeshare Bike* – Non-white respondents were more likely to say they saw someone riding a Capital Bikeshare bike (25%) than were White respondents (22%).
- *Living Social* – A higher share of Non-white respondents also noted the Living Social deal (18%); only 14% of White respondents mentioned this source.

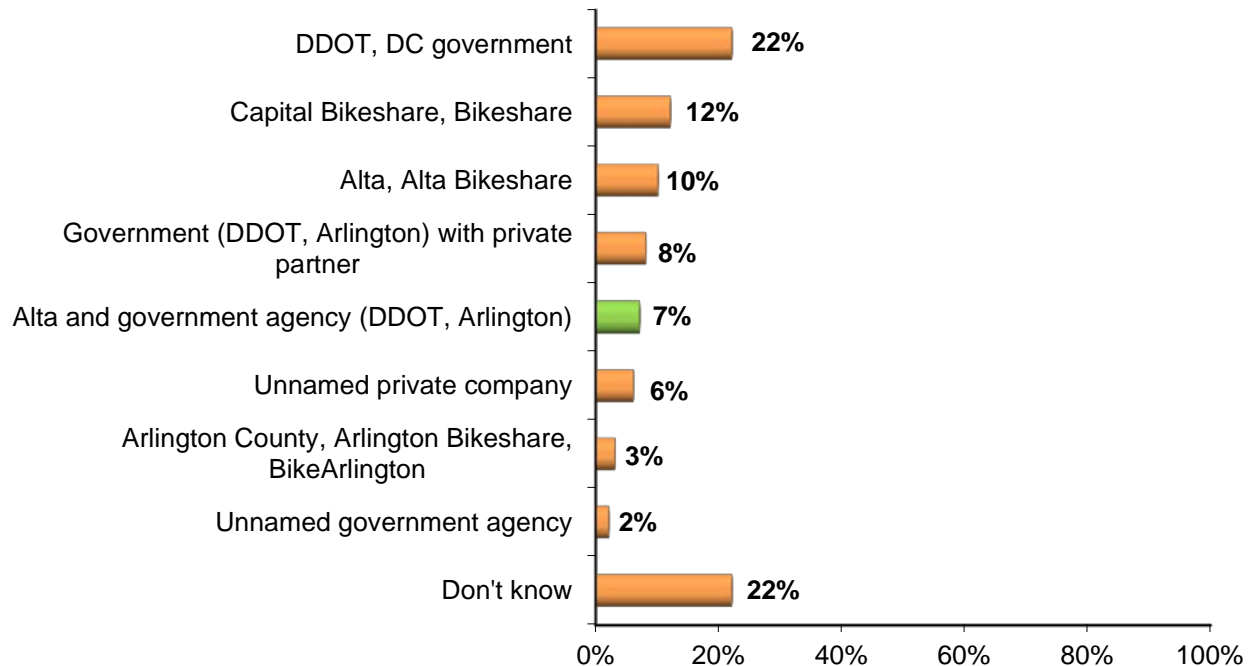
Awareness of Capital Bikeshare Operator

Capital Bikeshare is a program jointly sponsored by the District of Columbia and Arlington County, VA and operated by Alta Bicycle Share, Inc., a private firm. Survey respondents were asked an open-ended question to gauge their awareness of this organizational relationship; “to the best of your knowledge, what organization runs or is responsible for Capital Bikeshare?”

As shown in Figure 7, many respondents knew of one or more of the government partners and nearly two in ten knew that Alta was involved, but only seven percent of respondents knew the correct organizational arrangement. About a third of respondents mentioned the District of Columbia or the District Department of Transportation as a partner. Twelve percent said they thought Capital Bikeshare was the name of the operator as well as the program. Two in ten (22%) said they did not know.

Figure 7
Awareness of Capital Bikeshare Operator / Sponsor

(n = 4,399)

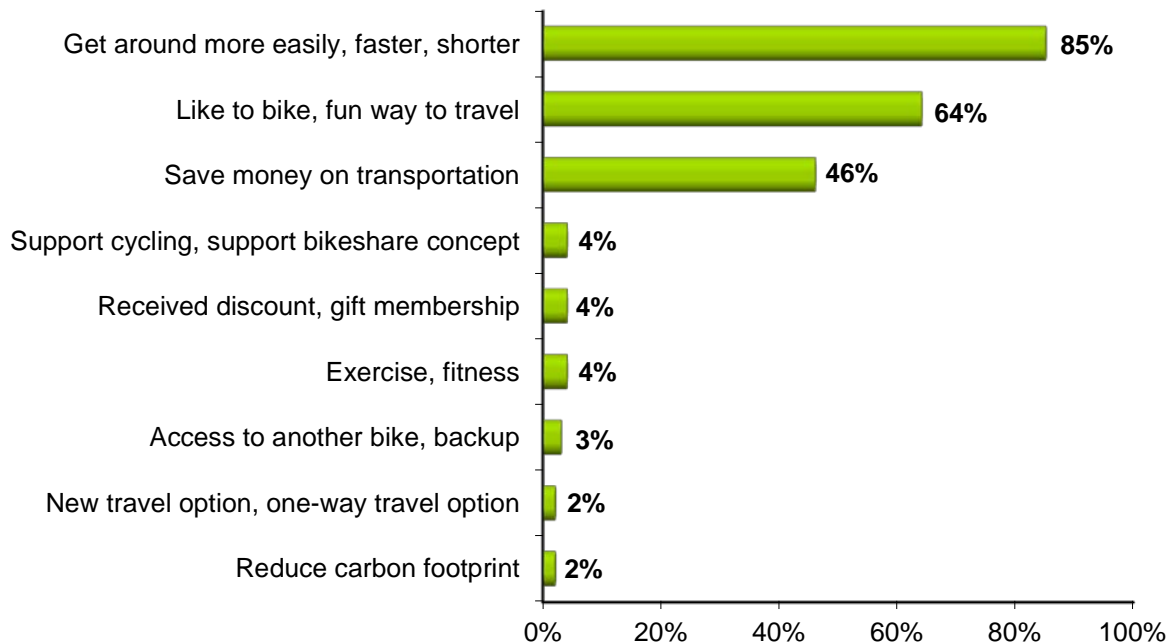


Reasons for Joining Bikeshare

Survey respondents were asked what motivated them to join Capital Bikeshare at the time that they did. Three possible motivations, to get around more easily, like to bike, and save money on transportation, were shown to respondents, but respondents also could offer additional reasons for joining. As illustrated in Figure 8, the primary reason was clearly access and speed; the vast majority (85%) of respondents said they were motivated by the ability to get around more easily or more quickly. Two-thirds said they liked to bike or thought biking was a fun way to travel. Nearly half (46%) cited a desire to save money on transportation as a reason.

Small percentages of respondents wrote-in additional “other” reasons. Four percent joined to support bicycling or support the bikeshare concept. Another four percent said they had received a discount to join, such as the deal offered by Living Social, or had received a membership as a gift. And four percent said they were motivated by a desire to get more exercise. Other reasons included wanting access to another bicycle for guests or having a backup to a personal bike (3%), having a new travel option or a one-way travel option (2%), and a desire to reduce one's carbon footprint (2%).

Figure 8
Bikeshare Membership Motivations
 (n = 5,442, multiple responses permitted)



Motivations by Demographic Sub-groups – Respondents gave quite similar responses to why they joined Capital Bikeshare, regardless of where they lived or their demographic characteristics. But a few notable differences are described below.

Home Location:

- *Save Money* – Nearly half (48%) of respondents who lived in the District of Columbia mentioned a desire to save money, while only 37% of respondents who lived in other gave this as a reason.
- *Get Around More Easily* – District members also were more likely to join to be able to get around more easily or faster; 87% of District residents mentioned this reason, compared to 80% of respondents who lived in other areas.

Sex:

- *Save Money, Get Around More Easily, and Like to Bike* – Men were slightly more likely than women to note three reasons: save money on transportation (48% of men vs 43% of women), get around more easily (87% of men vs 83% of women), and like to bike/fun way to travel (66% of men vs 63% of women).
- *Membership Discount or Gift* – Women noted only one reason at a higher rate than did men; six percent of women mentioned receiving a discount or a gift membership, compared with only three percent of men.

Age – Two motivations showed pronounced downward trends as respondents' ages increased: save money on transportation and get around more easily.

- *Save Money* – Half (52%) of respondents who were younger than 35 mentioned a desire to save money on transportation, compared with 38% of respondents who were between 35 and 44, and only about 29% of respondents who were 45 or older. This is likely due in part to younger respondents' lower level of income.
- *Get Around More Easily* – Nearly nine in ten (88%) respondents under 35 mentioned this motivation, compared with 85% who were between 35 and 44, and 76% who were 45 or older. This again may be due to other factors however, such as availability of a car and the areas in which they typically travel.

Only one motivation was noted more often by older respondents. Nine percent of respondents who were 45 or older mentioned wanting to support cycling or supporting the bikeshare concept, compared with only two percent of respondents who were under 35 years old. Because the general profile of the typical bikeshare member is quite young, this likely signals that many older respondents who join Capital Bikeshare are bike advocates or avid bike users.

Income – The results showed a distinct downward pattern as respondents' income increased for one motivation – a desire to save money on transportation. More than six in ten (61%) respondents with incomes of less than \$50,000 said this was a motivation for joining Capital Bikeshare. Among respondents whose incomes were between \$50,000 and \$99,999, 47% mentioned a desire to save money. The share of respondents who noted this reason dropped still further for the next two income groups. Four in ten (41%) who had an income of between \$100,000 and \$149,999 and 32% of those with incomes of \$150,000 or more said saving money was a reason they joined Capital Bikeshare.

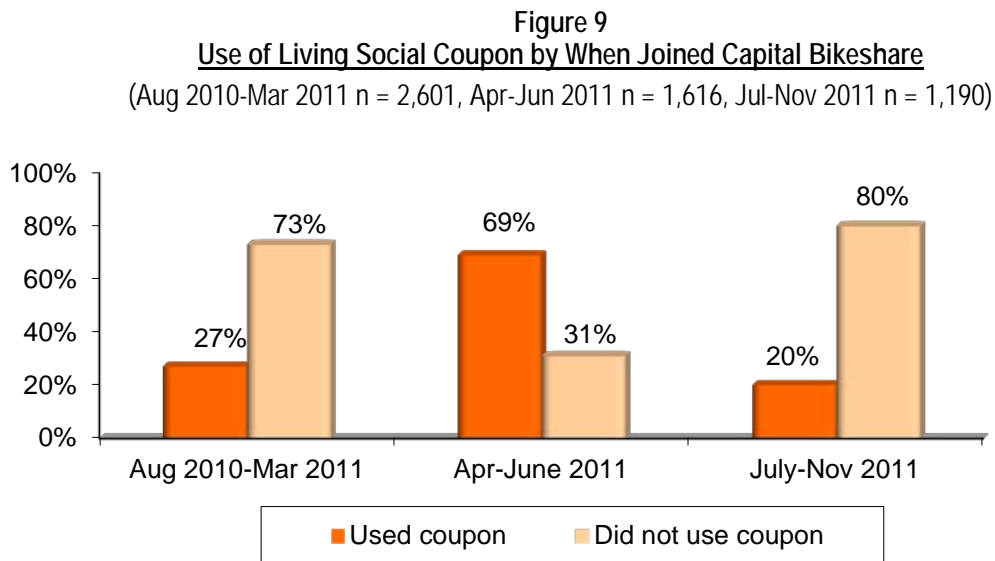
Ethnicity – Slight, but statistically significant, differences were noted in motivations for White and Non-white respondents.

- *Save Money* – Non-white respondents mentioned saving money at a higher rate than did White respondents; 49% of Non-white respondents said this was a motivation, compared with 45% of White respondents.
- *Get Around More Easily* – This reason was noted by a higher share of White respondents (87%) than Non-white respondents (80%).
- *Like to Bike* – A higher share of White respondents also noted liking to bike as a reason (65%); only 60% of Non-white respondents mentioned this reason.

Access to a Personal Vehicle for Travel – Respondents' motivations for joining Capital Bikeshare also were examined relative to their access to a personal vehicle. Interestingly, while respondents who did not have a vehicle were slightly more likely than were those with a vehicle to join Capital Bikeshare to be able to get around more easily (87% of no vehicle vs 84% of with vehicle), they appeared to be even more concerned with saving money. More than half (53%) of respondents with no vehicle said they wanted to save money on transportation compared with 40% of those who had a vehicle available. This could be related, however, to the incomes of these two groups of respondents. Respondents who did not have vehicles available also had lower average incomes, thus their interest in saving money could be related to their income rather than to their vehicle availability.

Use of a Living Social Coupon when Joining Capital Bikeshare

Overall, almost four in ten (38%) respondents used a coupon offered by the Living Social daily discount coupon program. But, as shown in Figure 9, use of the coupon was heavily dependent on when the respondent joined Capital Bikeshare.



Among respondents who joined Capital Bikeshare in the early months of the program, between August 2010 and March 2011, 27% used a coupon. The percentage was similar, 20%, among respondents who joined most recently, between July and November 2011. But more than two thirds (69%) of respondents who joined between April and June of 2011 used a coupon to discount their membership cost.

A larger share of women (44%) than men (34%) used a living social coupon when they joined and use was higher among employed respondents (39%) than respondents who were not employed (26%). Young respondents also used it more frequently than did older respondents; 42% of respondents who were younger than 35 used the coupon, compared with 37% of those between 35 and 44 years old, and 23% of those 45 years or older. But White and Non-white respondents were about equally likely to have used the coupon deal.

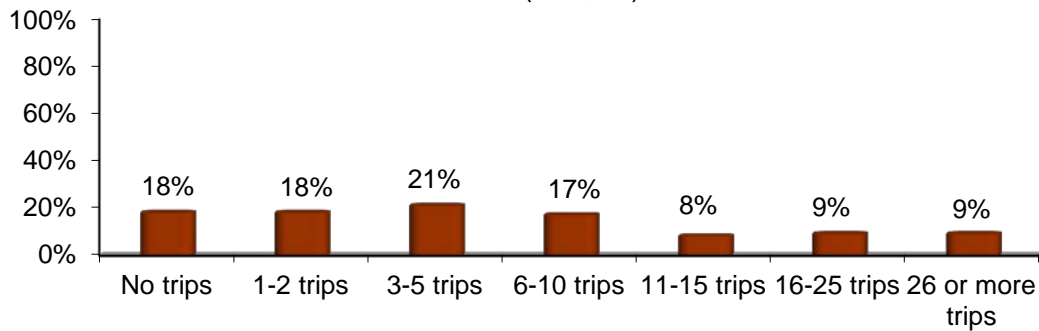
Typical Bikeshare Use

Another section of the questionnaire asked respondents about their bikeshare use, including the frequency of bikeshare rentals and trip purposes for which they used bikeshare. The survey also asked several detailed questions about trips respondents made using bikeshare that they would not have made if bikeshare had not been available.

Frequency of Bikeshare Use

Two in ten respondents said they had not made any bikeshare trips in the past month. (Figure 10) Some of these respondents said they had only recently joined the program, so their typical frequency could be higher after they have been in the program longer. About two in ten (18%) had made one or two bikeshare trips, 21% made between three and five trips, and 17% made between six and ten trips. About a quarter of respondents were frequent users, making 11 or more trips in the past month. And nearly two in ten (18%) made at least 16 trips. This use distribution results in an average use of about 8.1 trips per user in the past month.

Figure 10
Bikeshare Trips Made in Past Month
(n = 5,403)



Trip Frequency by Bikeshare Member Characteristics – Frequent and infrequent bikeshare users were distributed across all demographic and program characteristic subgroups. But frequency differences were noted for some user characteristics. (Table 5)

Table 5
Bikeshare Trips in Past Month by Respondents' Program Characteristics

Respondent Characteristic	Capital Bikeshare Trips in Past Month	
	5 or Fewer	6 or More
When Joined Capital Bikeshare		
- August 2010 to March 2011 (n = 2,589)	58%	42%
- April 2011 to June 2011 (n = 1,606)	59%	41%
- July 2011 to November 2011 (n = 1,175)	50%	50%
Motivation to join Capital Bikeshare		
- Save money on transportation (n = 2,471)	46%	54%
- Get around more easily, faster (n = 4,607)	55%	45%
- Like to bike, fun way to travel (n = 3,450)	53%	47%

(Statistical differences noted with orange highlighting)

For example, respondents who joined recently made more trips in the past month than did respondents who joined earlier; half of respondents who registered between July and November 2011 made at least six bikeshare trips in the past month compared to only about four in ten respondents who joined earlier. Respondents who noted a desire to save money on transportation as a motivation to join Capital Bikeshare were particularly frequent users of the service.

Trip Frequency by Demographic Characteristics – Several demographic characteristics also were associated with more frequent bikeshare use. (Table 6)

Table 6
Bikeshare Trips in Past Month by Respondents' Demographic Characteristics

Respondent Characteristic	Capital Bikeshare Trips in Past Month	
	5 or Fewer	6 or More
Home jurisdiction		
- Arlington County, VA (n = 334)	72%	28%
- District of Columbia (n = 4,254)	53%	47%
- Montgomery / Prince George's Co, MD (n = 230)	67%	33%
Work jurisdiction		
- Arlington County, VA (n = 307)	61%	39%
- District of Columbia (n = 3,948)	54%	46%
- Montgomery / Prince George's Co, MD (n = 329)	72%	29%
Sex		
- Male (n = 2,838)	49%	51%
- Female (n = 2,323)	65%	35%
Age		
- 16 to 24 years old (n = 597)	45%	55%
- 25 to 34 years old (n = 2,822)	55%	45%
- 35 to 44 years old (1,017)	61%	39%
- 45 years and older (n = 743)	61%	39%
Access to a personal vehicle		
- Yes (n = 3,006)	62%	38%
- No (n = 2,337)	49%	51%

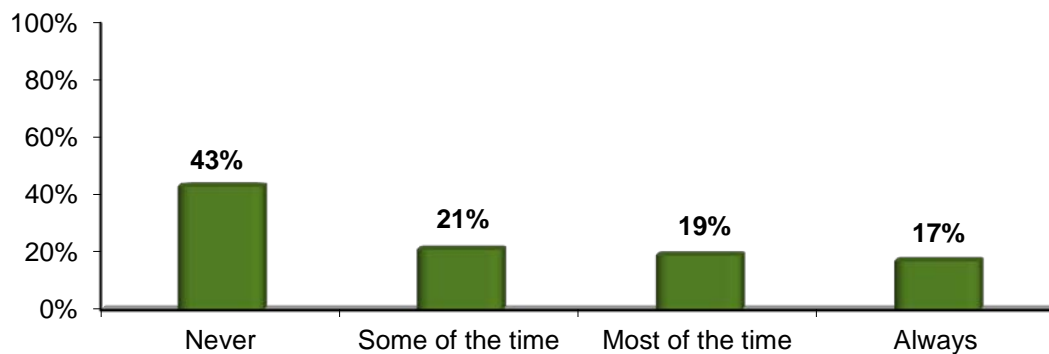
(Statistical differences noted with orange highlighting)

Use was more frequent among respondents who live in the District of Columbia and those who work in the District. This seems a reasonable outcome, considering that the majority of bikes and bike stations are located in the District. Other characteristics associated with higher use included being male, younger than 35 years old, and not having access to a personal vehicle. At least half of the respondents in each of these categories said they had used bikeshare at least six or more times in the past month.

Use of a Helmet while Riding a Capital Bikeshare Bike

At the time of the survey, Capital Bikeshare bikes did not come equipped with helmet; riders need to provide their own helmet. The survey asked respondents how often they wear a helmet when using a Capital Bikeshare bike. (Figure 11) Fewer than four in ten (36%) respondents said they use a helmet always or most of the time and 21% wear a helmet some of the time. But 43% never wear a helmet. There were no statistical differences in helmet use among respondents of any different demographics

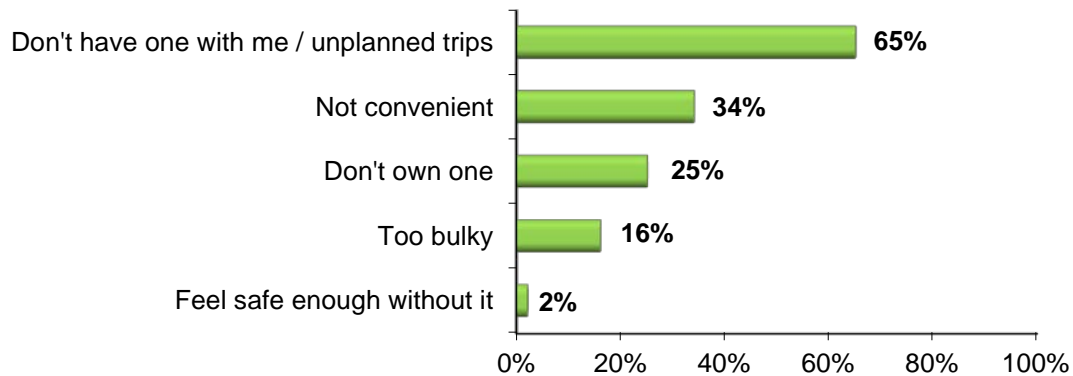
Figure 11
Use Helmet when Riding Capital Bikeshare Bike
(n = 5,362)



When asked why they did not wear a helmet, respondents gave a range of reasons, as illustrated in Figure 12. The overwhelming reason, mentioned by 65% of respondents, was that trips they were making were unplanned or spontaneous, so they did not have a helmet with them. Indeed, the opportunity to make a spontaneous trip is part of Capital Bikeshare's appeal.

A third (34%) said it was not convenient, presumably meaning not convenient to carry it during the day. A quarter of respondents said they don't own a helmet and since Capital Bikeshare does not provide helmets, they don't have one to wear. Finally, 16% said it was too bulky. About two percent of respondents said they didn't think they needed a helmet, because they felt safe enough without it. Most of these respondents commented that they ride slowly or on bike paths, so did not feel they were in any danger riding without a helmet.

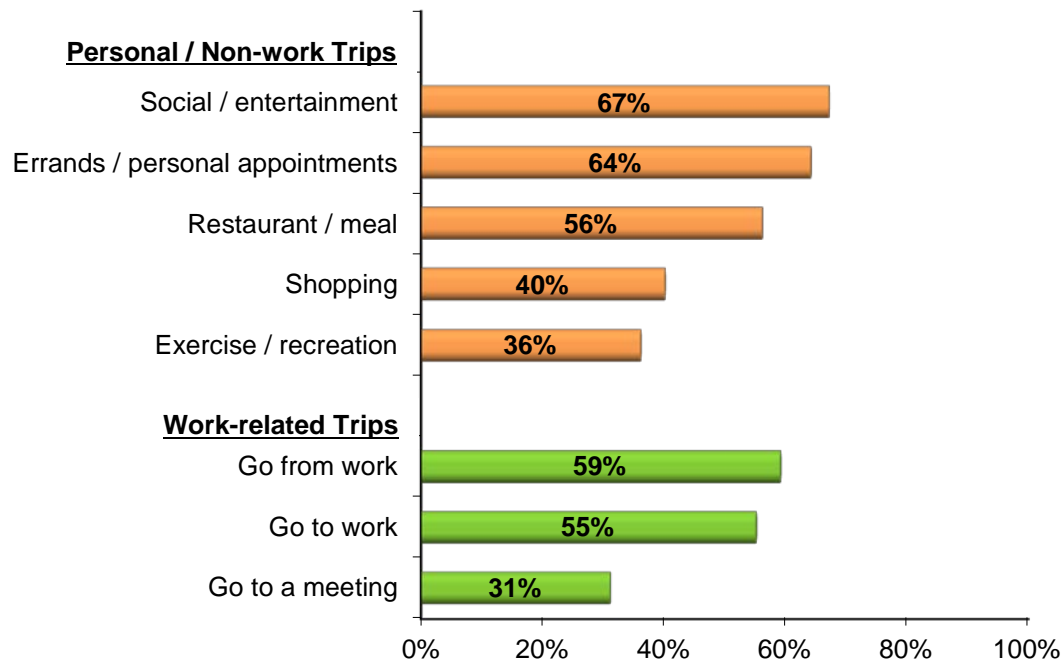
Figure 12
Reasons for Not Wearing a Helmet when Riding Capital Bikeshare Bike
(n = 4,414)



Trip Purposes

Respondents were asked to indicate the types of trips for which they had ever used Capital Bikeshare. Figure 13 presents the results for this question, with trip purposes divided into “personal / non-work trips” and “work-related trips.”

Figure 13
Bikeshare Trip Purposes
(n = 5,301)



Personal / Non-work Travel – Respondents used bikeshare primarily for trips that were for personal / non-work purposes. The top two bikeshare trip purposes, each mentioned by about two-third of respondents, were social / entertainment and errands / personal appointments. More than half (56%) had ever used bikeshare for a trip to a restaurant or other location where they had a meal, 40% made a bikeshare trip to shop, and 36% used Capital Bikeshare for an exercise or recreation trip.

About five percent of respondents wrote-in an "other" non-work trip purpose, in addition to those that were presented in the on-screen list. Three trip purposes each were noted by about one percent of respondents: trips to access another form of transportation, such as Metrorail, carshare, or an airport; trips to or from gym or exercise class; and trips to or from school. About two percent of respondents mentioned some other type of trip.

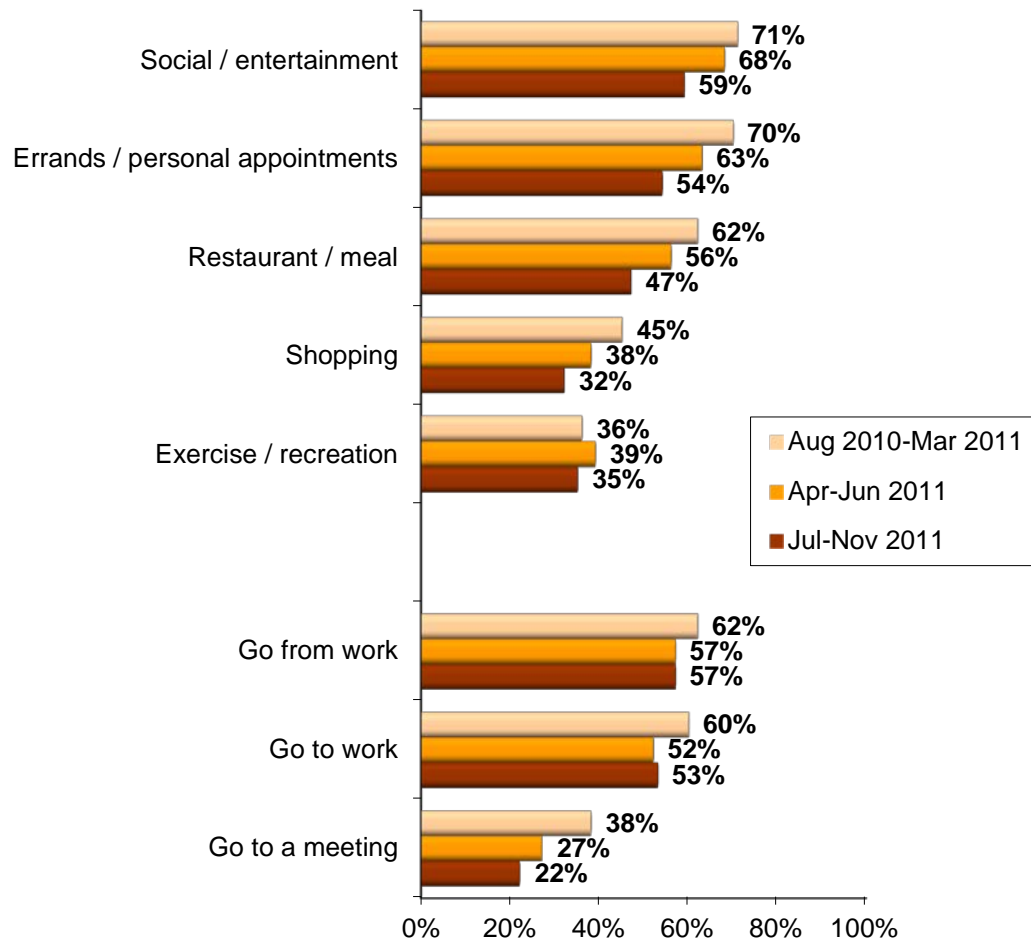
Work-related Travel – Six in ten respondents said they had ever used bikeshare to make a commute trip, that is, either to go TO work (55%) or to go FROM work (59%). Three in ten (31%) respondents used bikeshare to go to a meeting. Although the survey did not specify what type of meeting, it is likely that most of these were work-related.

Trip Purposes by When Joined Capital Bikeshare – The analysis examined whether respondents who joined Capital Bikeshare recently used bikeshare for different trip purposes than did respondents who joined earlier. Figure 14 presents the percentages of respondents from each of the three time periods previously defined who noted each trip purpose.

As is clear from the figure, use for nearly every trip purpose was higher for respondents who joined Capital Bikeshare earlier than for respondents who joined later. This is likely due, at least in part, to the greater opportunity these early adopters have had to making trips of multiple purposes, compared with respondents who have been in the program for fewer months. However, it also could indicate a greater interest in bicycling overall among the program's early adopters.

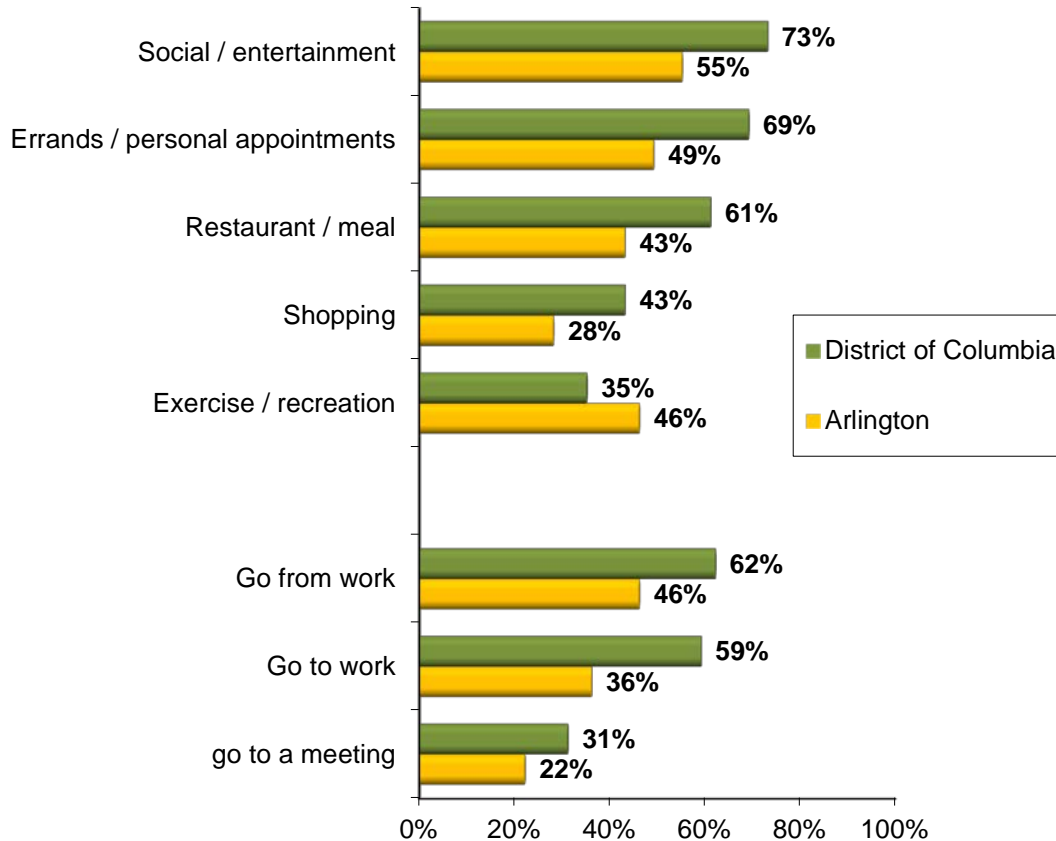
The only exceptions were for trips made for exercise or recreation and for commuting. There were no significant differences in the percentage of respondents who made exercise or recreation trips by when they joined. And with respect to trips to go to or from work, while use of bikeshare declined for respondents who joined between April and June of 2011 compared to the previous time, the percentages have remained stable since then.

Figure 14
Bikeshare Trip Purposes – by When Joined Capital Bikeshare
 (Aug 2010-Mar 2011 n = 2,559, Apr-Jun 2011 n = 1,592, n = July-Nov 2011 n = 1,124)



Trip Purposes by Home Location – The analysis next examined bikeshare trip purposes for respondents in the two primary home jurisdictions: District of Columbia and Arlington, VA. (Figure 15) Respondents who lived in the District used bikeshare at a higher rate for nearly all trip purposes than did respondents who lived in Arlington. However, since the vast majority of Capital Bikeshare bikes are located in the District, this result likely is related to the greater opportunity that District members would have to use bikes to reach a greater number of destinations.

Figure 15
Bikeshare Trip Purposes – by Home Jurisdiction
 (District of Columbia n = 4,207 and Arlington n = 321)



Trip Purposes by Demographic Characteristics – Next, the analysis examined differences in bikeshare trip purpose for respondents in different demographic subgroups.

- **Sex** – There were only a few differences in bikeshare use between male and female respondents. Men were slightly more likely to have used bikeshare for work trips purposes. About two thirds (64%) of men made a trip to or from work, compared with 55% of women. And 35% of men said they used bikeshare to go to a meeting, a trip purpose mentioned by only 26% of women. Men also were slightly more likely than were women to have mentioned making a trip to a restaurant (60% of men versus 54% of women). There were no statistical differences in any other trip purposes.
- **Income** – Differences in trip purpose also were relatively minor for respondents of different income groups. About 65% of respondents with incomes of under \$50,000 used bikeshare for a trip to or from work, compared with about 58% of respondents with higher incomes. And there also was a declining pattern of use for social and entertainment purposes as income increased; about 75% of respondents whose incomes were below \$75,000 a year used bikeshare for this type of trip compared with 67% of respondents with higher incomes.

- *Race / Ethnicity* – Overall, White respondents used bikeshare for each trip purpose at a higher rate than did Non-whites, but the difference was a consistent five or six percentage point gap for nearly all trip purposes. (Table 7) As noted earlier, a higher share of respondents who joined Capital Bikeshare when the program were White, thus the higher use by White respondents could reflect their longer time in the program, rather than a greater propensity to use bikeshare for any particular trip purpose.

Table 7
Bikeshare Trip Purposes – by Race / Ethnicity

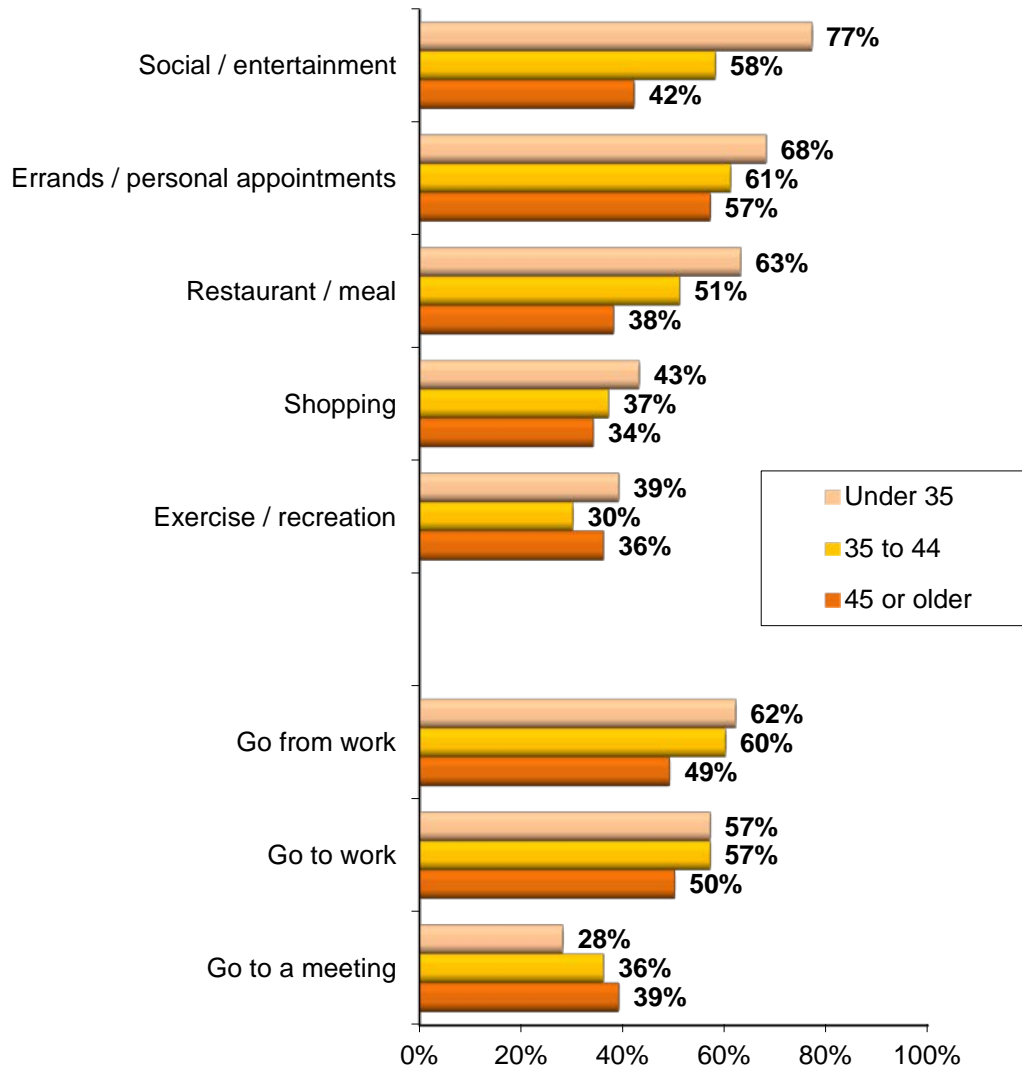
Respondent Characteristic	Non-white (n = 973)	White (n = 4,043)	Difference
Personal / Non-work Trips			
- Social / entertainment	64%	69%	+5%
- Run errands, personal appointment	61%	66%	+5%
- Go to a restaurant, meal	52%	58%	+6%
- Shopping	36%	41%	+5%
- Exercise, recreation	38%	36%	+2%
Work-related trips			
- Go from work	55%	61%	+6%
- Go to work	52%	57%	+5%
- Go to a meeting	27%	32%	+5%

(Statistical differences noted with orange highlighting)

- *Age* – In general, younger respondents used Capital Bikeshare for each trip purpose more than did older respondents. (Figure 16) This was particularly the case for social and entertainment trips and trips to restaurants / meals. More than three quarters (77%) of respondents who were under 35 years old had used bikeshare for a social or entertainment trips, compared with 58% of respondents who were between 35 and 44 years old, and only 42% of those who were 45 years of age or older. And 63% of respondents who were under 35 used bikeshare to reach a restaurant, compared with only 38% of those who were 45 or older. A similar, although less extreme, pattern was evident for use of bikeshare for errands and shopping trips.

Figure 16
Bikeshare Trip Purposes – by Age

(Under 35 years old n = 3,378, 35 – 44 years old n = 996, 45 or older n = 722)



Trip Purposes by Access to Alternative Transportation Option – Finally, the analysis explored bikeshare trip purposes of respondents who had access to a personal vehicle or a personal bicycle, compared with those who did not have other personal transportation options. (Table 8)

Table 8
Bikeshare Trip Purposes – by Access to Personal Vehicle or Personal Bicycle

Respondent Characteristic	Personal Vehicle Available			Personal Bicycle Available	
	Yes (n = 2,938)	No (n = 2,311)		Yes (n = 1,570)	No (n = 3,731)
Personal / Non-work Trips					
- Social / entertainment	61%	76%		62%	70%
- Run errands, personal appointment	58%	73%		61%	66%
- Go to a restaurant, meal	54%	61%		57%	57%
- Shopping	35%	47%		35%	42%
- Exercise, recreation	37%	37%		29%	40%
Work-related trips					
- Go from work	55%	66%		59%	60%
- Go to work	52%	62%		56%	56%
- Go to a meeting	32%	30%		40%	27%

(Statistical differences noted with orange highlighting)

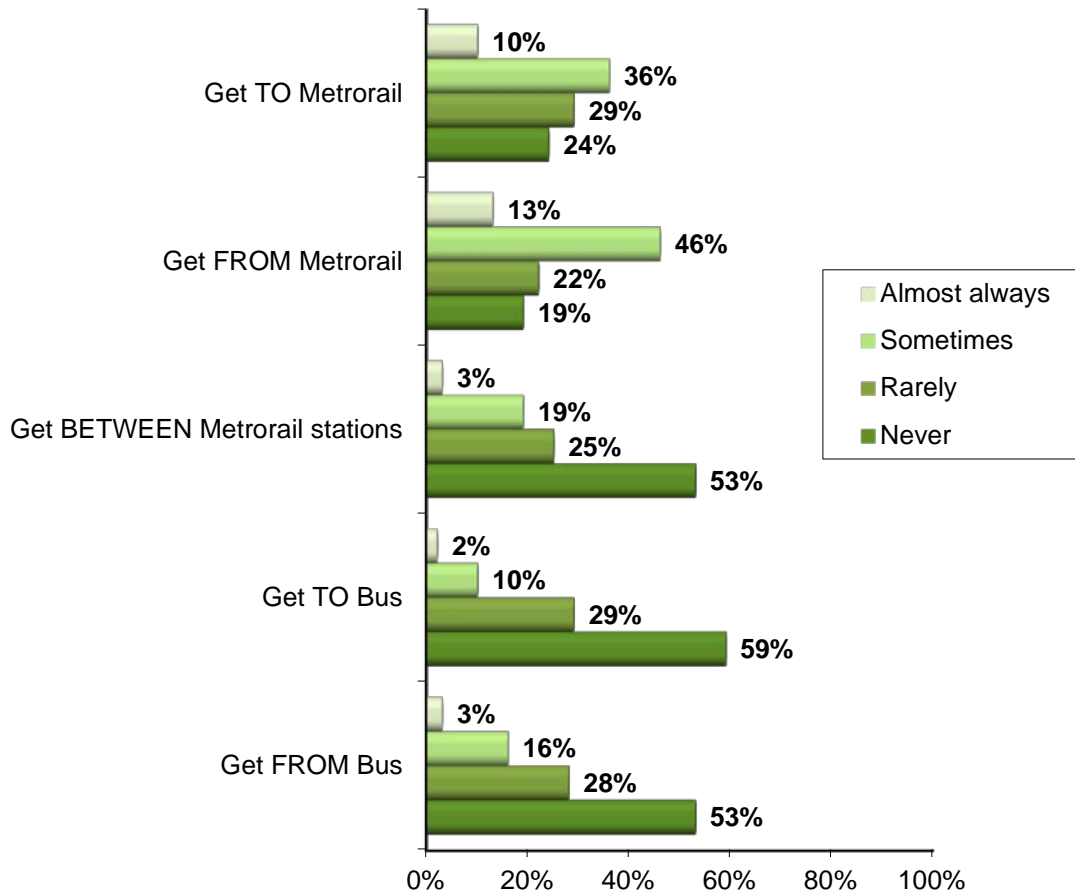
- *Personal Vehicle* – Respondents who did not have a personal vehicle available used Capital Bikeshare for a wider range of trip purposes than did respondents who had a vehicle available. In general, bikeshare use for each trip purpose was 10% to 15% higher among respondents without a vehicle. Bikeshare use was similar between the two groups only for two purposes, to exercise and to go to a meeting. These results indicate the important basic transportation role that Capital Bikeshare plays for car-free members.
- *Personal Bicycle* – A different use pattern was found by respondents' access to a personal bicycle. Higher shares of respondents without a personal bike used bikeshare for social or entertainment purposes, to run errands, and to shop, again suggesting bikeshare's basic transportation role. But there were no differences in use for travel to restaurants or for travel to and from work. Bikeshare use for exercise or recreation trips also was higher among those who did not have a personal bicycle, but this result is reasonable if we assume that many respondents who have a personal bicycle use it primarily for exercise and for trips that do not require them to leave the bicycle unattended.

Use of Bikeshare to Access Transit

The preceding section reported on the “destination” trip purposes for which respondents used Capital Bikeshare. But one additional bikeshare use could be as an access or feeder mode to reach public transportation. The survey explored how frequently respondents used bikeshare to get to or from Metrorail, to or from a bus stop, and between two Metrorail stations. (Figure 17)

Figure 17
Use of Capital Bikeshare to Access Train and Bus

(Get TO Metrorail n = 2,311, Get FROM Metrorail n = 2,301, Get BETWEEN Metrorail stations n = 2,242,
 Get TO Bus n = 2,216, Get FROM Bus n = 2,191)



More than half of all respondents had used Capital Bikeshare to access Metrorail. Nearly six in ten respondents said they almost always (10%) or sometimes (46%) used bikeshare to get FROM a Metrorail station and 46% used Capital Bikeshare at least sometimes to get TO Metrorail. Use of bikeshare to access a bus stop was less common than to access Metrorail. Nineteen percent of respondents used Capital Bikeshare to get FROM a bus and 12% rode a Capital Bikeshare bike to get TO a bus stop. The higher use FROM transit use could reflect evening or late night trips home, when respondents are particularly safety conscious, but the survey did not include questions to test this idea.

About two in ten (22%) respondents used bikeshare to travel from one Metrorail station to another. It seems likely to assume that these trips would be made to eliminate backtracking and transfers between stations, but again the survey does not include questions to confirm this theory.

Use of Capital Bikeshare to access transit was quite consistent across most population subgroups. One exception was that respondents who were more frequent bikeshare users overall also reported more frequent use of bikeshare to go to or from transit. For example, only 46% of respondents who made

one or two bikeshare trips in the past month said they always or sometimes used bikeshare to get from Metrorail, compared with 63% of respondents who used bikeshare six or more times in the past month. Similar differences were observed for travel to and between Metrorail stations and for travel to and from bus stops.

Differences in use of Capital Bikeshare to reach transit also were noted for respondents of different age, income, and race/ethnicity subgroups, but only for bus access. Bikeshare use to access a bus declined with increasing age and increasing income. And higher percentages of Non-white respondents than White respondents said they used bikeshare to get to a bus (18% Non-white versus 11% White) or from a bus (22% Non-white versus 18% White). There were no differences for these groups, however, in bikeshare use to access Metrorail.

Most Recent Bikeshare Use

One purpose of the Capital Bikeshare survey was to examine the characteristics of bikeshare trips. For this purpose, the survey included questions exploring the details of respondents' "most recent Capital Bikeshare trip." It was expected that respondents would be able to recall this last trip in sufficient detail to provide accurate information. Highlights of these results are shown below.

Trip Purposes

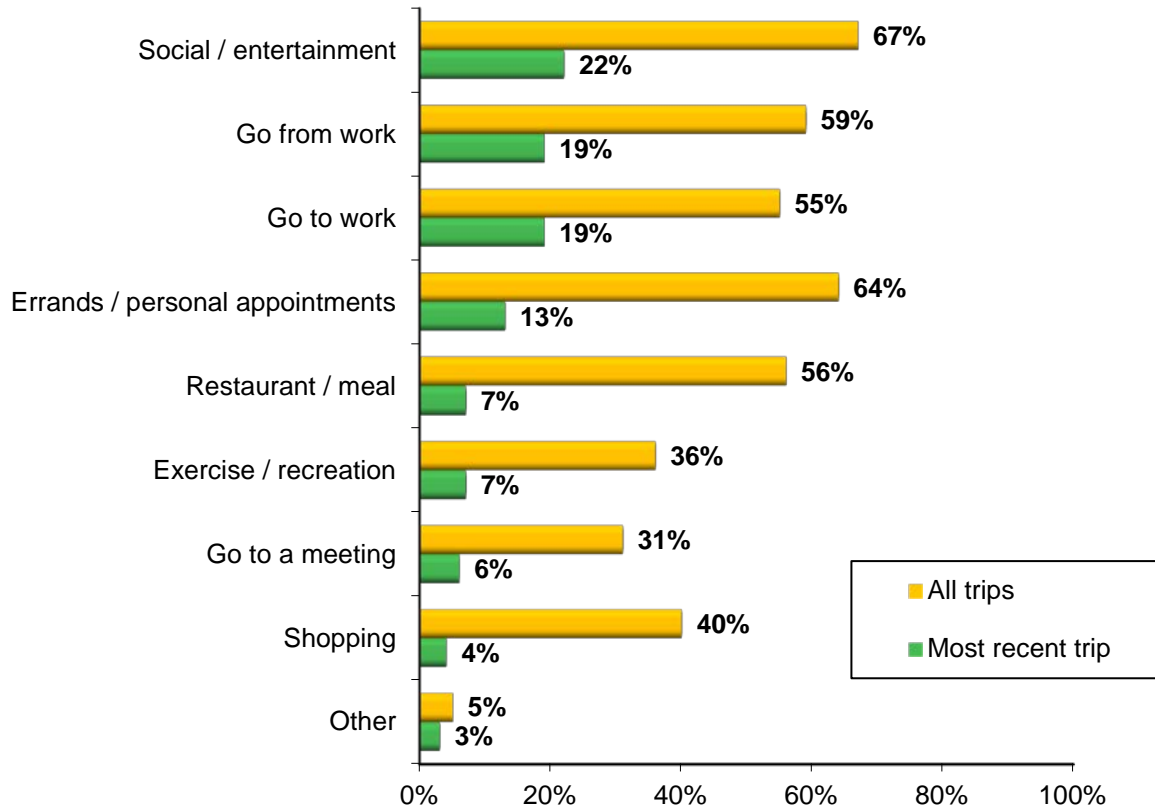
Respondents were first asked the purpose of their most recent bikeshare trip. Figure 18 shows these results, compared with the results presented earlier for all bikeshare uses.

Almost six in ten (56%) of respondents' most recent bikeshare trips were for non-work purposes. About 22% used bikeshare most recently for a social / entertainment trip. This also was the most common overall trip purpose for all previous bikeshare trips; 67% of respondents said they ever used Capital Bikeshare for this purpose.

The next most common recent trip purposes, noted by almost two in ten respondents, were to go to work (19%) or go from work (19%). These also were common trip purposes overall, mentioned by 55% and 59% of respondents, respectively, as purposes for which they had ever used Capital Bikeshare. But, as is clear from the figure, work trips were no more common overall than were errand / personal appointment and restaurant trips. This indicates that bikeshare work trips are made more frequently than are errand and restaurant trips, but are concentrated among a smaller numbers of users.

The remaining quarter of recent bikeshare trip were more evenly divided among restaurant/meal trips (7%), exercise/recreation trips (7%), trips to go to a meeting (6%), and shopping trips (4%).

Figure 18
Bikeshare Trip Purposes – All Trips Made and Most Recent Trip
 (All trips made n = 5,301, Most recent trip n = 5,232)



Recent Trip Purposes by Respondent Subgroup Characteristics – The previous section of the report explored differences in how subgroups of respondents have used Capital Bikeshare, noting numerous differences by when respondents they joined the program, where they lived, and certain demographic characteristics. Interestingly, these differences in bikeshare use were much less prominent for the most recent trip than for all trips ever made by bikeshare.

For example, there were no statistical differences in the most recent trip purpose for respondents who were recent registrants compared to those who registered at the beginning of the program. This supports the conclusion, drawn earlier, that the greater use of Capital Bikeshare for all trip purposes likely was related to early adopters' longer exposure to trip-making opportunities.

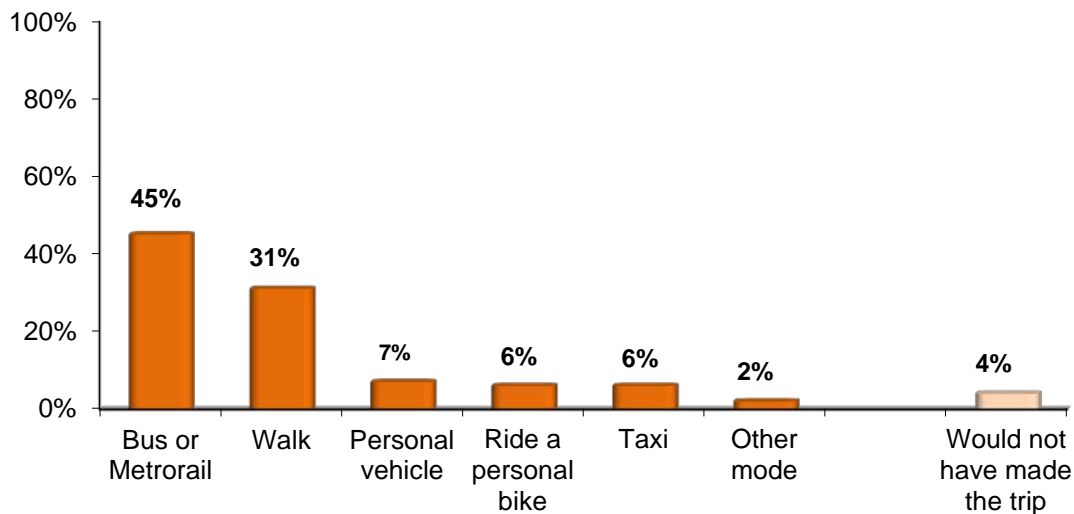
Similarly, the distribution of most recent trip purposes was similar for respondents who lived in the District of Columbia or Arlington County, again suggesting that the higher percentages found for District residents when all trips were considered was primarily due to the greater opportunity District residents have to make trips to a wider range of destinations. Finally, there were no differences in the purposes of the most recent trips made by White and Non-white respondents.

- *Sex* – Men were slightly more likely to have made a recent bikeshare trip to or from work (21% of men vs 17% of women). By contrast, 15% of women’s last bikeshare trips were to run errands / go to a personal appointment, while only 11% of men noted this trip purpose.
- *Age* – Differences in most recent trip purpose were noted among respondents of different age groups for only two purposes. The percentage of respondents whose last trip was to go to a meeting increased with increasing age, from four percent of respondents who were under 35 years old to 12% of respondents who were 45 years of age or older. Conversely while 27% of respondents who were under 35 years old used bikeshare most recently for social or entertainment purposes, only 12% of respondents 45 years of age or older mentioned this trip purpose.

Travel Options if Bikeshare Not Available

A related question was how the respondent would have made the most recent trip if Capital Bikeshare had not been available. These results are presented in Figure 19. A small share (4%) of respondents said they would not have made the trip without bikeshare. Thus, for a small share of trips, bikeshare broadened trip options.

Figure 19
Travel Options for Most Recent Trip if Bikeshare Not Available
(n = 5,287)



Most respondents said they would have made the trip, but would have used a different type of transportation. Nearly half (45%) would have used public transit (bus or Metrorail) and 31% would have walked to their destination. Seven percent of respondents would have driven or ridden in a personal vehicle, but since almost half of respondents did not have a personal vehicle regularly available, this would not have been an easy option for many. Six percent said they would have used a taxi and another six percent would have ridden a personal bike.

Type of Transportation by Trip Purpose – As shown in Table 9, the type of transportation that respondents would have used varied by the trip purpose. Overall, 45% of respondents said they would have used a bus or Metrorail if Capital Bikeshare had not been available, but six in ten respondents whose last bikeshare trip was to go to or from work would have used transit for the trip. Respondents whose last bikeshare trip was for errands or shopping were more likely to say they would have used a personal vehicle or walked than were respondents generally. Respondents also were more likely than average to say they would use a personal vehicle for a trip to a restaurant. Respondents whose last bikeshare trip was to go to a meeting were substantially more likely were than other respondents to say they would use a taxi.

Table 9
Alternative Transportation Options – by Trip Purpose of Most Recent Capital Bikeshare Trip

Trip Purpose – Most Recent Bikeshare Trip	Type of Transportation				
	Bus or Metrorail	Personal Vehicle	Walk	Taxi	Not Made Trip
All trip purposes (n = 5,287)	45%	7%	31%	6%	4%
Personal / Non-work Trips					
- Social / entertainment (n = 1,137)	45%	7%	29%	9%	2%
- Errands, appointment (n = 671)	35%	12%	40%	4%	3%
- Go to a restaurant, meal (n = 379)	36%	10%	34%	9%	6%
- Shopping (n = 207)	31%	10%	43%	5%	3%
- Exercise, recreation (n = 372)	19%	8%	36%	2%	26%
Work-related trips					
- Go from work (n = 977)	61%	3%	28%	3%	1%
- Go to work (n = 1,008)	59%	4%	27%	2%	0%
- Go to a meeting (n = 310)	43%	8%	24%	17%	0%

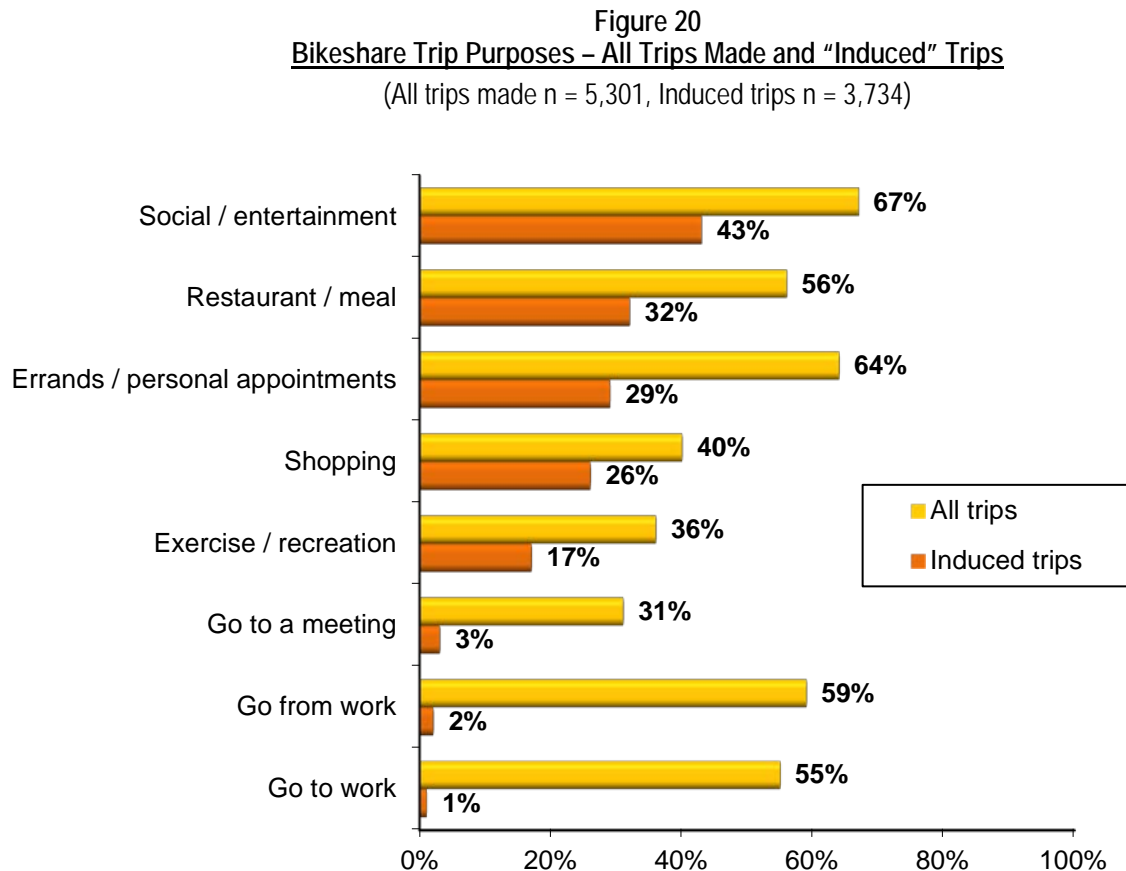
(Statistical differences noted with orange highlighting)

Use of Capital Bikeshare to “Induce” Trips

The survey included several questions related to the role Capital Bikeshare could play in encouraging respondents to make trips they otherwise would not have made, referred to in this section as “induced” trips. More than four in ten (44%) respondents said they had used Capital Bikeshare in the past month to make at least one such trip. These respondents were asked additional questions about the trips.

Induced Trip Purposes

Figure 20 shows the trip purposes for which respondents made induced trips, compared with the results presented earlier for all bikeshare uses. In this chart, the trip purposes are ordered from highest percentages of induced trips to lowest.

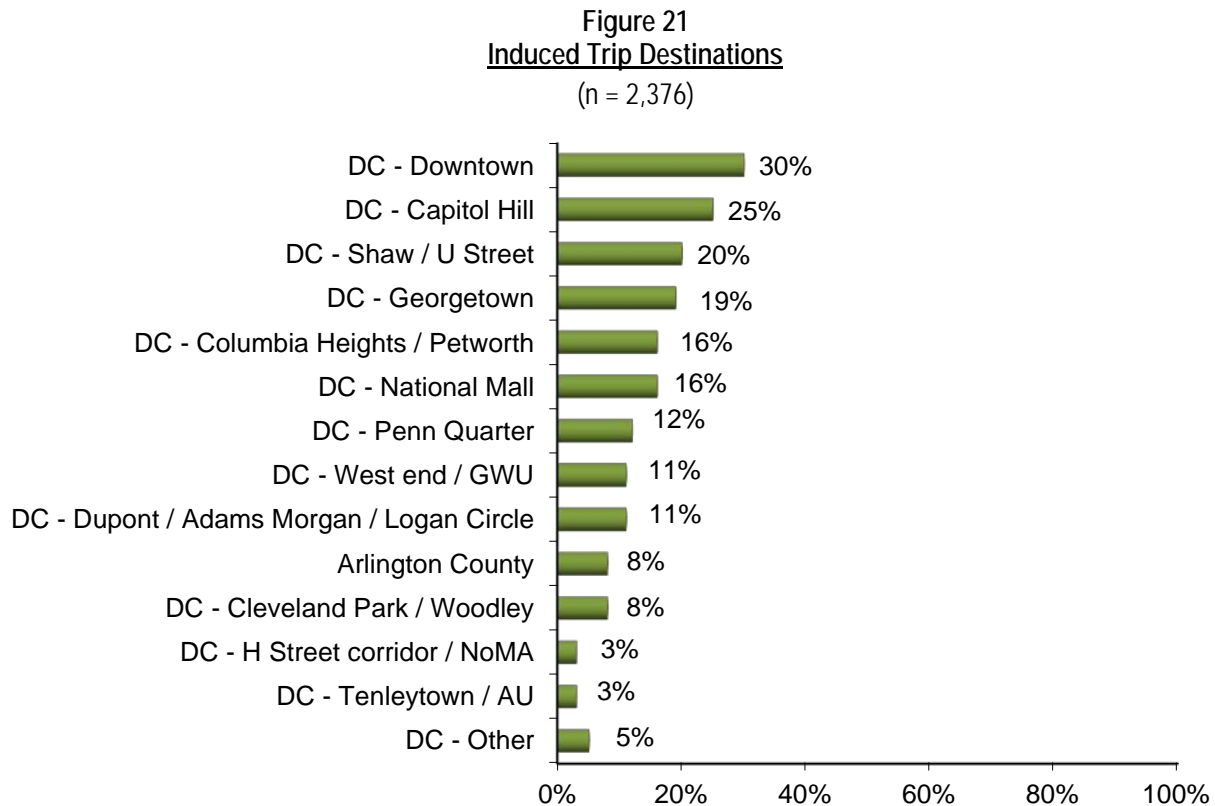


The distribution of non-work induced bikeshare trip purposes was similar to that for all bikeshare trips. The most common induced trips were for *social / entertainment* trips; 43% of respondents who had made an induced trip noted this trip purpose. This also was the most common overall trip purpose for all previous bikeshare trips. Induced trips also were typically made for *restaurants/meals* (32%) and *errands and personal appointments* (29%). *Shopping* trips (26%) were nearly as common induced trips, although they were less common overall. These trips also were among the most common Capital Bikeshare trips overall. Seventeen percent of respondents mentioned making an *exercise or recreation* trip by bikeshare that they would not have made otherwise.

But the distribution was very different for work-related trips. Although a large share of respondents used Capital Bikeshare to go to work (55%) or go from work (59%), only a very few respondents mentioned making an induced trip for these purposes (1% go to work and 2% go from work). Similarly, respondents made very few induced trips (3%) to go to meetings. These are reasonable results, however, as work-related trips would not generally be considered discretionary trips.

Induced Trip Destinations

The primary destinations to which respondents made induced bikeshare trips are illustrated in Figure 21. As expected, the vast majority of trips were made to destinations in the District of Columbia, with Downtown being the most common destination overall; three in ten (30%) respondents made an induced trip to this area. About a quarter (25%) made a trip to Capitol Hill and two in ten (20%) made a trip to Capitol Hill and two in ten made trips to Shaw / U Street (20%) or Georgetown (19%).



Other popular destinations included Columbia Heights / Petworth and National Mall, each mentioned by 16% of respondents, and Penn Quarter, West end / George Washington University, and the Dupont Circle / Adams Morgan / Logan Circle area, each used by about one in ten respondents. Eight percent of respondents made an induced trip to an Arlington County destination.

Differences in Induced Trips by Member Subgroup

Several differences were noted in the rate at which various user subgroups made induced Capital Bikeshare trips and the particular induced trip purposes and destinations:

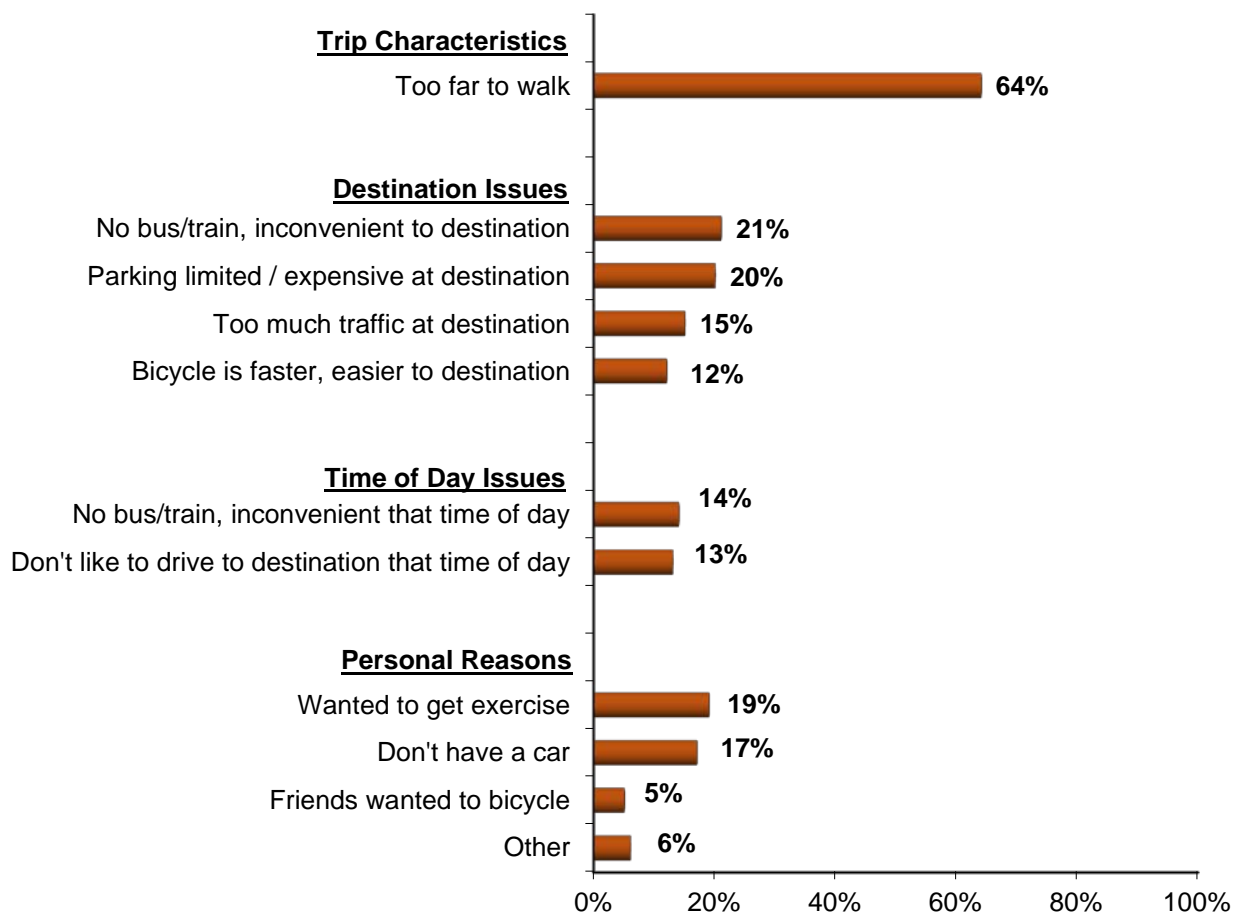
- *When Joined Capital Bikeshare* – Respondents who joined recently made induced trips at about the same rate as did respondents who joined in the early months of the program. But users who joined after March 2011 were more likely to use bikeshare for exercise / recreation (19%) than were users who joined earlier (14%). This is consistent with the result noted earlier, that more recent registrants were less likely to own a personal bicycle than those who joined earlier.

- *Home Location* – Forty-six percent of District of Columbia residents made an induced trip, versus 38% of respondents who lived in Arlington County. District residents were particularly more likely to make a social or entertainment induced trip (46%); only 32% of Arlington residents made induced trip for this purpose. Not surprisingly, Arlington residents were far more likely to make trips to Arlington destinations (54%) than were residents of the District (5%). And District residents were more likely than were other residents to make trips to District destinations. A few notable exceptions included National Mall (16% of District residents and 13% of Arlington residents), West end / GWU (11% of District residents and 11% of Arlington residents), Georgetown (20% of District residents and 20% of Arlington residents), and Downtown DC (30% of District residents and 25% of Arlington residents). Arlington residents traveled to these destinations at about the same rates (statistically) as did District residents.
- *Sex* – About half (49%) of men made an induced trip, versus 39% of women. Men were more likely to have made an induced trip to a restaurant (35% of men vs 30% of women), while women were more likely to have made an induced exercise / recreation trip (19% of women vs 15% of men). There were no statistical differences in men's destinations versus those of women.
- *Age* – Nearly half (48%) of respondents who were younger than 35 years old made an induced trip, compared with 43% of respondents who were 35 or older. Young residents were in particular more likely to be making induced trips for social or entertainment purposes; 49% of respondents who were younger than 35 years made this type of induced trip, vs 31% who were between 35 and 44, and 22% of respondents who were 45 or older. Younger respondents traveled to several destinations much more than did older respondents, including: Capitol Hill (27% of 18-34 vs 20% of 45 years or older), Columbia Heights/Petworth (17% of 18-34 vs 7% of 45 years or older), and Shaw/U Street (20% of 18-34 vs 9% of 45 years or older).
- *Income* – Forty-eight percent of respondents with incomes of less than \$50,000 per year made an induced trip, versus 45% of respondents with incomes between \$50,000 and \$99,999, and 42% of respondents with incomes of \$100,000 or more. Lower income respondents made more social / entertainment trips than did more affluent respondents, but this likely is related to younger respondents' lower incomes. The percentage of respondents who traveled to Capitol Hill, Columbia Heights/Petworth, and Shaw/U Street declined with increasing income. Travel to one destination, Penn Quarter increased as income increased. Travel to other destinations was essentially the same regardless of respondents' income.
- *Personal Vehicle Available* – About half (49%) of respondents who did not have access to a personal vehicle made an induced trip, versus 41% of respondents who did have a vehicle. Respondents without vehicles particularly made more trips for social / entertainment (30% without a vehicle vs 22% with a vehicle) and for errands / personal appointments (48% without a vehicle versus 39% with a vehicle). Respondents without vehicles made statistically more trips to Columbia Heights/Petworth, Georgetown, and Shaw/U Street than did respondents with a vehicle. These are District areas where parking availability is particularly limited, so it seems likely that these respondents are car-free residents who are making trips within their neighborhoods.
- *Personal Bike Available* – Forty-seven percent of respondents who did not own a personal bicycle made a trip, compared with 39% of respondents who did have a bike. Those without bikes made more induced trips for social/entertainment (45% without a bike vs 37% with a bike), shopping (27% without a bike vs 23% with a bike), and for exercise (18% without a bike vs 14% with a bike), but they made fewer trips to restaurants (31% without a bike vs 37% with a bike).

Reasons for Using Bikeshare for Induced Trip

The previous sections of the report explored the types and destinations of induced trips. Respondents also were asked how bikeshare had influenced them to make trips they otherwise would not have made. Specifically, respondents were asked, “why would you not have made these trips without Capital Bikeshare?” Figure 22 presents these results, divided into four categories: characteristics of the trip, issues related to the trip destination, issues related to the time of day the trip was made, and other personal reasons.

Figure 22
Why Respondent would not have Made Induced Trips without Bikeshare
(n = 2,356)



Overwhelmingly, respondents said they would not have made this trip without Capital Bikeshare because it was too far to walk; 64% of respondents mentioned this reason. This response doesn't address whether other travel options were available to make the trips, but it suggests respondents might have substituted some induced trips to distant destination for trips they might have made to locations closer to their origin location. In this way, Capital Bikeshare broadened the travel destination options.

Substantial percentages of respondents also noted issues related to characteristics of the destination. Two in ten said that public transportation was either not available or inconvenient to reach that destination (21%) or that parking was very limited at that destination (20%). Fifteen percent said they would not have made that trip without bikeshare because there was too much traffic at the destination. And about one in ten (12%) mentioned a related reason, that the bicycle was faster or easier to reach that destination.

Respondents also mentioned reasons that were related to the time of day they were traveling. Fourteen percent said that transit service didn't operate or that transit was inconvenient at that time of day and 13% mentioned a general dislike of driving to that destination at that time of day.

Finally, respondents mentioned reasons related either to personal preferences or personal constraints. About two in ten respondents made an induced trip primarily to get exercise (19%) or because they did not have a car (17%). Five percent used bikeshare for that trip because their traveling companions wanted to bicycle.

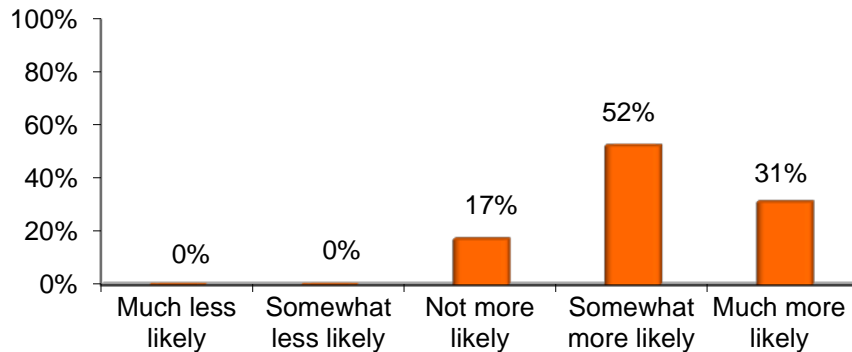
Interestingly, respondents of different ages and incomes cited different reasons. Young respondents and respondents with lower incomes were more likely than average to mention reasons related to their lack of transportation options: too far to walk, transit was either unavailable or inconvenient at that time or to that destination, or that they did not have a car. Older respondents and those with higher incomes were more likely to mention reasons related to disadvantages of driving: they didn't want to drive to that destination at that time of day, too much traffic around that destination, or that parking was limited at the destination. These results reinforce the conclusion that Capital Bikeshare can be both basic transportation, for those who do not have a vehicle, and enhanced transportation, for those who have a vehicle but choose not to drive.

Role of Capital Bikeshare in Encouraging Patronage of Bikeshare-accessible Establishments

Several of the earlier results indicated that the availability of Capital Bikeshare bikes broadened the range of destinations to which members could travel. To examine this further, the survey included a question that asked, "if a business, restaurant, or shop is easily accessible by capital bikeshare, does that access make you more or less likely to patronize that establishment?" These results are presented in Figure 23.

The figure clearly shows that Capital Bikeshare access makes establishments more attractive to most bikeshare members. More than eight in ten respondents said they were either much more likely (31%) or somewhat more likely (52%) to patronize a bikeshare-accessible establishment. Seventeen percent said they were not more likely, that is, access was not a factor in their choice of establishments. Bikeshare access certainly was not detrimental to an establishment; only seven of the total 5,308 respondents who answered the question said they would be less likely to patronize a bikeshare-accessible establishment.

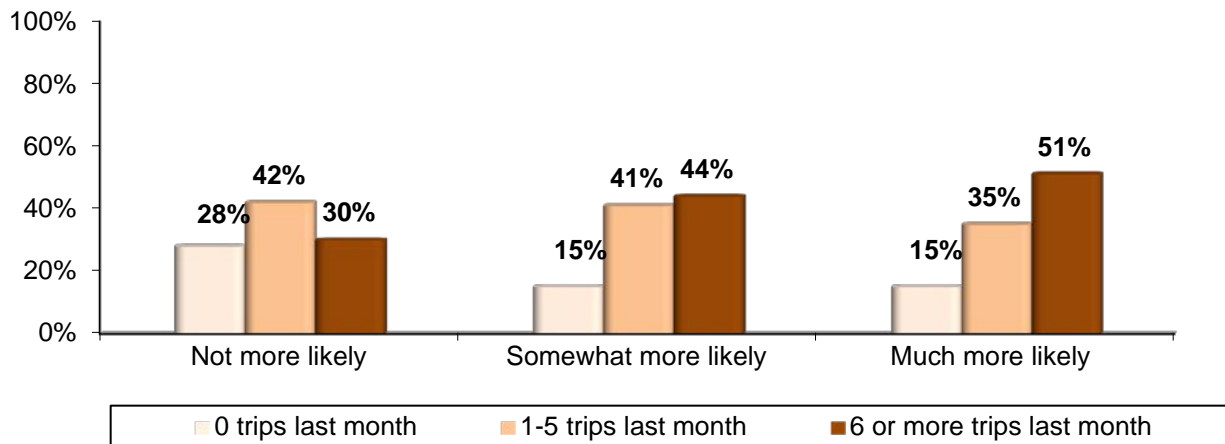
Figure 23
Likelihood to Patronize Establishment if Accessible by Capital Bikeshare
 (n = 5,308)



Frequency of Bikeshare Trips by Interest in Capital Bikeshare Accessibility

Given the overwhelming support shown for Capital Bikeshare-accessibility across all survey respondents, it is not surprising that this result was consistent across nearly all respondent subgroups. One interesting result, however, was that respondents who reported that they were much more likely to patronize a bikeshare-accessible establishment made more bikeshare trips than did respondents who said they were only somewhat more likely or not more likely. (Figure 24)

Figure 24
Trips Made in Past Month – by Likelihood to Patronize Establishment if Accessible by Capital Bikeshare
 (Not more likely n = 897, Somewhat more likely n = 2,757, Much more likely n = 1,638)

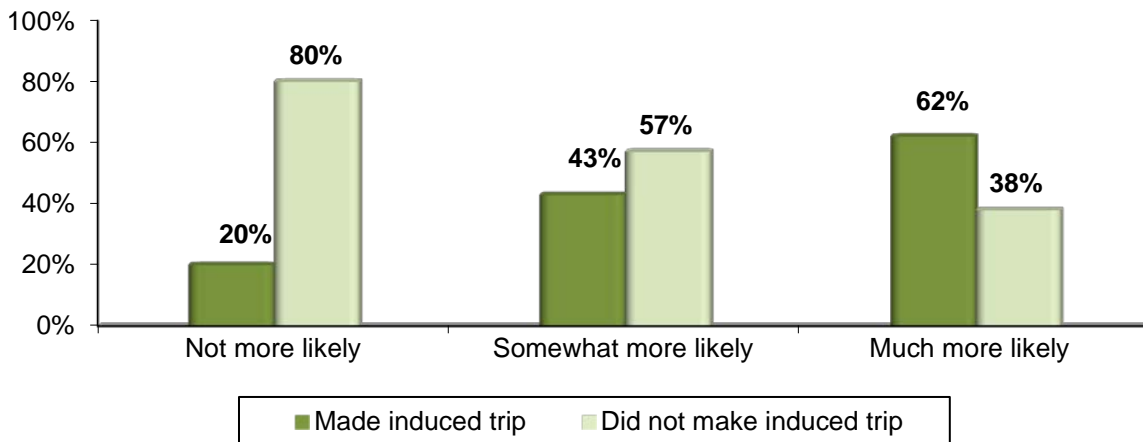


Among respondents who were more likely to patronize an establishment, 85% made at least one bikeshare trip last month, compare with only 72% of those who were not more likely. And respondents who said they were much more likely were the most frequent users of the Capital Bikeshare service; 51% made six or more trips, compared with 44% of those who were somewhat more likely, and 30% of those who were not more likely to patronize the bikeshare-accessible establishment.

Induced Trips by Interest in Capital Bikeshare Accessibility

Respondents who said bikeshare access was a motivating factor also made induced trips at a much higher rate. (Figure 25) Sixty-two percent of respondents who were *much more likely* to patronize a Capital Bikeshare-accessible establishment had made in induced trip, compared with 43% who said they were *somewhat more likely*, and only 20% of those who said they were *not more likely* to patronize the establishment. This suggests that the decision to make some, and perhaps many, of the induced trips was motivated by the establishments' accessibility.

Figure 25
Made Induced Trip – by Likelihood to Patronize Establishment if Accessible by Capital Bikeshare
(Not more likely n = 899, Somewhat more likely n = 2,760, Much more likely n = 1,641)

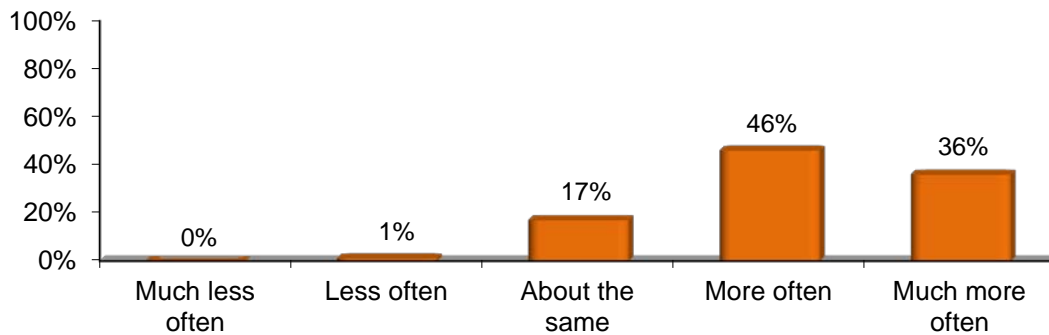


Changes in Use of Bicycling Since Joining Capital Bikeshare

One expected impact of bikeshare is to encourage members to shift travel to bicycling from other modes. To explore this possibility, the survey asked respondents if, as a result of their use of Capital Bikeshare, they had increased, decreased, or made not change in how often they rode a bicycle and how often they used other forms of transportation. These results are shown in the following section.

Figure 26 presents the percentages of respondents who made changes in their use of bicycle after joining Capital Bikeshare. More than a third (36%) said they bicycle much more often and 46% said they bicycled more often since joining. Seventeen percent said they had made no change in how often they bicycled. One percent had reduced their bicycling.

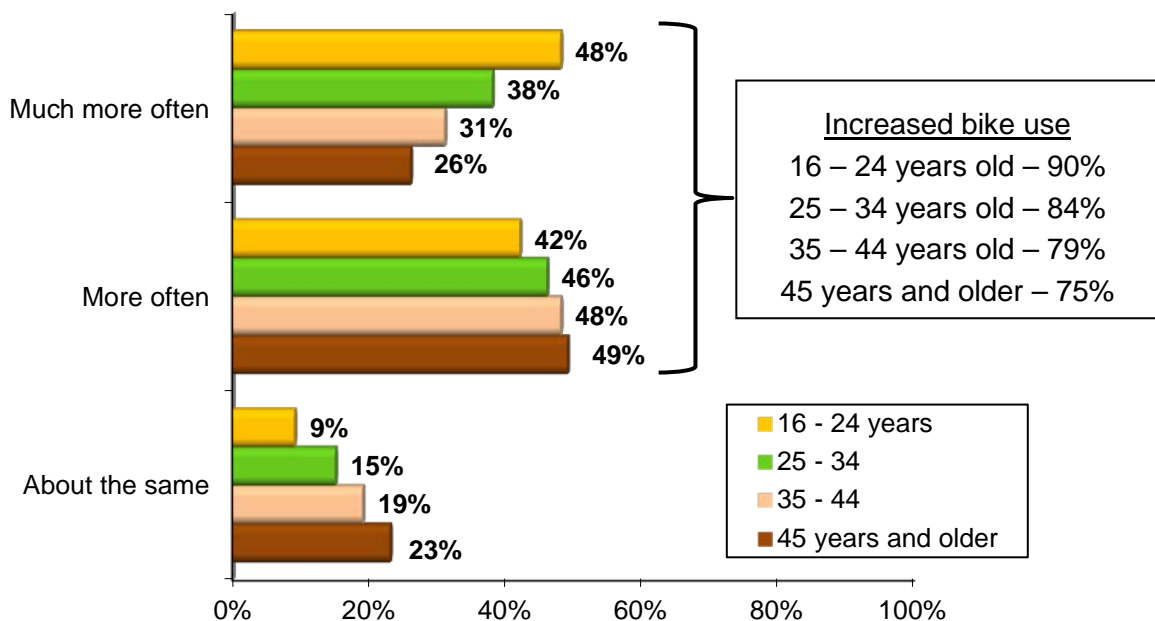
Figure 26
Change in Bicycle Use Since Joining Capital Bikeshare
 (n = 5,333)



Change in Bicycle Use by Age

Overall, young respondents were more likely than were older respondents to say they had increased their bike use since joining Capital Bikeshare. (Figure 27) But an even larger share of young respondents than older respondents said they bike “much more often” now. Nearly half (48%) of respondents who were younger than 25 years old and 38% of respondents who were between 25 and 34 years old reported substantial biking increase, compared with 31% of respondents 35 to 44 years old and only 26% of those who were 45 years or older. Results for bike “less often” and bike “much less often” are not included because only about one percent of respondents in each age group gave this response.

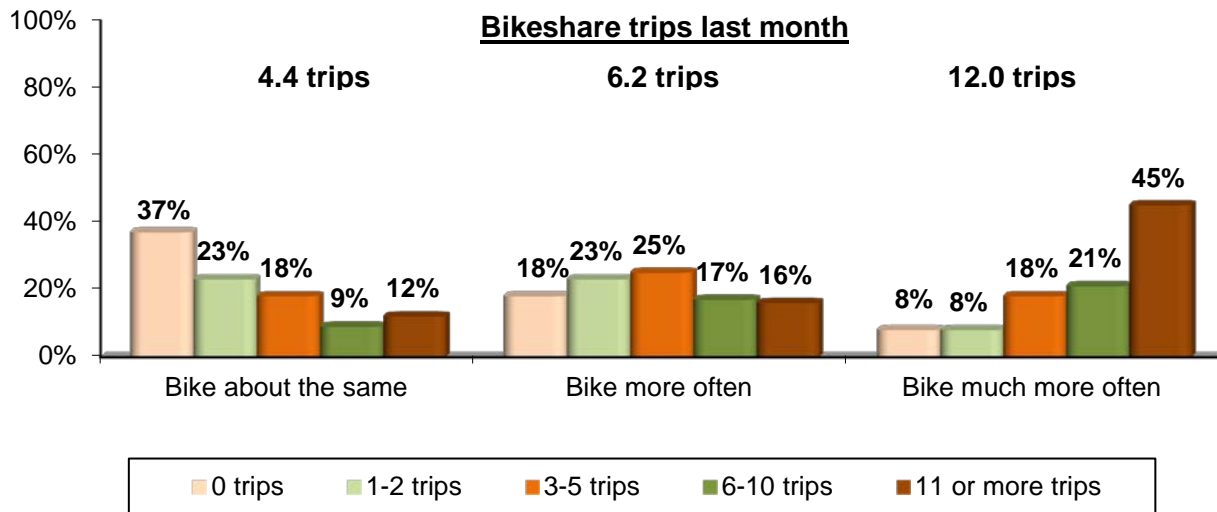
Figure 27
Change in Bike Use Since Joining Capital Bikeshare – By Age
 (16-24 years n = 596, 25-34 n = 2,818, 35-44 n = 1,014, 45 and older n = 737)



Frequency of Capital Bikeshare Use by Change in Bicycle Use

The question about change in bike use asked respondents to report change in use of any bicycle, both Capital Bikeshare bikes and personal bikes. For this reason, some of the additional bicycle use could be on personal bikes, however, it seems likely that much of the additional riding would be on Capital Bikeshare bikes. To test this idea, the analysis examined the number of Capital Bikeshare trips the respondents said they made in the past month by their reported change in bicycle use. (Figure 28)

Figure 28
Capital Bikeshare Trips Made Last Month – by Change in Bicycle Use Since Joining Capital Bikeshare
 (Bike about the same n = 881, Bike more often n = 2,464, Bike much more often n = 1,908)



As shown by the figure, respondents who reported a greater increase in bike use also reported more frequent Capital Bikeshare use. Respondents who said they bike much more often reported making an average of 12.0 trips in the past month, compared with 6.2 trips for respondents who said they bike more often, and 4.4 trips for those who reported no change in bike use.

Two-thirds (66%) of the “much more often” respondents made at least six Capital Bikeshare trips in the past month, compared to 33% of the “more often” respondents, and only 21% of those who reported no change in bike use. The results were similarly striking on the low end of the Capital Bikeshare use scale. Fully 60% of those who reported no change in bike use had made two trips or fewer, compared with 41% of those who bike “more often,” and 16% of those who bike “much more often.”

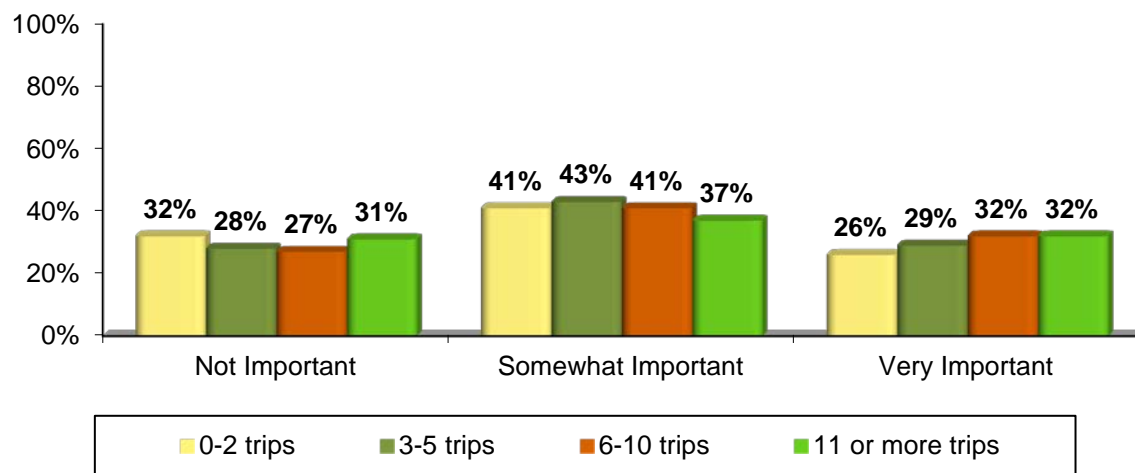
Importance of Capital Bikeshare in Encouraging Increased Bicycle Use

Thirty percent of respondents who increased bicycle use said Capital Bikeshare had been very important in helping or encouraging them to ride a bike more often and 40% said Capital Bikeshare had been somewhat important. The remaining 30% said Capital Bikeshare was not important.

Interestingly, respondents who had increased their bike riding, but still used Capital Bikeshare infrequently, rated Capital Bikeshare nearly as important in encouraging their increased bike use as did frequent Capital Bikeshare riders.

Figure 29 presents the percentages of respondents who gave various importance ratings by the number of Capital Bikeshare trips they made in the past month. Regardless of the number of trips, about three in ten respondents said Capital Bikeshare was not important, about four in ten rated Capital Bikeshare somewhat important, and three in ten rated it very important.

Figure 29
Importance of Capital Bikeshare in Encouraging Increased Bike Use – by Bikeshare Trips Made Last Month
 (0-2 trips n = 455, 3-5 trips n = 501, 6-10 trips n = 504, 11 or more trips n = 900)



Capital Bikeshare's importance in encouraging greater bicycle use also was very similar for most population subgroups. Statistical differences were noted only for respondents of different racial/ethnic groups. Three-quarters (75%) of Non-white respondents who increased bicycle use said Capital Bikeshare had been important to that shift, compared with 69% of White respondents. There were no statistical differences for:

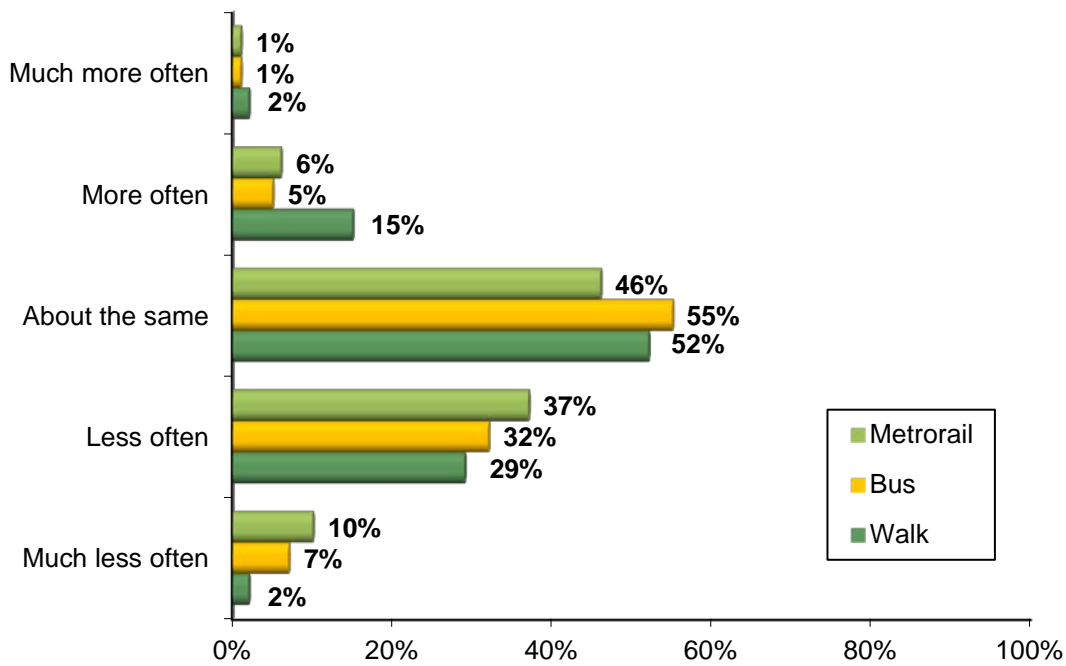
- Early adopter respondent vs those who joined Capital Bikeshare more recently
- District of Columbia residents vs those who lived in Arlington County
- Younger respondents vs older respondents
- Low income respondents vs higher income respondents
- Men vs women

Changes in Use of Non-Biking Modes Since Joining Capital Bikeshare

Change in Use of Transit and Walking

As illustrated in Figure 30, respondents substantially reduced their use of bus and Metrorail since they joined Capital Bikeshare. Nearly half said they ride Metrorail less often (37%) or much less often (10%) and four in ten ride a bus less often (32%) or much less often (7%). Only seven percent of respondents increased use of Metrorail and six percent increased bus use. Only seven percent of respondents increased use of Metrorail and six percent increased bus use.

Figure 30
Change in Use of Bus, Metrorail, and Walking Since Joining Capital Bikeshare
 (Bus n = 5,331, Metrorail n = 5,322, Walk n = 5,297)

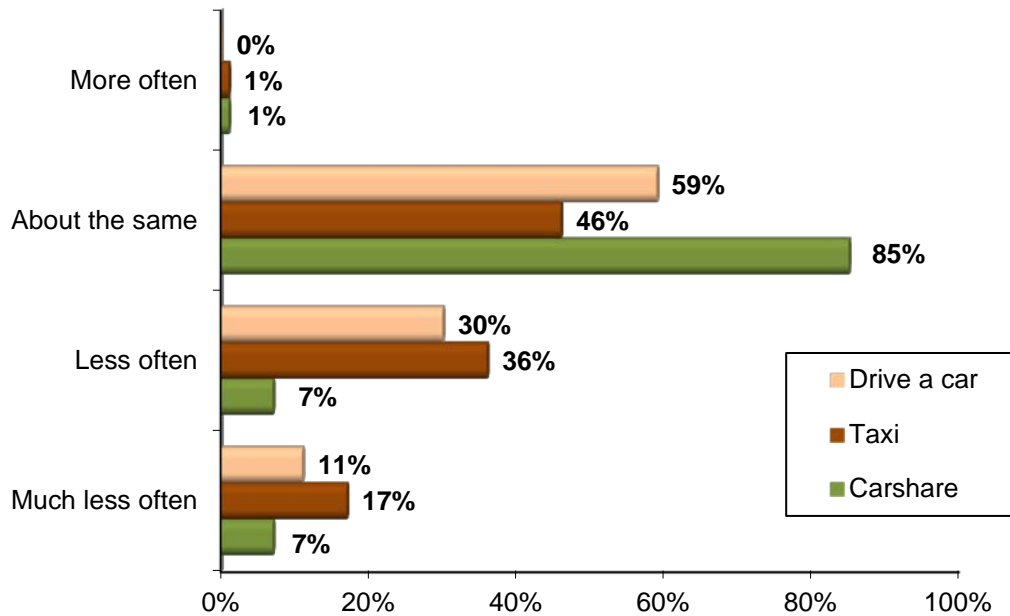


Respondents also decreased their use of walking, overall, but the reduction was not as substantial as for transit. Thirty-one percent said they walk less often (29%) or much less often (2%). But 17% of respondents said they now walk more often.

Change in Use of Auto Modes

Finally, the survey asked respondents about changes they made since joining Capital Bikeshare in how often they use three auto modes: drive a car, carshare, and taxi. (Figure 31) As was noted for use of transit and walking, respondents overall substantially reduced their use of car and taxi. Four in ten drove a car less often (30%) or much less often (11%) and more than half rode in a taxi less often (36%) or much less often (17%). No respondents increased use of car and only one percent increased taxi use.

Figure 31
Change in Use of Drive a Car, Carshare, and Taxi Since Joining Capital Bikeshare
 (Car n = 5,333, Taxi n = 5,304, Carshare n = 5,245)



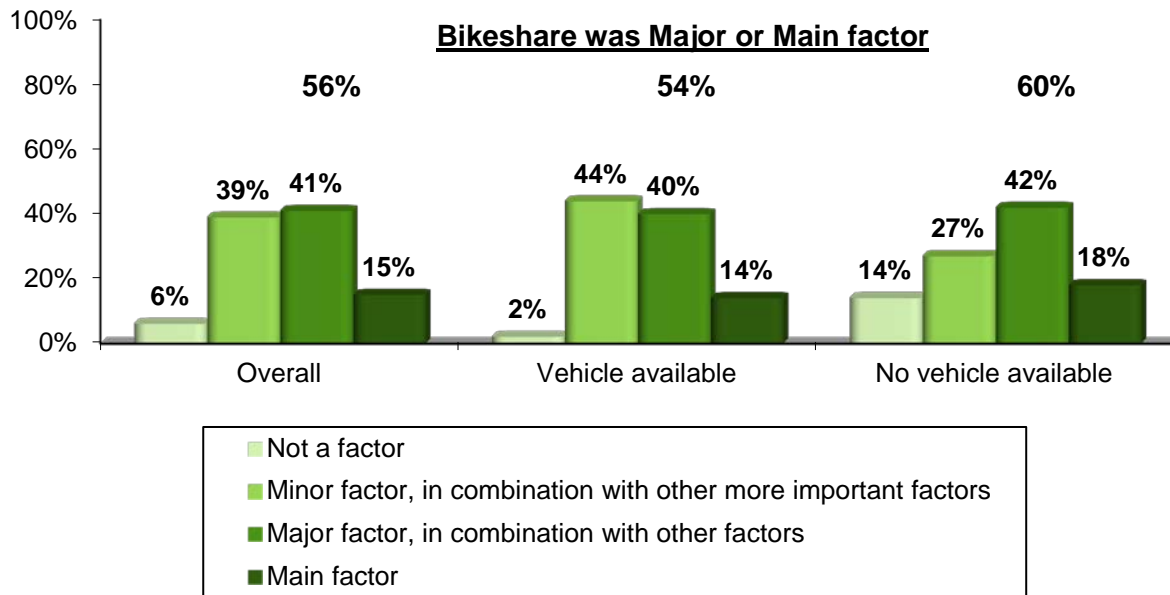
Respondents also decreased their use of carshare, although with less dramatic reductions. Seven percent use carshare less often and the same percentage use carshare much less often. One percent said they use carshare more than before joining Capital Bikeshare. But, it is important to note that only nine percent of all respondents said they currently have a carshare membership. Since this is lower than the 14% of respondents who said they had reduced carshare use, it suggests that some respondents might have given up their carshare membership since joining Capital Bikeshare.

Importance of Capital Bikeshare in Reducing Driving – Respondents who said they decreased their use of driving a car since joining Capital Bikeshare were asked to what extent Capital Bikeshare had contributed to the change. Figure 32 presents the results for this question for all respondents and for those with and without regular access to a personal vehicle.

Overall, 94% of respondents indicated that bikeshare had been at least somewhat of a factor contributing to the reduction. Fifteen percent said that it was the *main factor* influencing their reduced driving. About four in ten (41%) respondents said it was a *major factor*, in combination with other factors, and about the same share (39%) said bikeshare was a *minor factor*, in combination with other factors. Only six percent said Capital Bikeshare had not been a factor at all.

Among respondents who had a vehicle available on a regular basis, 54% said Capital Bikeshare was either the main factor or a major factor contributing to their reduction in driving. Among respondents who said they did not have a vehicle available, 60% said bikeshare was the main or major contributing factor. It is not possible to say from the data if this means they shifted trips to bikeshare from vehicles they borrowed or rented or if they reduced sold a household vehicle.

Figure 32
Role of Capital Bikeshare in Contributing to Reduced Driving – Overall and by Vehicle Available
 (Overall n = 2,170, Vehicle available n = 1,540, No vehicle available n = 628)



Change in Use of Non-bicycling Modes by Frequency of Capital Bikeshare Use

The preceding figures showed that, overall, survey respondents increased their use of biking and decreased use of other modes. As also noted earlier, many respondents said they used Capital Bikeshare to make some trips they would not otherwise make. For these trips, bikeshare would not substitute for another mode. But presumably, some trips now made by bikeshare would have been made previously by a different type of transportation. To examine possible shifts in mode use, Table 10 compares changes in respondents' use of each non-biking mode against their frequency of bikeshare use.

Each mode column in the table presents the percentage of respondents who reduced use of that mode by the frequency with which they used Capital Bikeshare. For example, the Bus column shows that 25% of respondents who made no trips by bikeshare in the past month reduced their bus use after joining the program. Among respondents who made one or two bikeshare trips in the past month, 29% had reduced bus use. The percentage of respondents who reduced bus use was even greater among those who made three to five bikeshare trips (38%), six to ten trips (43%), and 11 or more trips (53%). The "Net reduction" row shows that the percentage of respondents in the most frequent bikeshare use group (11 or more trips = 53%) who reduced bus use was 28 percentage points higher than for the most infrequent bikeshare use group (0 trips = 25%).

Table 10
Respondents Who Reduced Use of Transportation Modes Other than Bicycle – by Frequency of Capital Bikeshare Use

(0 trips n=928, 1-2 trips n=947, 3-5 trips n=1,114, 6-10 trips n=917, 11 or more trips n=1,383)

Capital Bikeshare Trips In Past Month	Percentage of Respondents who Reduced Use of Mode				
	Bus	Metrorail	Walk	Drive a Car	Taxi
0 trips	25%	28%	18%	30%	37%
1-2 trips	29%	32%	28%	37%	48%
3-5 trips	38%	47%	32%	43%	58%
6-10 trips	43%	54%	33%	46%	58%
11 or more trips	53%	66%	39%	45%	61%
Net reduction	28%	38%	21%	15%	24%

The results were similar for all mode groups; the share of respondents who reduced use of a non-biking mode since they joined Capital Bikeshare increased steadily as their bikeshare use increased. The change was most pronounced for Metrorail, bus, and taxi. The results were less dramatic for use of walk and driving a car, suggesting that bikeshare was substituted less often for these modes.

Net Change in Use of Non-bicycling Modes by Change in Bicycle Use

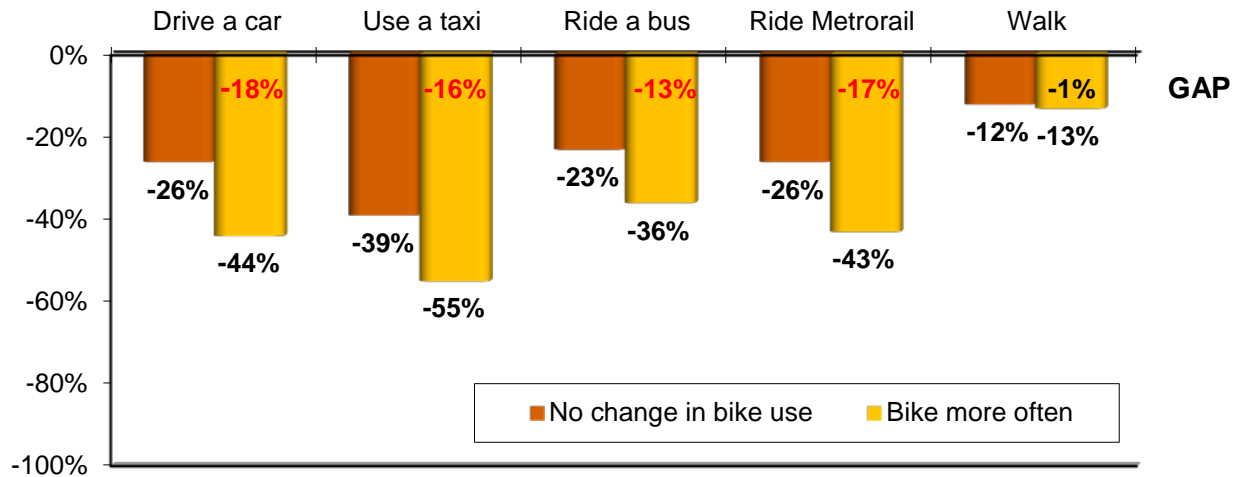
The conclusion drawn from Table 10 was that Capital Bikeshare users who increased biking shifted some trips to bikeshare from other modes. Figure 33 supports this conclusion by comparing the net change in use of driving a car, taxi, bus, Metrorail, and walk for respondents who made no change in their bike use and those who said they bike more often. In this chart the “net change” percentages were calculated as the percentages of respondents who said they reduced use of that mode since joining Capital Bikeshare minus the percentage who said they increased use of the mode.

The figure shows quite clearly that while both groups of respondents had net reductions in use of all five modes, respondents who said they bike more often had significantly greater net reductions in use of each of the modes, with the single exception of walking. For example, a net 44% of respondents who said they bike more often reduced use of a car compared to a net 26% of those who had no change in bike use, a gap of 18 percentage points. The gap in percentage reduction was similar for use of taxi (16 percentage points) and Metrorail (17 points), and only slightly smaller for bus (13 points). Reductions in the use of walking were essentially the same for the two groups.

Figure 33
Net Change in Use of Car, Taxi, Bus, Metrorail, and Walk Since Joining Capital Bikeshare – by Change in Bike Use

(No change in bike use n = 882, Bike more often n = 4,340)

Statistical differences highlighted in red



Net Change in Use of Non-bike Modes by Vehicle Availability

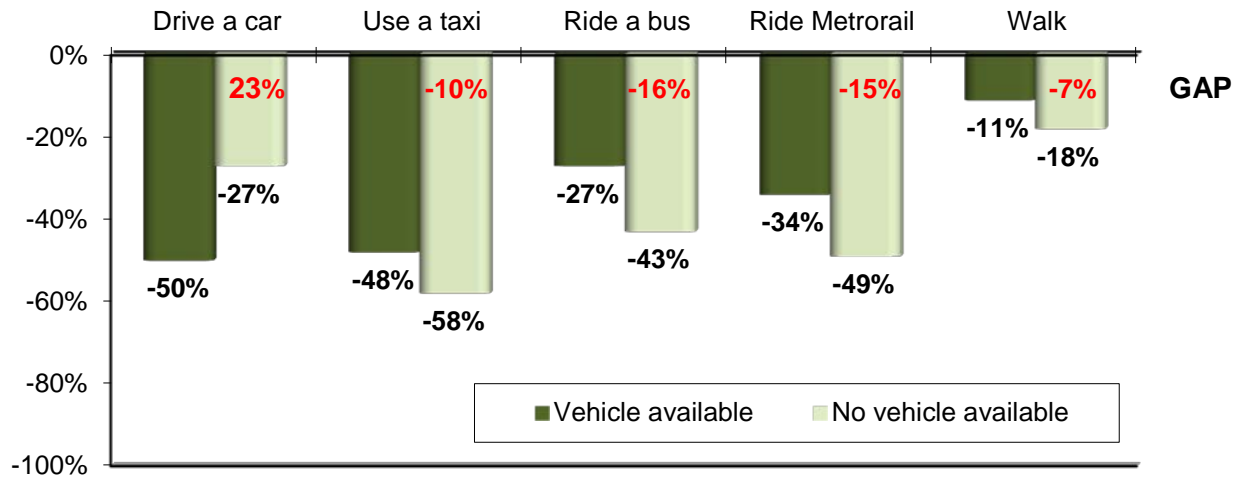
The mode use “net change” comparison shown above is repeated in Figure 34, but this time comparing respondents who had a personal vehicle available to them for regular travel with those who did not have a vehicle. It’s reasonable to expect that car-free respondents would have made different mode changes than did those who had a vehicle option.

As expected, respondents who did not have a vehicle regularly available for their travel showed a smaller net reduction in car use (-27%) than did respondents who had a vehicle regularly available (-50%), because shifting a trip from a car to Capital Bikeshare was not an option to them for some trips. As also expected, they had greater reduction in use of taxi, bus, and Metrorail, but respondents who had a vehicle available also had substantial net reductions in these modes. The other interesting finding in this comparison is that respondents who did not have a vehicle made a statically greater reduction (-18%) in the use of walking compared to those who did have a vehicle (-11%), indicating that some Capital Bikeshare trips replaced trips for which they otherwise would have walked.

Figure 34
Net Change in Use of Car, Taxi, Bus, Metrorail, and Walk Since Joining Capital Bikeshare – by Vehicle Available

(Vehicle available n = 2,317, No vehicle available n = 2,931)

Statistical differences highlighted in red



Net Change in Use of Non-bike Modes by Home Locations

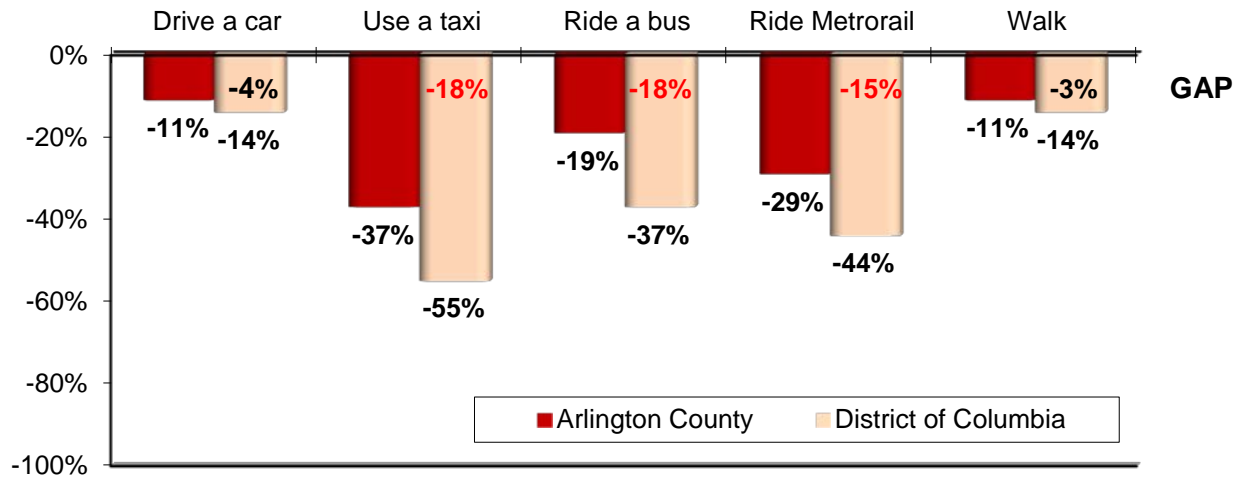
The mode use “net change” comparison shown in Figure 35 compares mode changes for respondents who lived in the two jurisdictions where Capital Bikeshare stations are located: Arlington County and the District of Columbia.

Again, both groups of respondents had net reductions in use of all five modes. But District of Columbia respondents reported much greater net reductions than did Arlington County respondents in their use of three modes: taxi (-55% in the District vs -37% in Arlington), Bus (-37% in the District vs -19% in Arlington), and Metrorail (-44% in the District vs -29% in Arlington). Reductions in the use of walking and car were not statistically different for the two groups.

Figure 35
Net Change in Use of Car, Taxi, Bus, Metrorail, and Walk Since Joining Capital Bikeshare – by Home Location

(Arlington County n = 331, District of Columbia n = 4,241)

Statistical differences highlighted in red

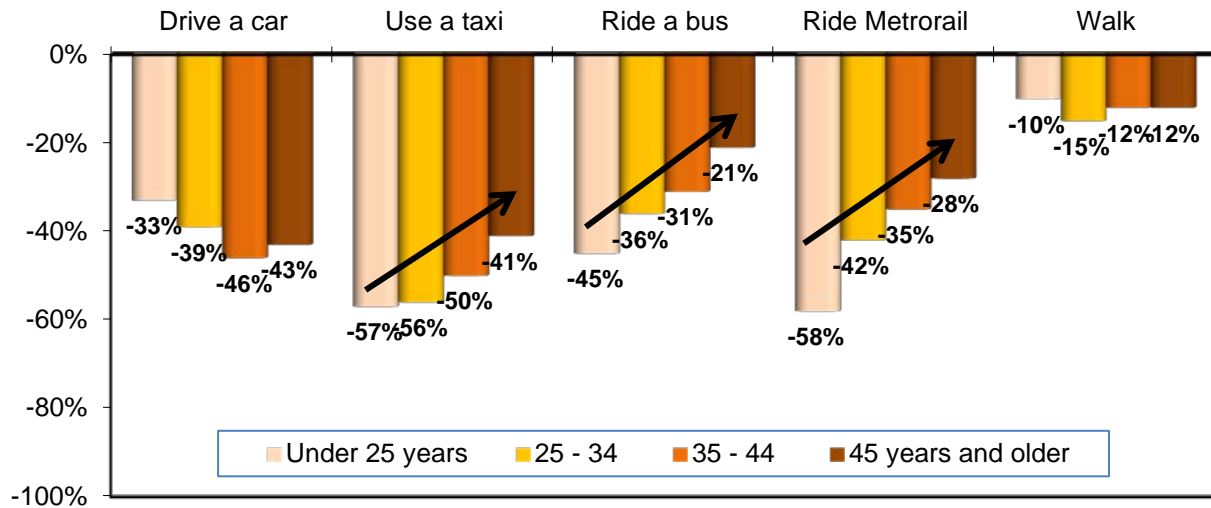


Net Change in Use of Non-bike Modes by Age

Finally, Figure 36 presents the mode use “net change” comparison for respondents of four age groups: younger than 25 years old, 25 to 34 years old, 35 to 44 years old, and 45 years and older.

The figure shows a clear age-related pattern for taxi, bus, and Metrorail; substantial mode use reduction among young respondents, with declining reduction as age increased. Reductions in use of a car showed an opposite pattern; greater reductions in car use as age increased. But the smaller reductions among younger respondents likely reflect their lower rate of car availability; as noted earlier in the report, young respondents were much less likely than were older respondents to have regular access to a personal vehicle. Reductions in the use of walking were not statistically different for the four groups.

Figure 36
Net Change in Use of Car, Taxi, Bus, Metrorail, and Walk Since Joining Capital Bikeshare – by Age
 (Under 25 years n = 593, 25 - 34 n = 2,775, 35 – 44 n = 999, 45 and older n = 727)



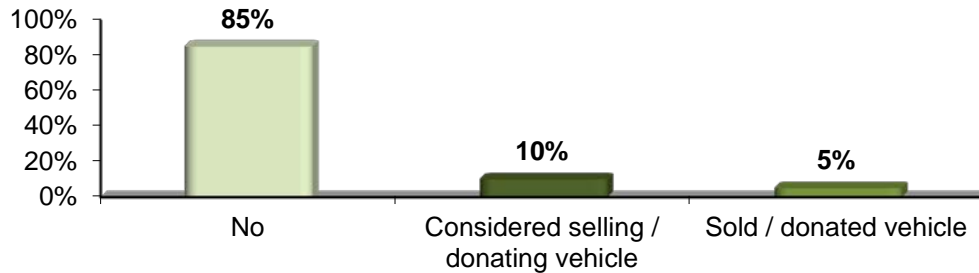
Changes in Vehicle Ownership and Driving Miles Since Joining Capital Bikeshare

The previous section described the results of a qualitative question about Capital Bikeshare members' change in use of driving a car since joining the program. The survey also included several questions to examine two quantitative measures of driving change: changes in auto ownership and change in the annual number of miles respondents drive since joining Capital Bikeshare.

Vehicle Ownership

As noted before, just over half (56%) of bikeshare survey respondents said they currently owned a personal vehicle. These respondents were asked if they sold or donated a personal household vehicle or considered selling or donating a vehicle, since they joined Capital Bikeshare. Figure 37 presents the results for this question.

Figure 37
Sold or Donated a Personal Household Vehicles Since Joining Capital Bikeshare
 (n = 2,996)



Eighty-five percent of respondents said they had not made any changes or considered making changes in the number of vehicles in the household. Ten percent considered selling or donating a vehicle but had not done so. The remaining five percent did sell or donate a vehicle since joining Capital Bikeshare. But, because all of these respondents had a vehicle at the time of the survey, they either replaced the vehicle they sold/donated or their household had more than one vehicle before making the vehicle change.

It is likely that these results under-estimate the actual change in vehicle ownership among Capital Bikeshare members. Since respondents who did not own a vehicle at the time of the survey were not asked this question, it's not possible to say how many car-free bikeshare members previously owned a vehicle and chose to give up the vehicle because they had access to Capital Bikeshare.

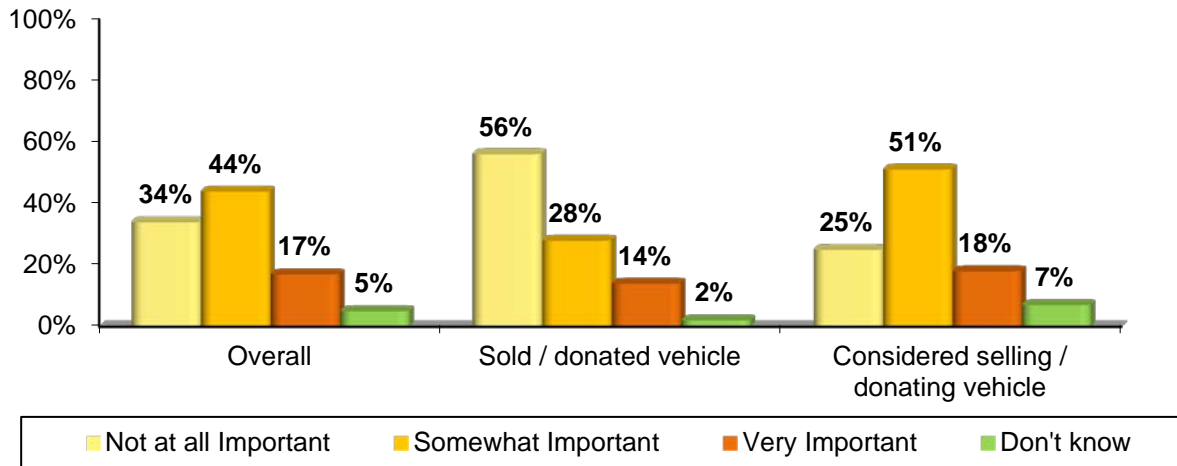
But, as was shown in Figure 34, a net share of 27% of respondents who did not have regular access to a personal vehicle said they reduced their use of driving a car since joining Capital Bikeshare. Since it is unlikely that respondents would substitute many bikeshare trips, which tend to be very short-distance, for trips they had previously made in rented or borrowed cars, it seems reasonable to conclude that some of these car-free respondents also reduced the number of their household vehicles.

Importance of Capital Bikeshare in Encouraging Sale or Donation of Vehicle – Respondents who said they sold or donated a vehicle or considered selling or donating a vehicle were asked how important their membership in Capital Bikeshare had been to this decision. (Figure 38) Overall, about 17% of respondents said Capital Bikeshare had been *very important* to the decision, 44% said it was *somewhat important*, and 34% said it was *not at all important*. Five percent answered that they didn't know.

When results for this question were examined separately for respondents who sold or donated a vehicle and those who only considered selling or donating a vehicle, however, the results were unexpected and perhaps counter-intuitive. For about equal shares of the two groups, Capital Bikeshare had been "very important" (14% sole / donated vehicle vs 18% considered selling / donating). But nearly twice as many respondents who considered selling or donating a vehicle (51%) as those who actually did sell or donate a vehicle (28%) reported Capital Bikeshare as "somewhat important." Respondents who sold or donated a vehicle were much more likely to say that Capital Bikeshare was not at all important to the decision (56% sold/donated vs 25% considered selling/donating).

Figure 38
Importance of Capital Bikeshare in Encouraging Sale / Donation of Vehicle

(Overall n = 399, Sold / donated vehicle n = 128, Considered selling / donating vehicle n = 271)



These results suggest that while Capital Bikeshare could be a factor influencing members to eliminate vehicle ownership, a large share of those who actually sold or donated a vehicle were motivated by factors entirely separate from bikeshare. Because the survey did not include a question about the absolute number of vehicles in the household before and with Capital Bikeshare, it is not possible to tell from the survey data how many respondents replaced the vehicle they sold or donated. Additionally, since the survey did not ask this question of respondents who did not have a vehicle at the time of the survey, it is not possible to know if some of these respondents sold / donated a vehicle and if bikeshare played a role in that decision.

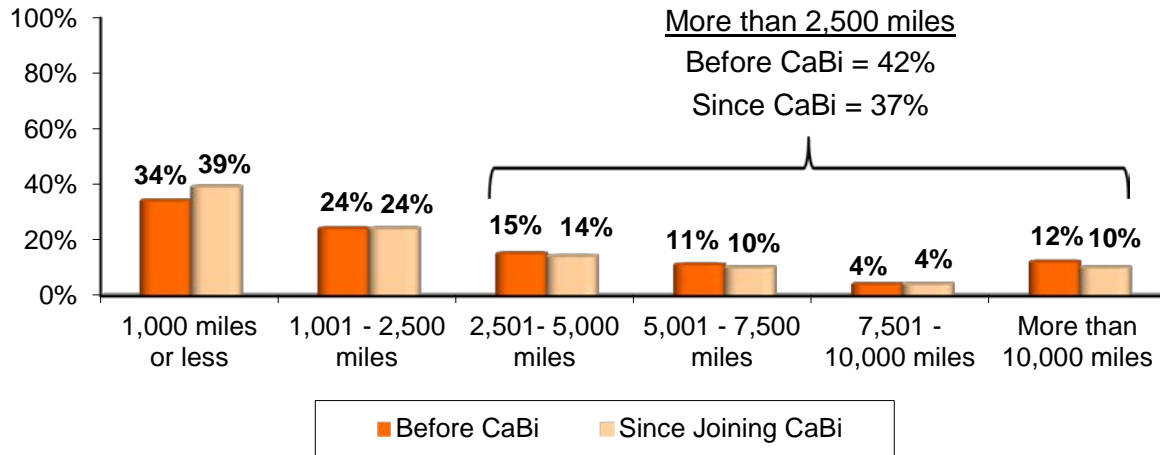
Annual Miles Traveled by Driving

Respondent who had access to a personal vehicle also were asked approximately how many miles they drove per month in the year before they joined Capital Bikeshare and since joining Capital Bikeshare. Before bikeshare, respondents drove an average of 345 miles per month, or about 4,015 miles annually. Since joining, the average driving miles fell to about 291 per month, or 3,492 per year.

Figure 39 presents the distribution of respondents by their driving miles, on an annual basis. Before bikeshare, about four in ten (42%) respondents drove more than 2,500 miles per year. After joining, only 37% of respondents drove this far in a year.

The biggest change was in the 1,000 miles or less group. Before bikeshare, about 34% of respondents drove this far; after joining bikeshare this group expanded to 39%. As the figure illustrates, a slight drop was noted in the percentage of respondents in each of the categories above 2,500 miles.

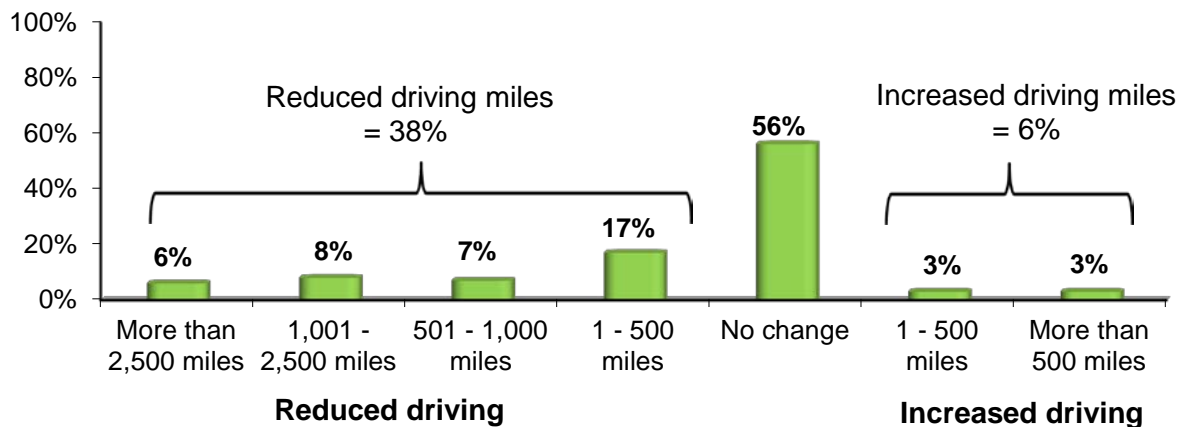
Figure 39
Total Annual Vehicle Miles Driven Before and After Joining Capital Bikeshare
 (Before Capital Bikeshare n = 2,457, With Capital Bikeshare n = 2,495)



Change in Annual Driving Miles

Four in ten (38%) respondents who reported their mileage before and with bikeshare reduced their driving miles. (Figure 40) Seventeen percent reduced from one to 500 miles, seven percent eliminated between 501 and 1,000, eight percent reduced between 1,001 and 2,500, and six percent reduced more than 2,500 annual driving miles. Six percent of respondents increased their annual driving miles, but these increases were modest, compared to decreases; three percent added between one and 500 miles and three percent increased mileage by more than 500 miles.

Figure 40
Change in Annual Vehicle Miles Driven Since Joining Capital Bikeshare
 (n = 2,373)



Changes in Driving Miles by Various Groups of Respondents – Changes in driving miles were not uniformly distributed across all respondents. Table 11 shows the percentages of various respondent groups who decreased driving miles, increased driving miles, and made no changes.

Table 11
Change in Annual Driving Miles Since Joining Bikeshare – By Age, Sex, and Race / Ethnicity

Respondent Characteristic	Change in Annual Driving Miles		
	Reduced Miles	No Change	Increased Miles
Age			
Less than 25 years old (n = 128)	42%	52%	6%
25 – 34 years old (n = 1,103)	37%	58%	5%
35 – 44 years old (n = 606)	31%	62%	7%
45 or older (n = 485)	28%	67%	5%
Sex			
Female (n = 1,009)	36%	58%	6%
Male (n = 1,056)	40%	54%	6%
Race / Ethnicity			
Non-white (n = 387)	44%	51%	5%
White (n = 1,899)	37%	57%	6%
Capital Bikeshare trips in Past Month			
0 trips (n = 975)	25%	70%	5%
1 – 2 trips (n = 965)	27%	68%	5%
3 – 5 trips (n = 1,132)	39%	54%	6%
6 – 10 trips (n = 930)	47%	46%	7%
11 or more trips (n = 1,401)	51%	43%	6%

(Statistical differences noted with orange highlighting)

The change in the number of driving miles after joining Capital Bikeshare appeared connected to:

- *Age* – Young respondents were more likely than were older respondents to have reduced their driving miles. Driving reductions were noted in all age groups, but the share of respondents who reported a reduction declined with increasing age. Older respondents were more likely to have made no changes in their annual driving miles.

- *Sex* – A higher proportion of male respondents decreased driving miles. Females were more likely to have maintained their driving miles. The difference in increased miles was not significant.
- *Race / Ethnicity* – A higher share of Non-white respondents (44%) than White respondents (37%) reduced their driving miles.
- *Number of Capital Bikeshare Trips in Past Month* – Respondents who were frequent bikeshare users were more likely to report reduced driving miles than were respondents who used bikeshare less often. More than half of respondents (51%) who made 11 or more bikeshare trips in the past month reduced their annual driving miles compared with only about a quarter of those who made no trips or only one or two trips in the past month.

Impact of Driving Miles Changes Overall

On average, respondents who had access to a personal vehicle and who reported both a current and pre-bikeshare mileage drove about 4,015 miles per year before bikeshare. At the time of the survey (with-bikeshare), respondents drove an average of 3,492 per year, a reduction of about 523 miles annually.

When these survey results are applied to the estimated Capital Bikeshare member population in November 2011, the month in which the survey was conducted, the results are as follows:

• Number of Capital Bikeshare members (November 2011)	18,000
• Percentage with vehicle available	53%
• Bikeshare members with vehicle available	9,540
• Estimated annual VMT reduced per member	523
• Estimated total annual VMT reduced	4,989,400 annual miles

Several points should be noted, however, regarding how accurately this five million mile reduction reflects the true drop in annual driving mileage of Capital Bikeshare members. First, the survey did not ask respondents how much Capital Bikeshare had influenced respondents' reductions in vehicle mileage. Some of the reduction could have been influenced by other factors, such as moving one's home, changing jobs, increasing gas prices, or other factors that could have influenced changes in the types of transportation used.

Second, as noted before, mileage changes were reported only for the 53% of respondents who said they had a vehicle available at the time of the survey. But, as was mentioned in the explanation of Figure 34, a net share of 27% of respondents who did not have a vehicle available also said they had reduced their use of driving a car since joining bikeshare, thus likely reduced their driving miles. The average annual mileage reduction for car-free respondents could have been lower or higher than the 523 miles calculated for those who did answer these questions. Regardless, their mileage reduction is excluded from the calculation above, thus likely under-estimates the true reduction.

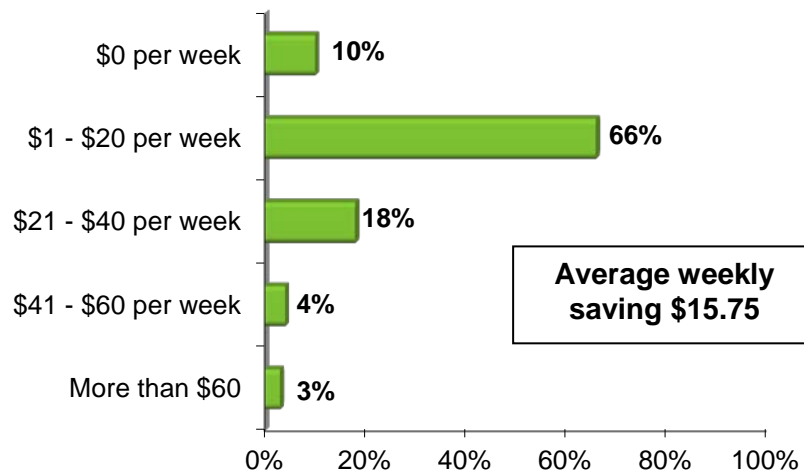
Capital Bikeshare Members' Cost Saving by Using Capital Bikeshare

One possible personal outcome of a members' use of Capital Bikeshare would be to reduce his or her transportation costs. Capital Bikeshare service is free for the first 30 minutes of any trip, so trips that are shifted from public transit, taxi, or even personal vehicle could result in cost saving for the mem-

ber. Respondents were asked how much money they thought Capital Bikeshare saves them weekly on their travel costs, compared to what they were spending before they joined.

As illustrated in Figure 41, 90% of respondents who answered the question said they thought Capital Bikeshare had saved them money. About two-thirds said they thought they saved between one dollar and \$20 per week, 18% said they saved between \$21 and \$40, and four percent saved between \$41 and \$60. About 3% saved more than \$60. Across all respondents, the average weekly saving would be about \$15.75, or about \$819 over the course of the year. Not surprisingly, respondents who used bikeshare more often reported rated cost savings. Respondents who said they made at least 11 trips in the previous month reported an average weekly saving of \$22.05, for an annual total of \$1,150.

Figure 41
Weekly Travel Cost Saving Since Joining Capital Bikeshare
(n = 2,196)



Collectively, the 18,000 Capital Bikeshare members in November 2011 were saving nearly \$15 million dollars each year.

- Number of bikeshare members (November 2011) 18,000
- Estimated annual cost saving per member \$819
- Estimated total annual cost saving **\$14,742,000 annually**

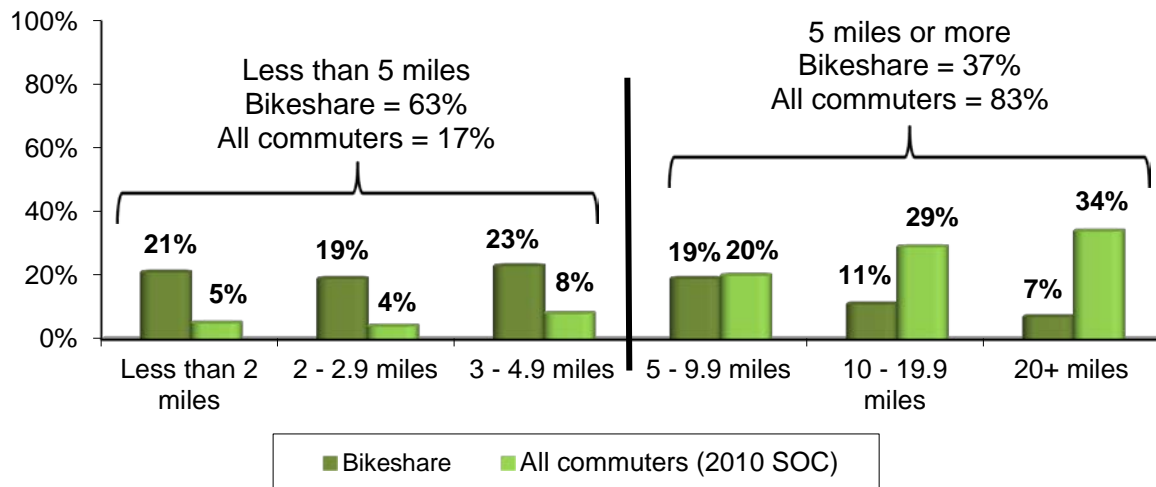
Work Travel of Bikeshare Users and Changes Since Joining Capital Bikeshare

More than nine in ten (94%) respondents said they were employed. These respondents were asked about their current travel from home to work and about any changes they might have made in their travel since they joined Capital Bikeshare.

Commute Distance to Work

Bikeshare members travel much shorter distances to work than do all commuters in the region. Figure 42 presents the distribution for bikeshare users and for commuters across the Washington metropolitan region. More than six in ten bikeshare survey respondents traveled fewer than five miles to work and 40% traveled fewer than three miles. Only about 18% traveled 10 miles or more. On average, bikeshare survey respondents traveled 6.2 miles to work, one-way.

Figure 42
Commute Distance – Bikeshare Users and All Commuters
 (Capital Bikeshare respondents n = 4,813, 2010 SOC All Commuters n = 5,533)

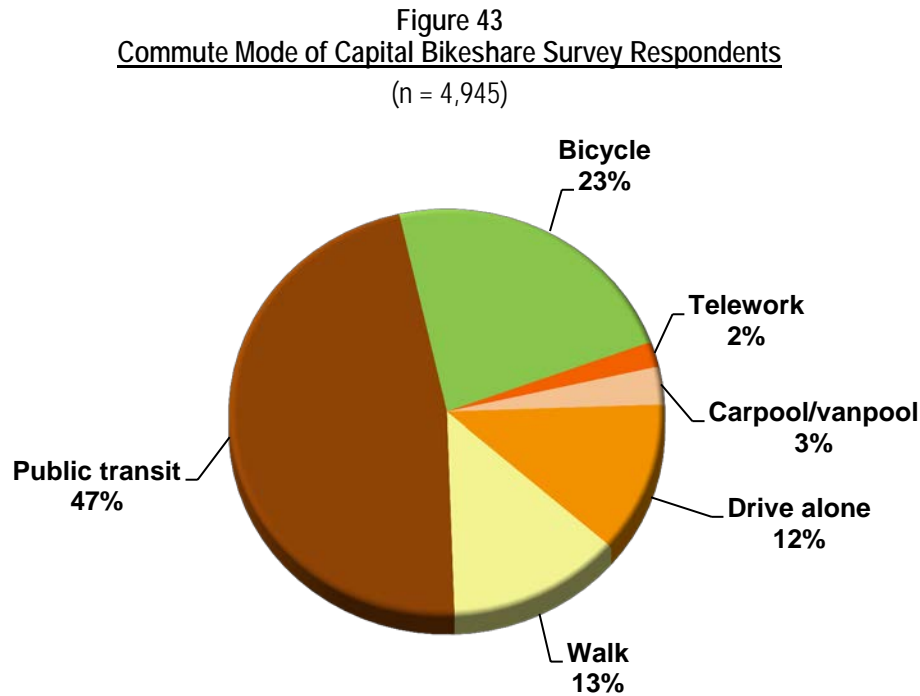


The figure also shows the distance distribution for all commuters in the region (2010 SOC survey). The bikeshare distance profile is dramatically different than that for all commuters in the region. Only 17% of all regional commuters traveled five miles or fewer and 63% of all regional commuters traveled 10 or more miles. The average commuter in the Washington metropolitan region traveled 16.5 miles one-way to work, about 10 miles farther than the distance traveled by the average Capital Bikeshare respondent.

Among bikeshare respondents, those who lived in the District of Columbia traveled shorter distances than did respondents who lived in Arlington or in any other jurisdiction; 72% of District respondents commuted fewer than five miles, while only 37% of Arlington residents had such a short trip to work. Young respondents also were more likely to have short commutes; 68% of respondents who were younger than 35 years traveled fewer than five miles to work, compared with 56% of respondents who were 45 years of age or older.

Travel Mode Used Most Days to Get to Work

The survey asked respondents what type of transportation they used most days to get to work. As shown in Figure 43, the overwhelming majority of respondents (88%) primarily used a mode other than driving alone. Nearly half (47%) of respondents traveled to work most days by public transit (Metrorail, bus, or commuter rail), but almost a quarter (23%) said they primarily bicycled. Approximately equal shares of respondents said they walked (13%) or drove alone (12%). About three percent said they either carpooled or vanpooled and the remaining 2% said they primarily teleworked (work at home).

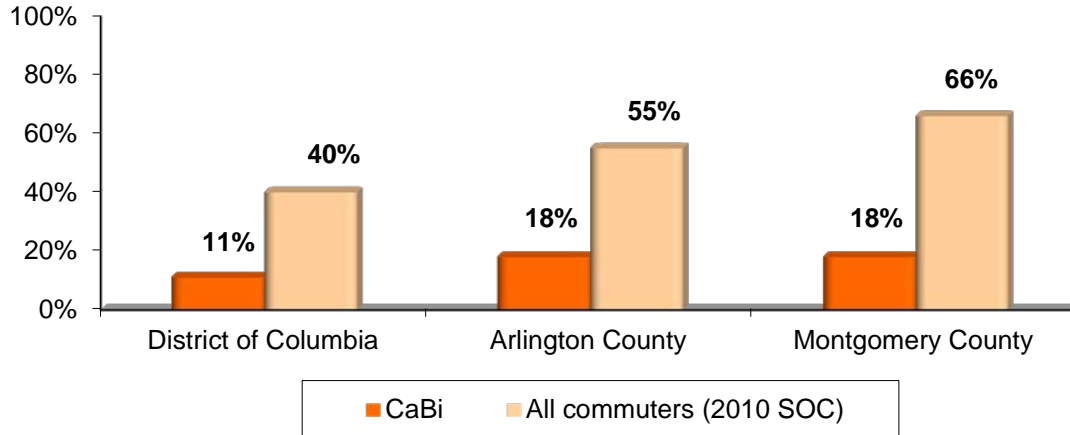


The 12% share of survey respondents who primarily drove alone to work is well below the drive alone mode share for all commuters in the Washington region. According to the 2010 State of Commute survey, over the entire region, about 65% of all commuters drove alone to work most days.

Even accounting for the fact that the majority of bikeshare respondents live in Washington, Arlington County, or Montgomery County, the drive alone rate of bikeshare users is quite low. Figure 44 shows the drive alone rates by home area for bikeshare survey respondents and for all commuters in these three jurisdictions (2010 SOC). Only ten percent of bikeshare survey respondents who lived in the District of Columbia drove alone to work, compared to 40% of all commuters who lived in the District. The disparities in drive alone rate are similarly striking for the two other jurisdictions that had measurable bikeshare respondents.

Figure 44
Drive Alone Mode Share – Bikeshare Respondents vs All Commuters by Home Location

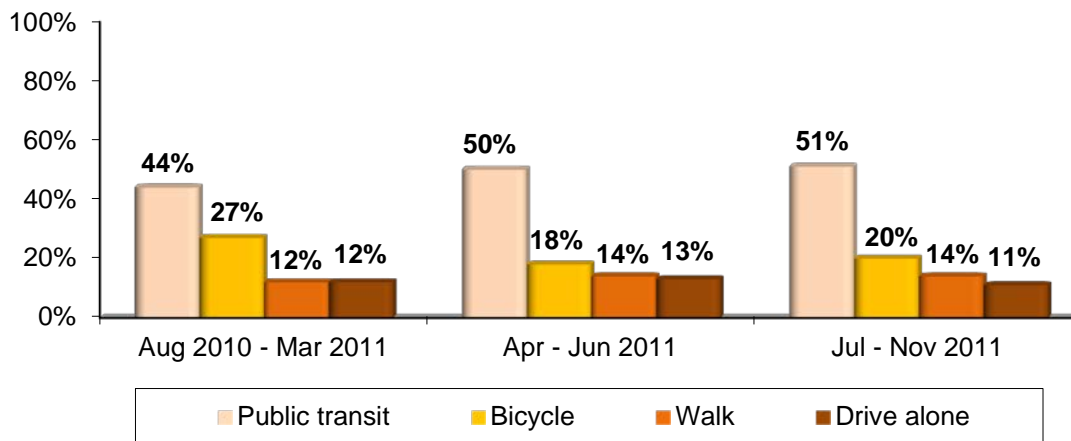
(Bikeshare: DC n = 4,001, Arlington n = 313, Montgomery n = 159)
 (2010 SOC survey: DC n = 549, Arlington n = 563, Montgomery n = 561)



Commute Mode by When Joined Capital Bikeshare – A significantly higher share of early-adopter bikeshare members said they primarily bicycled to work, when compared with members who joined more recently. (Figure 45)

Figure 45
Primary Commute Mode of Bikeshare Respondents – by When Joined Capital Bikeshare

(Aug 2010 – Mar 2011 n = 2,386, Apr – June 2011 n = 1,493, Jul-Nov 2011 n = 1,030)



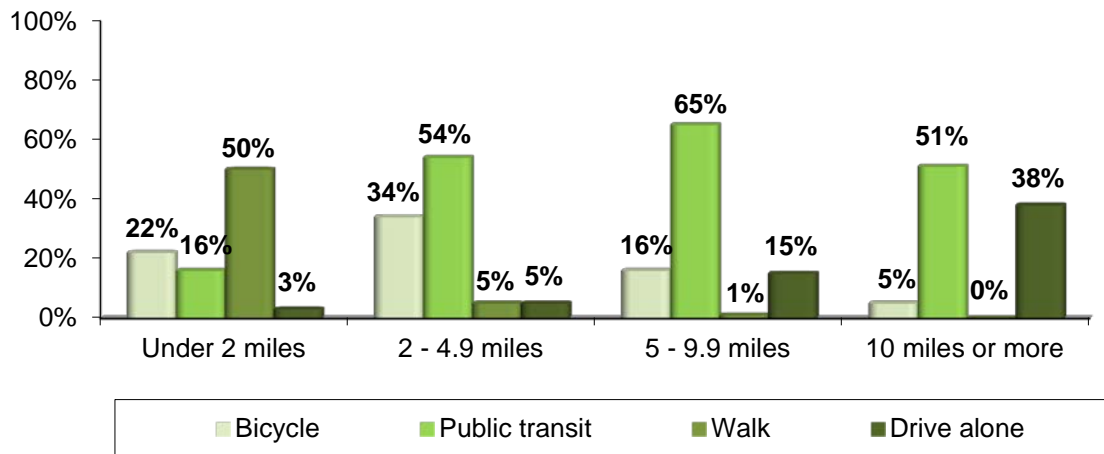
Twenty-seven percent of respondents who joined Capital Bikeshare between August 2010 and March of 2011 said they rode a bike to work most days, while only 18% of respondents who joined between April and June of 2011 and 20% of respondents who joined in July 2011 or later primarily bicycled. By contrast, more recent members more often were transit riders; 44% of the early adopters rode transit

to work, compared with about half of respondents who joined in April 2011 or later. There were no differences among the three groups in the percentages of respondents who walked to work or who drove to work. These results suggest that while early adopters of the bikeshare program were disproportionately bicyclists, the mode distribution has since stabilized and Capital Bikeshare is attracting an increased share of transit riders.

Commute Mode by Travel Distance – The distance that respondents traveled to get to work also was a factor in their primary commute mode. (Figure 46) Walking (50%) and bicycle (22%) were the top choices of respondents who lived less than two miles from work. Bicycling (34%) also was a common mode for respondents who lived between two and 4.9 miles from work, but more than half (54%) of respondents in this group rode public transit. Two-thirds (65%) of respondents who traveled between five and 9.9 miles to work chose transit; the remaining respondents in this distance group were about equally divided between bicycling (16%) and driving alone (15%). Respondents who traveled the longest distance, 10 miles or more, primarily used public transit (51%) or driving alone (38%).

Figure 46
Primary Commute Mode of Bikeshare Respondents – by Commute Distance

(Under 2 miles n = 1,025, 2 – 4.9 miles n = 2,007, 5 – 9.9 miles n = 899, 10 miles or more n = 863)



Bicycle as Commute Mode by Demographic Characteristic – Among bikeshare survey respondents, District of Columbia residents bicycled to work at a higher rate (25%) than did respondents who lived in Arlington County (18%). Men were more likely than were women to bicycle to work; 25% of male respondents said they bicycled most days, compared with 18% of female respondents. And a higher proportion of White respondents (24%) said bicycling was their primary commuting mode, while only 19% of Non-white respondents mentioned bicycling. But respondents bicycled to work at about the same rate, regardless of their age.

Recent Changes in Commuting Patterns

All Changes Made – One survey objective was to identify changes bikeshare users had made in their travel since joining Capital Bikeshare. The report already has discussed overall changes in mode use and annual driving miles. Employed respondents were asked if, in the past year, they had made any of five types of changes in how they get to work. Table 12 presents these results.

Table 12
Commute Mode Changes in the Past Year
(n = 4,916, multiple responses permitted)

Commute Changes	Percentage
No changes in commute	43%
Change in commute	57%
- Started bicycling to work / ride a bike more often	44%
- Started riding transit to work / ride transit more often	10%
- Started walking to work / walk more often	10%
- Started teleworking / telework more often	4%
- Started carpooling/vanpooling / carpool/vanpool more often	1%

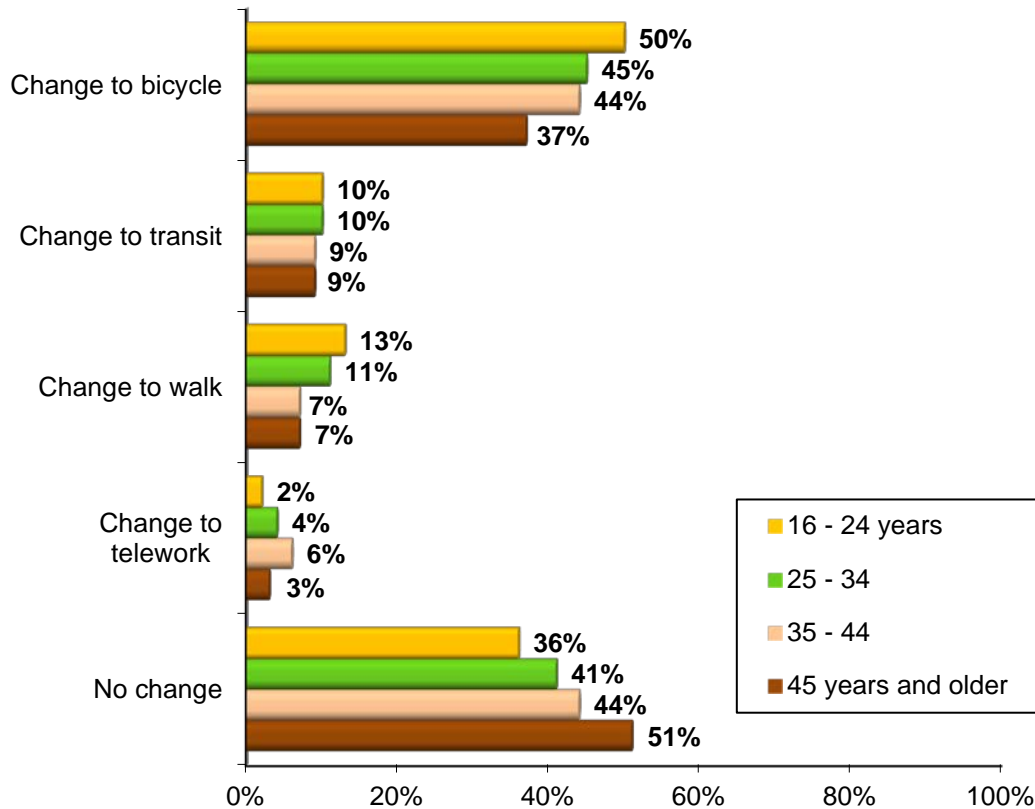
Almost six in ten (57%) employed respondents said they made at least one change in their commuting pattern. The largest share of respondent who made a change started bicycling to work or increased how often they bike to work (44%). About one in ten started or increased their use of public transit (Metrorail, bus, or commuter rail) (10%) and 10% started walking or walk to work more often. Four percent started teleworking or increased their telework days and one percent made a change to car-pool or vanpool. Some respondents noted more than one change.

Commute Changes by Demographic Characteristics – As has been illustrated in many sections of this report, these results were not uniform across all member subgroups. Male and female respondents were equally likely to make travel change, as were White and Non-white respondents. But a higher share (59%) of respondents who lived in the District of Columbia made at least one commute change, compared with respondents who lived in Arlington (46%).

And as shown in Figure 47, there was a distinct pattern of commute change by respondents' age. Young respondents were more likely than were older respondents to make changes overall. And young respondents particularly made changes in higher numbers to bicycle and walk.

Figure 47
Commute Change in Past Year – by Age

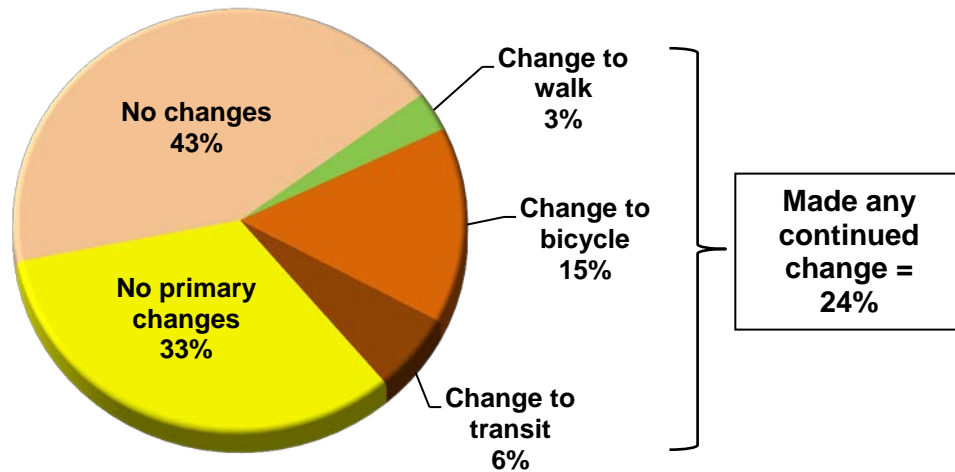
(16-24 years n = 519, 25-34 n = 2,673, 35-44 n = 969, 45 and older n = 770)



Continued Changes to Primary Modes – Respondents were asked to check all the changes that they had made in the past year. But some of these changes could have been temporary or changes to modes they used only occasionally. For this reason, the changes respondents reported were compared against the type of transportation they said they used most days at the time of the survey to identify “primary mode” changes that respondents had continued. (Figure 48)

About a quarter of respondents made a continued change to their primary mode; 15% made a continued change to bicycle, six percent made a continued change to public transit, and three percent made a continued change to walk. A third of respondents made changes that either were temporary, that is, changes to modes they were not still using, or changes to modes they used one or two days per week (not primary modes).

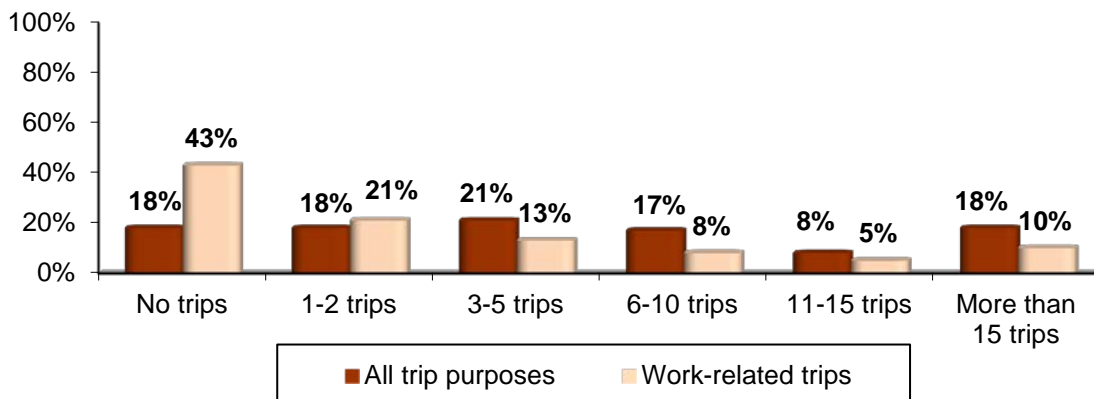
Figure 48
Continued Primary Commute Mode Changes
 (n = 4,916)



Frequency of Capital Bikeshare for Work-Related Travel

Employed respondents were asked how many times they had used Capital Bikeshare in the past month to get to work or to travel to a work-related meeting. Figure 49 presents these results, along with the results presented earlier for frequency of bikeshare use for all trip purposes.

Figure 49
Capital Bikeshare Trips Made in Past Month – All Trip Purposes and Work-Related Trips
 (All trip purposes n = 5,403, Work-related trips n = 4,932)



Almost six in ten (57%) employed respondents had used Capital Bikeshare at least once in the past month for a work-related trip. About a third (34%) had made between one and five trips and eight percent had made between six and 10 trips. Fifteen percent used bikeshare frequently for work-related trips, making 11 or more trips. One in ten (10%) made at least 16 trips in the past month.

Respondents who used Capital Bikeshare for work-related purposes made an average of 6.9 work-related bikeshare trips in the past month. When averaged across all respondents, the average work-related trips totaled about 3.5 per month, accounting for 43% of the total 8.1 trips per user reported for all trip purposes.

Work-related Trip Frequency by Bikeshare Members' Home Location – Frequent and infrequent bikeshare users were distributed across all demographic and program characteristic subgroups. But frequency differences were noted for some user characteristics. (Table 13) Work-related bikeshare use was more frequent among respondents who lived in the District of Columbia and those who work in the District. This seems a reasonable outcome, considering that the majority of bikes and bike stations are located in the District. But respondents who worked in Montgomery County or Prince George's County, in Maryland also noted high bikeshare use for work-related trips.

Table 13
Work-Related Capital Bikeshare Trips in Past Month by Respondents' Home and Work Locations

Respondent Characteristic	Work-Related Capital Bikeshare Trips in Past Month		
	0 Trips	1 – 5 Trips	6 or More Trips
Home jurisdiction			
- Arlington County, VA (n = 311)	62%	25%	13%
- District of Columbia (n = 3,995)	41%	35%	24%
- Montgomery / Prince George's Counties, MD (n = 215)	47%	34%	18%
Work jurisdiction			
- Arlington County, VA (n = 301)	51%	33%	16%
- District of Columbia (n = 3,766)	37%	37%	26%
- Montgomery / Prince George's Counties, MD (n = 325)	71%	16%	13%

(Statistical differences noted with orange highlighting)

Work-related Trip Frequency by Bikeshare Members' Demographic Characteristics – Other characteristics that were associated with higher bikeshare use included being male, younger than 25 years old, and not having access to a personal vehicle. (Table 14) About half of male respondents made at least one work-related bikeshare trip, compared with only 40% of female respondents. Men also made more work trips than did women.

Table 14
Work-Related Capital Bikeshare Trips in Past Month by Respondents' Demographic Characteristics

Respondent Characteristic	Work-Related Capital Bikeshare Trips in Past Month		
	0 Trips	1 – 5 Trips	6 or More Trips
Sex			
- Male (n = 2,669)	40%	34%	26%
- Female (n = 2,158)	49%	33%	18%
Age			
- 16 to 24 years old (n = 519)	37%	34%	29%
- 25 to 34 years old (n = 2,686)	45%	33%	22%
- 35 to 44 years old (n = 969)	41%	36%	23%
- 45 years and older (n = 673)	43%	34%	23%
Own a personal vehicle			
- Yes (n = 2,784)	46%	34%	20%
- No (n = 2,148)	40%	34%	26%

(Statistical differences noted with orange highlighting)

Use of Capital Bikeshare for work-related trips was essentially the same for all age groups, except that very young respondents, those who were under 25 years old, used bikeshare to get to work at a higher rate than did respondents in other age groups. And respondents who did not own a vehicle were more likely to use bikeshare for a work-related trip (26%) than were respondents who did have a vehicle (20%).

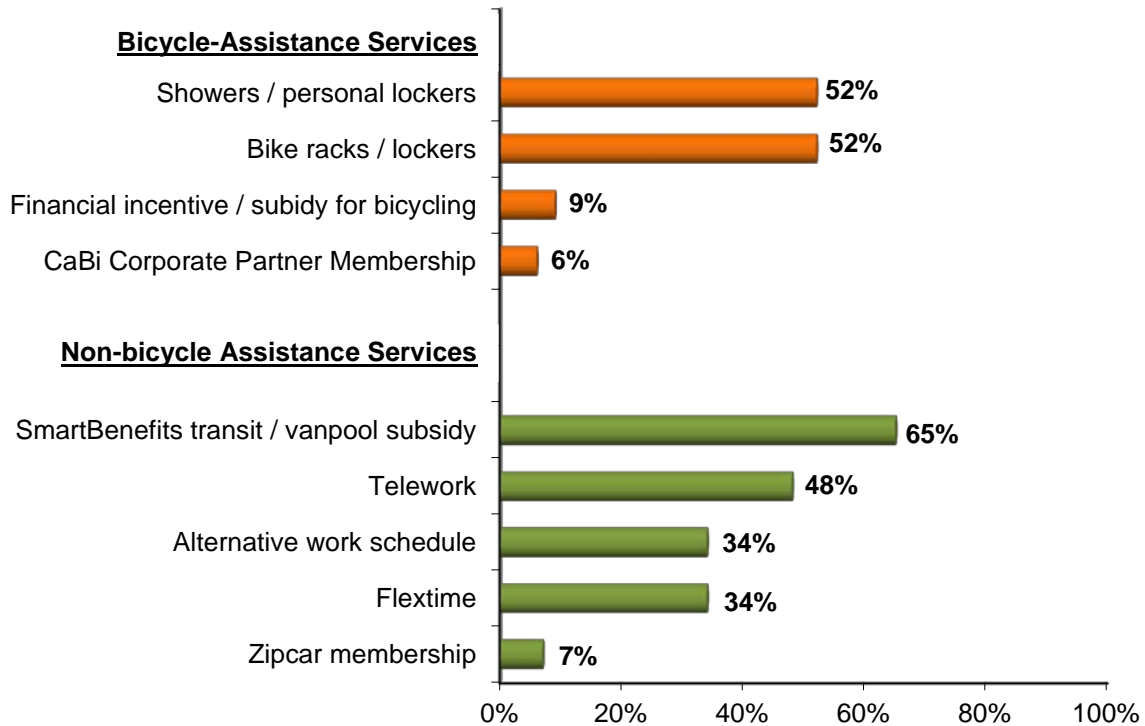
Employer Offers Bike Services and Other Commute-Assistance Services

Capital Bikeshare Corporate Partner Membership – Employed respondents were asked two questions related to the availability of services at their worksite that might influence the types of transportation they would choose to get to work. First, respondents were asked if their employer offered a Capital Bikeshare Corporate Partner Membership. About six percent of respondents said their employers did offer a Capital Bikeshare Corporate Partner Membership. Three quarters (76%) said their employer did not offer a membership and 19% said they didn't know if membership is offered.

Capital Bikeshare Corporate Memberships were most common among respondents who worked in the District of Columbia (7%) and Arlington County (5%). Only one percent of respondents who worked in other jurisdictions had access to a Corporate Membership.

Commute-Assistance Services – Second, respondents were asked if their employer currently offered any of eight commute-assistance services. Figure 50 presents the results to this question, with results divided into services related to bicycle commuting and services related to other types of transportation.

Figure 50
Commute Services Offered by Employer
 (Capital Bikeshare Corporate Partner Membership n = 4,918, All other services n = 3,977)



Bicycle-Assistance Services – Fifty-three percent of all employed respondent reported having access to at least one bike-support service. More than half said their employers offered showers / personal lockers (52%) or bike racks /lockers (52%). Nine percent said the employer offered a financial incentive / subsidy for employees who bicycle to work.

Respondents who worked in Arlington County and in the District of Columbia had greater access to bicycle services than did Capital Bikeshare respondents who lived in other jurisdictions. As shown below, nearly six in ten Arlington works and a similar share of District workers noted one or more bicycle services, compared with 43% of bikeshare survey respondents who worked in other areas.

But as also indicated below, bikeshare survey respondents were twice as likely to report access to bicycle services (53%) as were all commuters region-wide (26%) and more likely to have bicycle services than were other commuters in the jurisdictions where they worked.

Bike Services Available

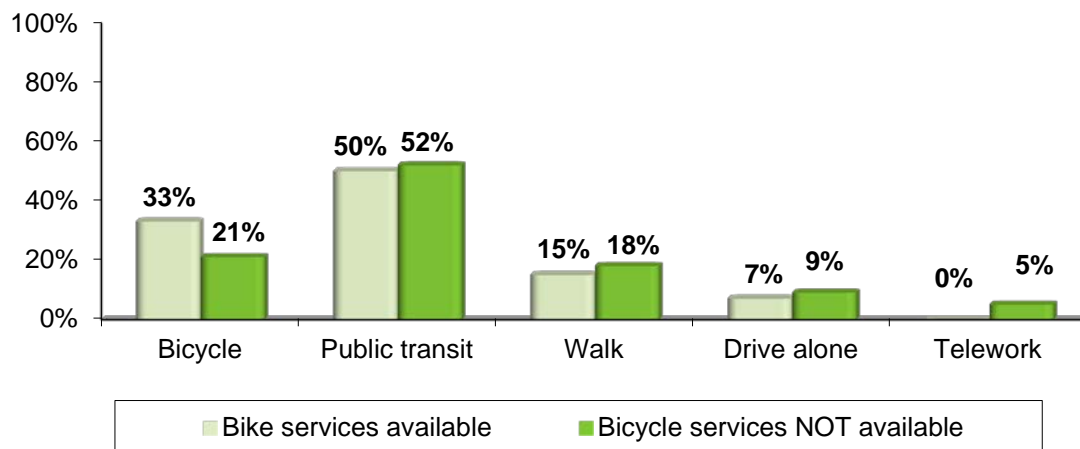
	<u>Capital Bikeshare</u>	<u>2010 SOC</u>
• Overall	53%	26%
• Arlington Co., VA	58%	37%
• District of Columbia	57%	35%
• Montgomery / Prince George's Co., MD	43%	29%
• Other areas	43%	19%

Other Commute-Assistance Services – Figure 50 also shows the percentages of employers that offered non-bicycle commute-assistance services. Two-thirds (65%) said the employer offered a SmartBenefits transit or vanpool subsidy; this was the most common service offered across all respondents. Almost half (48%) of respondents said telework was available to employees at the worksite and about a third mentioned alternative work schedules (34%) or flextime (34%). Finally, seven percent of respondents said their employer offered a Zipcar carshare program membership.

Primary Commute Mode by Bicycle Services Available – Respondents who had access to bicycle-support services biked to work at a higher rate than did respondents who did not have access to these services (Figure 51). A third (33%) of respondents who said bicycle services were available bicycled to work, compared with 21% of those who did not have bicycle services. Note that the figure only includes respondents who worked in either Arlington County or the District of Columbia, the two areas where bicycle services were common.

Figure 51
Primary Commute Mode of Arlington / District of Columbia Bikeshare Respondents –
by Availability of Bicycle Services at Worksite

(Bicycle services available n = 2,324, Bicycle services not available n = 1,748)



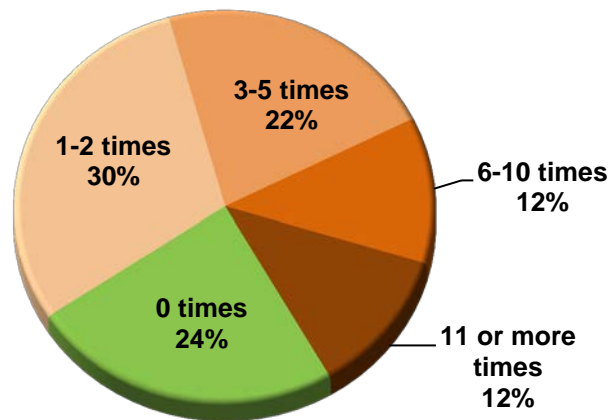
Bikeshare Information Resources

Capital Bikeshare offers numerous ways that members can obtain information about the service and manage their use of the service. The survey included several questions about two specific Capital Bikeshare information services, online map and SpotCycle. These results are summarized below.

Capital Bikeshare Online Map

Seven-six percent of respondents had used the Capital Bikeshare online map in the past month to locate a station to pick up or drop off a bike. (Figure 52) Thirty percent used the map one or two times and 22% had used the map between three and five times. About a quarter had used the map at least six times. The remaining quarter (24%) had not used the map at all in the previous month.

Figure 52
Frequency of Use of Capital Bikeshare Online Map in Past Month
(n = 4,917)



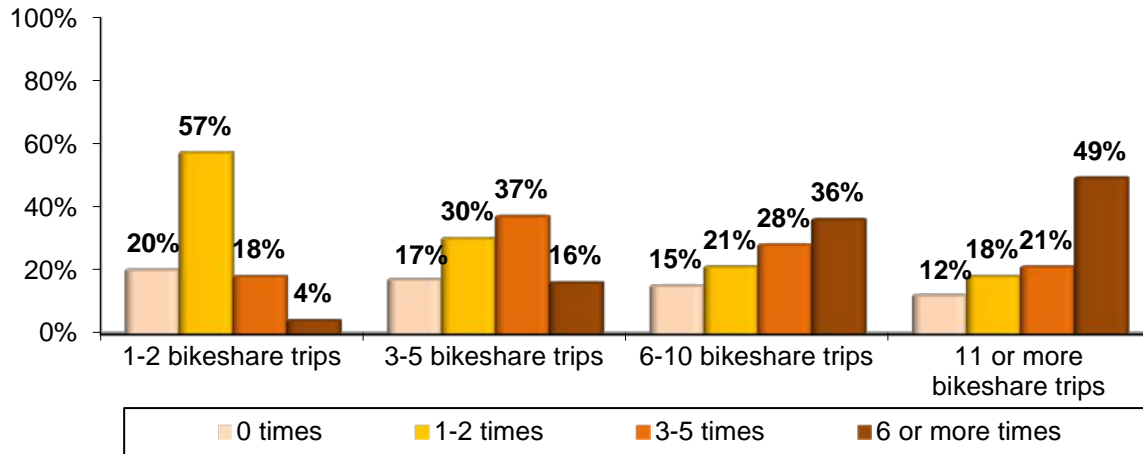
Not surprisingly, respondents who frequently made bikeshare trips also were frequent users of the online map. (Figure 53) Nearly half of respondents who made 11 or more bikeshare trips in month prior to the survey use the online map six or more times, compared with 36% of respondents who made between six and ten bikeshare trips, and 16% of those who made between three and five bikeshare trips.

Respondents who lived in the District of Columbia were most likely to use the map and to use it often. Three-quarters (78%) of District residents used the online map, compared with 66% of respondents who lived in Arlington or another jurisdictions. And fully 26% of District residents used the map at least six times; only 14% of other respondents used the map as frequently.

Younger respondents also were more likely to use the online map than were older respondents. Seventy-eight percent of respondents under 35 years old used the map at least once, compared with 72% of those 35 and older. While young respondents might be more comfortable with using online services than are older respondents, their greater use of the map likely was due, at least in part, to greater bikeshare use.

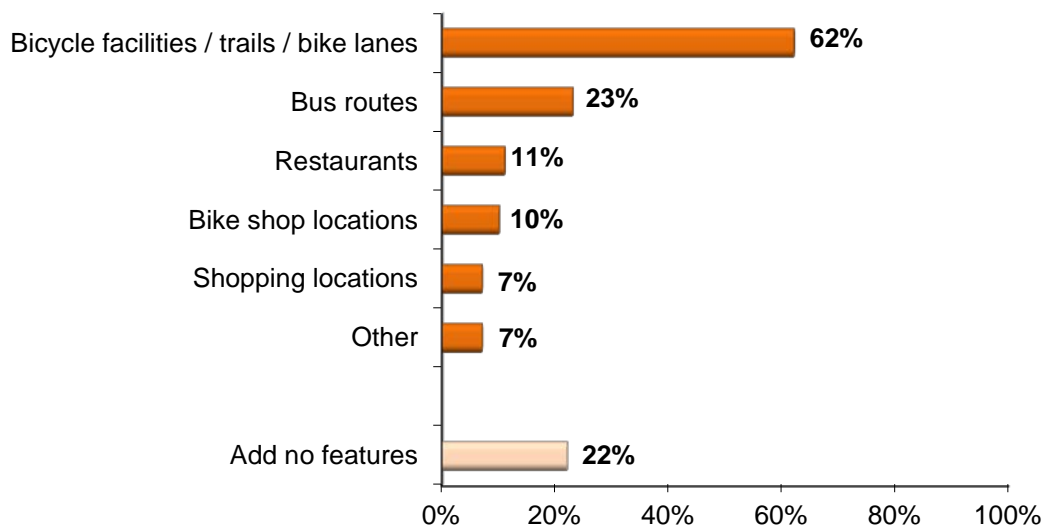
Figure 53
Frequency of Use of Capital Bikeshare Online Map in Past Month

(1-2 Bikeshare trips n = 889, 3-5 Bikeshare trips n = 1,047, 6-10 Bikeshare trips n = 861,
 11 or more Bikeshare trips n = 1,303)



Desirable Additional Features for Online Map – Respondents who had used the online map were asked if they would like any of five other features added to the map. (Figure 54) The most common additional feature was *bicycle facilities/trails/bike lanes*, noted by more than six in ten (62%) respondents. About a quarter (23%) said they would like bus routes to be on the map. One in ten would like the locations of restaurants (11%) and bike shops (10%). Twenty-two percent did not want any additional features.

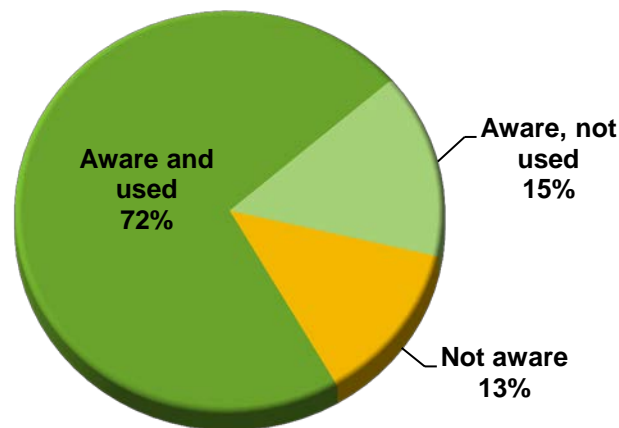
Figure 54
Desirable Additional Features for Online Map
 (n = 4,578)



SpotCycle Smart Phone App

The survey also asked respondents if they were aware of a smart phone app called SpotCycle, available for Android/BlackBerry/iPhones, with which members could locate Capital Bikeshare stations and learn if a bike was available at the station. A very large share (87%) of respondents said they were aware of the app and 72% had used it. (Figure 55)

Figure 55
Awareness and Use of SpotCycle
(n = 4,963)



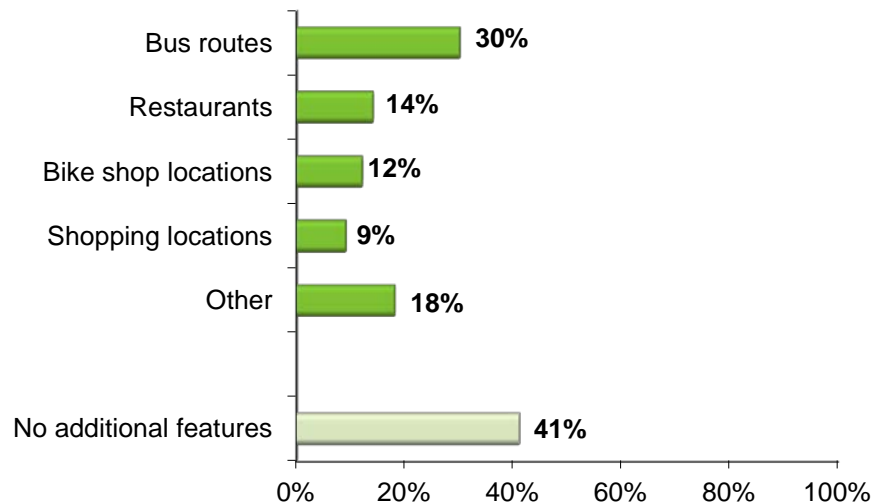
Awareness and Use of SpotCycle Among Capital Bikeshare Subgroups – Respondents' awareness of the app was related to how long they had been a Capital Bikeshare member. About nine in ten (89%) respondents who joined Capital Bikeshare between August of 2010 and June 2011, knew about the app and 75% had used it, while only 80% of those who joined recently, between July and November 2011, said they knew of the app and only 63% had used it.

Respondents who lived in the District of Columbia were both more likely to know about the app and more likely to use it than were respondents who lived elsewhere. Eighty-nine percent of District residents knew of the app and 75% had used it. By contrast, 83% of Arlington residents knew of the app and 66% used it. Both awareness and use were lower still outside of these two jurisdictions.

Similarly, young respondents were more likely to know about the app and more likely to use it than were older respondents. Eight-nine percent of respondents under 35 years old knew of the app, compared with 75% of those 35 and older. And 75% of those under 35 had used the app, compared with just 53% of respondents 35 and older.

Desirable Additional Features for SpotCycle – Respondents who had used SpotCycle were asked if they would like any of four other features added to the app. (Figure 56) The most common desired feature was bus routes, checked by 30% of respondents. Fourteen percent would like the locations of restaurants, 12% mentioned locations of bike shops, and nine percent would like shopping locations. Four in ten did not want any additional features.

Figure 56
Desirable Additional Features for SpotCycle
(n = 4,050)



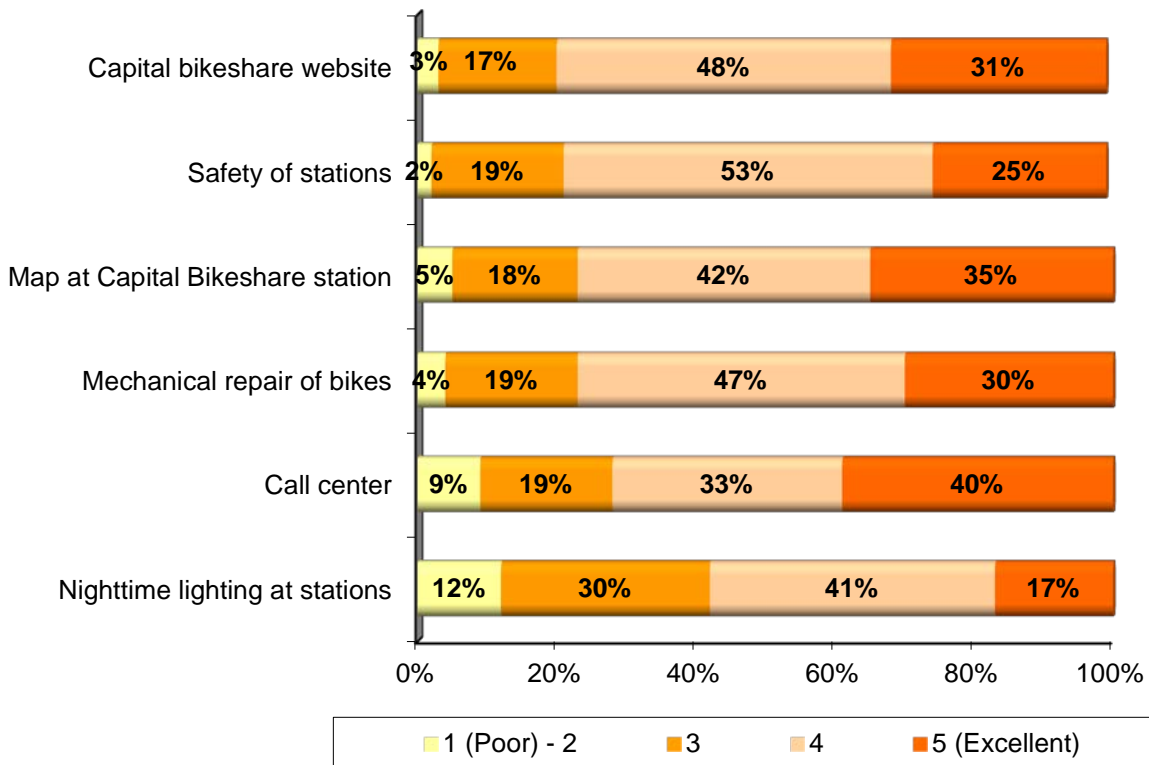
Satisfaction with Bikeshare

The final section of the survey asked respondents to rate the quality of various features of Capital Bikeshare, to report problems that they had had in using Capital Bikeshare, and to offer suggestions for how Capital Bikeshare could be improved. These results are summarized below.

Satisfaction with Bikeshare Features

Respondents were asked to rate their satisfaction with a set of individual Capital Bikeshare features. The ratings, ranging from a 1 (poor) to 5 (excellent) for each feature are shown in Figure 57. Note that the percentages and sample sizes (n =) exclude respondents who checked “don’t know” to a feature; since most of these respondents would not have used that feature, they could not comment on it. Don’t know responses ranged from about five percent to fifteen percent, except for the call center, which was unrated by about 55% of respondents.

Figure 57
Capital Bikeshare Ratings on Program Features
 (Call center n = 2,340, Other features n = 4,014)



Respondents gave generally high marks to most bikeshare features. More than three-quarters gave ratings of 4 or 5 (Excellent) to the Capital Bikeshare website, safety of stations, map at Capital Bikeshare stations, and mechanical repair of bikes. Seventy-three percent rated call center as a 4 or 5. Respondents were less satisfied with the nighttime lighting at the stations; only 58% of respondents gave a rating of 4 or 5 to this feature.

Ratings on these features were quite consistent across all demographic groups; there were no statistical differences by any of the following: when respondent joined Capital Bikeshare, income, sex, employment status, home location, work location, and vehicle available. The only notable statistical differences were:

Age – Differences were noted for two features, with older respondents giving higher ratings:

- *Nighttime lighting at stations* – Two-thirds (64%) of respondents who were 45 years of age or older gave a 4 or 5 rating, compared with 53% of those who were under 25.
- *Mechanical repair of bikes* – Eight in ten (83%) respondents who were 45 years of age or older gave a 4 or 5 rating, compared with 74% of those who were under 25.

Race / Ethnicity – Differences by race / ethnicity were noted for four Capital Bikeshare features, with White respondents generally giving higher ratings than did Non-white:

- *Map at Capital Bikeshare Stations* – Eight in ten (79%) White respondents rated this feature a 4 or 5 rating, compared with 72% of Non-white respondents.
- *Safety at stations* – Eight in ten (80%) White respondents gave a 4 or 5 rating, compared with 75% of Non-white respondents.
- *Capital Bikeshare website* – Eight in ten (81%) of White respondents rated this feature a 4 or 5 rating, compared with 76% of Non-white respondents.
- *Mechanical repair of bikes* – Eight in ten (79%) of White respondents gave a rating of 4 or 5, compared with 70% of Non-white respondents.

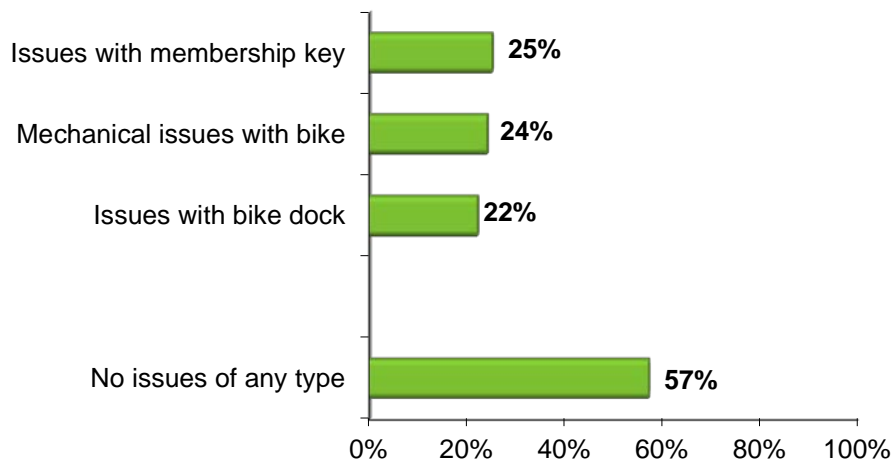
Bikeshare Service Problems / Issues

Finally, all respondents were asked if they had any problems with three particular aspects of the Capital Bikeshare service:

- Trouble accessing a bike with the Capital Bikeshare membership key
- Problems with Capital Bikeshare bike docks
- Mechanical issues with a bike

Figure 58 shows the percentage of respondents who mentioned each possible situation. Nearly six in ten (57%) respondents said they had not encountered any of the three issues since joining Capital Bikeshare. The remaining 43% said they had encountered at least one of the issues. A quarter (25%) said they had issues accessing a bike with the membership key and 24% said they had a mechanical issue with the bike. A slightly lower percentage (22%) said they had an issue with a bike dock. Respondents who said they had had a problem were asked to describe the problem.

Figure 58
Incidence of Issues with Capital Bikeshare Service
(n = 5,260)



Details of Docking Problems – As shown below, the most common docking issue was that the dock did not properly accept the bike when it was returned or did not credit the user with the return. Three in ten (30%) respondents who mentioned a docking problem gave this as the specific issue. About 15% gave the opposite problem; the dock would not release a bike the respondent wanted to use.

Docking Problems

• Dock did not lock bike when returned	30%
• All docks were occupied	22%
• Dock would not release bike	15%
• No bikes were available to use	10%
• Other	22%

Twenty-two percent reported that there was no space available to return the bike at the preferred location. Ten percent reported that the dock was empty, that is there were no bikes to use. These problems relate less to the operation of the dock and more to the need to balance the availability of bikes at various locations to meet demand by time of day. About two in ten (22%) mentioned other general issues, such as “dock was broken,” “system was down,” “key didn’t work,” or another issue.

Details of Bike Maintenance Issues – The most common issues with bike maintenance were with brakes, gears or shifting, seats or seatpost adjustment; each of these was noted by more than two in ten respondents who reported a problem. About 16% of those who reported a bike maintenance problem noted a problem with the bell. Nine percent said the problem was a flat tire, either while they were traveling or at the bike dock with the bike they wanted to use. Seven percent said they had some other problem with the tire or a wheel.

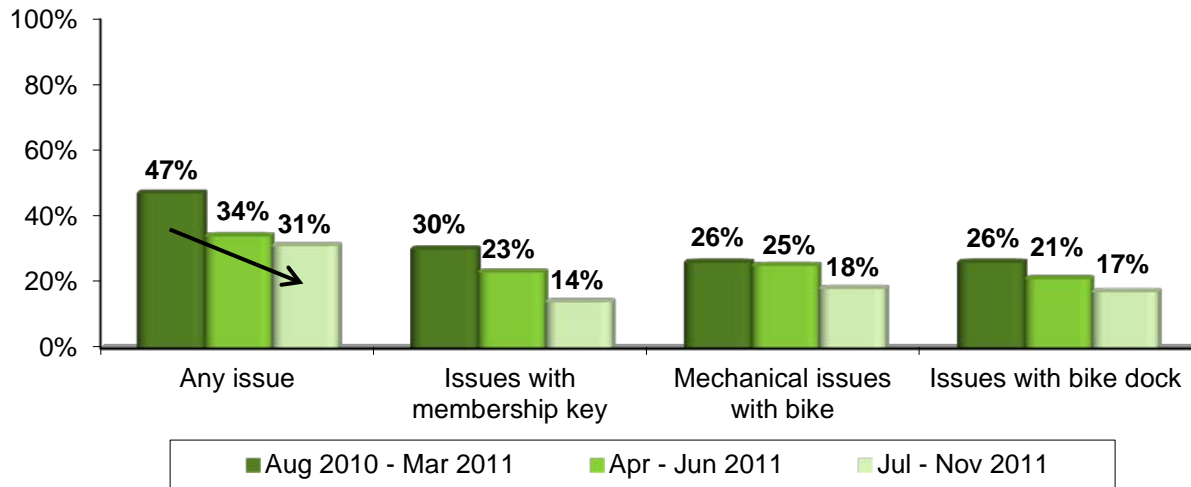
Bike Maintenance Issues

• Brakes	26%
• Gears / shifting	24%
• Seat / seat post adjustment	22%
• Bell not working	16%
• Flat tire	9%
• Other wheel issues	7%
• Other	15%

Issues Encountered by Respondent Characteristics – Two characteristics, in particular, were associated with the incidence of problems: when the respondent joined Capital Bikeshare and how often the respondent used bikeshare.

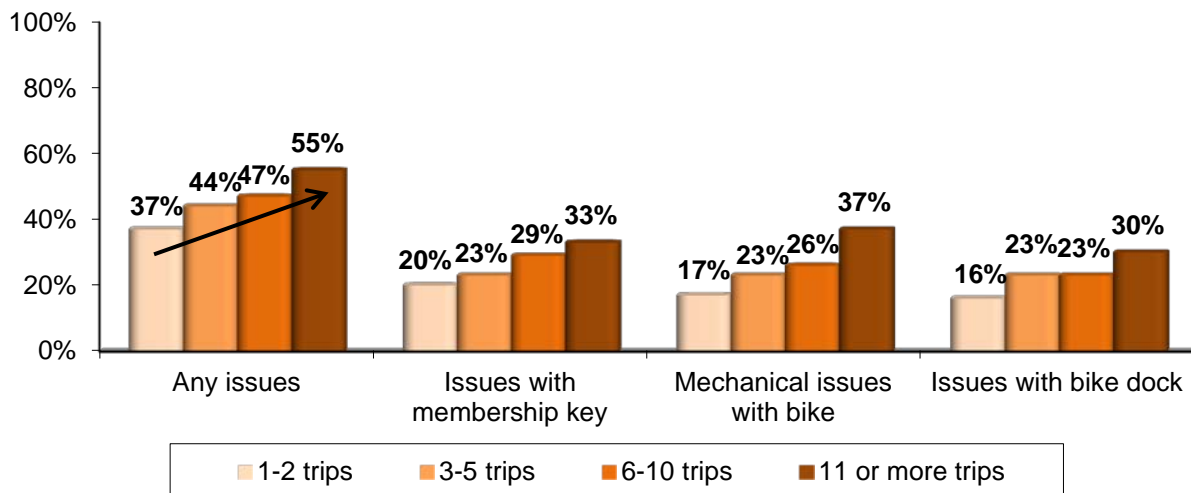
Problems Encountered by When Respondents Joined Capital Bikeshare – Figure 59 presents the percentages of respondents who mentioned each possible situation by when they joined Capital Bikeshare. The pattern is clear; respondents who joined in the early period of the program encountered more problems overall than did respondents who joined more recently. Three in ten respondents who joined between August 2010 and March 2011 noted an issue with the membership key and a quarter noted mechanical issues with the bike and issues with the bike dock. The percentage of respondents who reported each of these problems has since declined, but it is not possible to know if the decline reflects that the system has become more trouble-free or if it reflects more recent members’ shorter time exposure to the system.

Figure 59
Incidence of Issues with Capital Bikeshare Service – by When Joined Capital Bikeshare
 (Aug 2010 – Mar 2011 n = 2,517, Apr – June 2011 n = 1,579, Jul-Nov 2011 n = 1,130)



Problems Encountered by Frequency of Capital Bikeshare Use – Not surprisingly, respondents also were more likely to say they had encountered one or more of these issues if they were more frequent bikeshare users. As indicated in Figure 60, more than half (55%) of respondents who made 11 or more Capital Bikeshare trips in the past month had encountered a problem with the service, compared with 37% of respondents who made just one or two Capital Bikeshare trips in the past month.

Figure 60
Incidence of Issues with Capital Bikeshare Service – by Number of Capital Bikeshare Trips in Past Month
 (1-2 trips n = 934, 3-5 trips n = 1,104, 6-10 trips n = 910, 11 or more trips n = 1,385)



Resolution of Issues Encountered – Capital Bikeshare offers a 24-hour toll-free number that members can call if they experience a problem with a bikeshare service and respondents who checked that they experienced a problem with a membership key, bike dock, or bicycle were asked if they had called the toll-free number and if they were able to resolve the problem through the call.

The results displayed in Table 15 indicate that members were most likely to call the toll-free number if they had a problem with the membership key or a bike dock; 56% called for help with the key and 45% called for help with the problem about a bike dock. Only about one in ten members who encountered the mechanical issue with the bike said that they called the toll-free number, suggesting that the mechanical issue did not prevent them from riding the bike, if they had already started a trip. Also, numerous respondents who mentioned having a mechanical issue with a bicycle noted that they reported the problem using the automatic “wrench” alert at the dock, so didn’t need to make a call.

Table 15
Able to Solve Issues with Capital Bikeshare Service by Calling toll-free Number

Resolution	Type of Problem		
	Access Bike with Membership Key (n = 1,316)	Problem with Bike Dock (n = 1,169)	Mechanical Issue with Bike (n = 1,259)
- Did not call toll-free number	44%	55%	91%
- Called toll-free number	56%	45%	9%
- Yes, solved problem	14%	18%	5%
- No, could not solve problem	42%	27%	4%

The assistance they were able to receive to the toll-free number was not always able to solve the problem. In fact, toll-free assistance helped with only about 20% of key problems (14% / 56%), 40% of bike dock problem (18% / 45%), and about half of mechanical issues with the bike (5% / 9%).

APPENDICES

Appendix A – Survey Questionnaire

APPENDIX A – SURVEY QUESTIONNAIRE

General Information

1. How did you first learn about Capital Bikeshare?
 - 1 Employer, information at work
 - 2 Referral from friend, family member, co-worker
 - 3 Capital Bikeshare brochure (???)
 - 4 Community event
 - 5 Employer event
 - 6 Facebook
 - 7 Twitter
 - 8 Newspaper or magazine ad
 - 9 Newspaper or magazine article
 - 10 Capital Bikeshare website
 - 11 Blog
 - 12 Report on TV
 - 13 Saw a Capital Bikeshare station, read information posted at a station
 - 14 Saw someone riding a Capital Bikeshare bike
 - 15 BikeArlington
 - 16 DDOT website
 - 17 goDCgo
 - 18 Car-free Diet
 - 19 WABA (Washington Area Bicyclist Association)
 - 20 Zipcar email / promotion
 - 21 Living Social deal
 - 22 Member of Smartbike
 - 23 Greater Greater Washington
 - 24 Other (please specify)
 - 99 Blank
2. When did you join Capital Bikeshare?
 - 1 Aug-Sept 2010
 - 2 Oct-Dec 2010
 - 3 Jan-Mar 2011
 - 4 Apr-Jun 2011
 - 5 Jul-Sept 2011
 - 6 Oct-Nov 2011
3. What motivated you to join Capital Bikeshare?
 - 1 Save money on transportation
 - 2 To be able to get around more easily, faster, shorter
 - 3 I like to bike, fun way to travel
 - 4 Wanted to support cycling, support CAPITAL BIKESHARE, liked concept, used system elsewhere
 - 5 Access to another bike, backup to / protect my own bike, alternative to owning bike
 - 6 Received discount, gift membership, other incentive
 - 7 Access to other forms of transportation, new travel option, one-way travel option
 - 8 Alternative to public transit
 - 9 Reduce carbon footprint, environmental reasons
 - 10 Exercise, fitness
 - 11 Convenient station locations for my trips
 - 12 Other

3b Did you use a LivingSocial coupon when you joined Capital Bikeshare?

- 1 Yes
- 2 No
- 3 Not sure, don't know about the Living social coupon
- 99 Blank

4 In the past month, about how many Capital Bikeshare trips did you make?

- 1 No trips
- 2 1-2 trips
- 3 3-5 trips
- 4 6-10 trips
- 5 11-15 trips
- 6 16-25 trips
- 7 26-30 trips
- 8 More than 30 trips

5 For what types of trips have you ever used Capital Bikeshare? (check all that apply)

- 1 Go to work
- 2 Go from work
- 3 Go to a meeting
- 4 Restaurant, meal
- 5 Shopping
- 6 Social / entertainment / visit friends
- 7 Run errands, personal appointment
- 8 Exercise, recreation
- 9 To or from school
- 10 To or from gym, exercise class
- 11 To or from metro, carshare, train, airport
- 12 Other
- 88 No trips yet
- 99 Blank

6 What was the primary purpose of your MOST RECENT Capital Bikeshare trip? (check only one)

- 1 Go to work
- 2 Go from work
- 3 Go to a meeting
- 4 Restaurant, meal
- 5 Shopping
- 6 Social / entertainment / visit friends
- 7 Run errands, personal appointment
- 8 Exercise, recreation
- 9 To or from school
- 10 To or from gym, exercise class
- 11 To or from metro, carshare, train, airport
- 12 Other
- 88 No trips yet
- 99 Blank

7 If Capital Bikeshare had not been available, how would you have made this trip? (one answer only)

- 1 Bus or Metrorail
- 2 Personal bike
- 3 Drive or ride in a personal
- 4 Drive or ride in company vehicle
- 5 Taxi
- 6 Walk
- 7 Zipcar
- 8 Would not have made this trip
- 9 Other (please specify)
- 88 No trips yet
- 99 Blank

7a In the past month, did you use Capital Bikeshare to make trips that you would not have made if Capital Bikeshare had not been available?

- 1 Yes
- 2 No
- 3 Not sure
- 99 Blank

7b What was the primary purpose of that trip (those trips) that you would not have made if Capital Bikeshare had not been available?

- 1 Go to work
- 2 Go from work
- 3 Go to a meeting
- 4 Restaurant, meal
- 5 Shopping
- 6 Social / entertainment / visit friends
- 7 Run errands, personal appointment
- 8 Exercise, recreation
- 9 To or from school
- 10 To or from gym, exercise class
- 11 To or from metro, carshare, train, airport
- 12 Other
- 88 No trips yet
- 99 Blank

7c What was your destination?

- 1 Arlington County (please specify) _____
- 2 District of Columbia – Capitol Hill
- 3 District of Columbia – Cleveland Park, Woodley
- 4 District of Columbia – Columbia Heights, Petworth
- 5 District of Columbia – Penn Quarter
- 6 District of Columbia – Georgetown
- 7 District of Columbia – Shaw, U Street
- 8 District of Columbia – Tenleytown, American University
- 9 District of Columbia – West end, George Washington University
- 10 District of Columbia – Downtown
- 11 District of Columbia – National mall
- 12 District of Columbia – Anacostia
- 13 District of Columbia – Dupont Circle / Adams Morgan / Logan Circle
- 14 District of Columbia – H Street corridor, NoMA
- 15 District of Columbia – SW, Waterfront, Navy Yard
- 16 District of Columbia – other (please specify) _____
- 17 Other (please specify) _____
- 99 Blank

7d Why would you not have made these trips without Capital Bikeshare? (check all that apply)

- 1 Too far to walk
- 2 No bus / train or bus / train inconvenient to that destination
- 3 No bus / train or bus/train inconvenient at that time of day,
- 4 Don't have a car
- 5 Don't like to drive to that destination at that time of day
- 6 Parking is limited / expensive at that destination
- 7 Too much traffic around that destination
- 8 Friends wanted to bicycle
- 9 Wanted to get exercise
- 10 Bicycle is faster, easier to this destination, faster than transit
- 11 Bicycle is cheaper than other alternatives
- 12 Other (please specify) _____
- 13 Don't know

7e If a business, restaurant, or shop is easily accessible by Capital Bikeshare, does that access make you more or less likely to patronize that establishment?

- 1 Much more likely
- 2 Somewhat more likely
- 3 Not more likely
- 4 Somewhat less likely
- 5 Much less likely
- 6 Don't know
- 99 Blank

8. How often do you use Capital Bikeshare in the following ways?

	Almost always Never	Sometimes	Rarely
1 Capital Bikeshare TO a Metrorail station	___	___	___
2 Capital Bikeshare TO a bus stop	___	___	___
3 Capital Bikeshare FROM a Metrorail station	___	___	___
4 Capital Bikeshare FROM a bus stop	___	___	___
5 Capital Bikeshare FROM MR to MR	___	___	___
6 Roundtrip Capital Bikeshare	___	___	___

9 How important is Capital Bikeshare in helping or encouraging you to ride a bike more often?

- 1 Very important
- 2 Somewhat important
- 3 Not important

10 On a weekly basis, how much money do you think Capital Bikeshare saves you on your travel compared with what you were spending before you joined?

- 1 \$0
- 2 \$1-20
- 3 \$21-40
- 4 \$41-60
- 5 More than \$60
- 6 Don't know

11. As a result of my use of Capital Bikeshare, I ride a bicycle (any bicycle)?

- 1 Much more often
- 2 More often
- 3 About the same (no impact)
- 4 Less often
- 5 Much less often

- 12 As a result of my use of Capital Bikeshare, I use a ...?
- a Bus
 - b Metrorail
 - c Walk
 - d Taxi
 - e Carshare
 - f Drive car
- 1 Much more often
- 2 More often
- 3 About the same (no impact)
- 4 Less often
- 5 Much less often
- 13 To what extent does Capital Bikeshare contribute to your reduction in driving?
- 1 Main factor
 - 2 Major factor, in combination with other things
 - 3 Minor factor, in combination with other more important things
 - 4 Not a factor
- 14 How often do you wear a helmet when you use Capital Bikeshare?
- 1 Always (SKIP to Question 15)
 - 2 Most of the time (SKIP to Question 15)
 - 3 Some of the time (SKIP to Question 15)
 - 4 Never
- 15 Why do you not typically wear a helmet when you ride?
- 1 Not convenient
 - 2 Too bulky
 - 3 I don't own one
 - 4 I don't have one with me at the time, spontaneous / unplanned trip
 - 5 Don't think I need it, feel safe enough without it, ride slowly, ride on paths
 - 6 Personal preference, not cool
 - 7 Don't want to carry to my destination, too obvious to carry
 - 8 Other (please specify)

Car Access

- 16 Do you own a vehicle?
- 1 No
 - 2 Yes
- 17 Do you have any of the following vehicles available to you on a regular basis for your travel? (check all that apply)
- 1 A personal bike (other than Capital Bikeshare)
 - 2 A car, van, SUV, truck or other person vehicle
 - 3 A motorscooter or motorbike
 - 4 A motorcycle
 - 5 A Zipcar membership
- 19 Since joining Capital Bikeshare, approximately how many miles per month do you drive on average?
- 20 During the year before joining Capital Bikeshare, approximately how many miles per month did you drive on average?

21. Since you joined Capital Bikeshare, have you sold a personal household vehicle or considered selling a personal vehicle?
- 1 No
 - 2 Sold or donated household vehicle
 - 3 Considered selling / donating personal vehicle
22. How important was your membership in Capital Bikeshare in your decision to sell or consider selling a personal vehicle?
- 1 Very important
 - 2 Somewhat important
 - 3 Not at all important
 - 4 Don't know
23. Are you currently employed?
- 1 yes
 - 2 No (SKIP TO Question 27)
24. About how many miles is it from your home to your usual work location?
- Less than 1 mile
_____ miles
25. What type of transportation do you use MOST OFTEN to get to work? Please check only one type. If you use more than one type on a single day, such as walk to a bus stop then ride a bus, check the type you use for the longest distance part of your trip.
- 1 Bicycle
 - 2 Walk
 - 3 Ride public transit (bus, Metrorail, or commuter train)
 - 4 Drive alone
 - 5 Ride in a carpool or vanpool
 - 6 Taxi
 - 7 Telework (check only if you work at home MOST DAYS)
26. In the past year, did you make any of the following changes in how you travel TO WORK? (check all that apply)
- 1 Started riding a bike to work; ride a bike more often
 - 2 Started walking to work; walk more often
 - 3 Started riding public transit to work; ride transit more often
 - 4 Started carpooling or vanpooling to work; carpool or vanpool more often
 - 5 Started teleworking; telework more often
 - 6 No changes
27. In the past month, how many times did you use Capital Bikeshare to get to work or to travel to a work-related meeting?
- 1 No trips
 - 2 1-2 trips
 - 3 3-5 trips
 - 4 6-10 trips
 - 5 11-15 trips
 - 6 More than 15 trips
28. Does your employer offer a Capital Bikeshare Corporate Partner Membership?
- 1 No
 - 2 Yes
 - 3 Don't know

29 Does your company currently offer any of the following employee benefits? (check all that apply)

- 1 Alternative work schedule
- 2 Flextime
- 3 Telework
- 4 Financial incentive or subsidy for employees who ride a bike to work
- 5 Bike racks or lockers
- 6 Showers or personal lockers
- 7 SmartBenefits transit / vanpool subsidy
- 8 Zipcar membership
- 9 Other

Customer Service

30 In the past month, about how many times did you use the Capital Bikeshare online map to locate a station to pick up or drop off a bike?

- 1 0 times
- 2 1-2 times
- 3 3-5 times
- 4 6-10 times
- 5 More than 10 times

31 Which features would you add to the online map of Capital Bikeshare locations?

- 1 Bike facilities like trails and bike lanes
- 2 Bike shop locations
- 3 Bus routes
- 4 Shopping locations
- 5 Restaurants
- 6 Add no features
- 7 Other

32 Capital Bikeshare has an Android/Blackberry/iPhone app called SpotCycle where you can locate stations and bike availability. Are you aware of the app and have you used it?

- 1 Aware of the app and HAVE USED it
- 2 Aware of the app, HAVE NOT USED it (SKIP to Question 39)
- 3 Not aware of the app (SKIP to Question 39)

33 Which features would you like to see on SpotCycle?

- 1 Bike shop locations
- 2 Bus routes
- 3 Shopping locations
- 4 Restaurants
- 5 Other (please specify)

34 How do you rate each of the following features of Capital Bikeshare? Please rate each on a scale of 1 to 5, where 1 is Poor and 5 is Excellent.

	1 (Poor)	2	3	4	5 (Excellent)	Don't know
1 Map at Capital Bikeshare station	1	2	3	4	5	DK
2 Nighttime lighting at stations	1	2	3	4	5	DK
3 Safety of stations	1	2	3	4	5	DK
4 Capital Bikeshare website	1	2	3	4	5	DK
5 Mechanical repair of bikes	1	2	3	4	5	DK
6 Call center	1	2	3	4	5	DK

- 35 Have you had any problems accessing a bike with your Capital Bikeshare membership key?
- 1 No (SKIP to Question 37)
 - 2 Yes --- What problem did you have?_____
- 36 Were you able to solve the key problem by calling the 24-hour toll free number?
- 1 No
 - 2 Yes
 - 3 Did not call
- 37 Have you had any problems with Capital Bikeshare bike docks?
- 1 No (SKIP to Question 39)
 - 2 Yes --- What problem did you have?_____
- 38 Were you able to solve the dock problem by calling the 24-hour toll free number?
- 1 No
 - 2 Yes
 - 3 Did not call
- 39 Have you had any mechanical issues with the bike?
- 1 No (SKIP to Question 41)
 - 2 Yes --- What issues did you have?_____
- 40 Were you able to solve the mechanical issue by calling the toll free number?
- 1 No
 - 2 Yes
 - 3 Did not call

Tell Us About Yourself

- 41 Home Zip code
- 42 Work Zip code
- 43 Are you male or female?
- 1 Male
 - 2 Female
 - 3 Prefer not to answer
- 44 What is your age?
- 1 16 – 17 years old
 - 2 18 - 24
 - 3 25 - 34
 - 4 35 - 44
 - 5 45 - 54
 - 6 55 - 64
 - 7 65 years or older
 - 8 Prefer not to answer

45 Approximately what was your total household income last year?

- 1 less than \$10,000
- 2 \$10,000 - \$14,999
- 3 \$15,000 - \$24,999
- 4 \$25,000 - \$34,999
- 5 \$350,000 - \$49,999
- 6 \$50,000 - \$74,999
- 7 \$75,000 - \$99,999
- 8 \$100,000 – \$124,999
- 9 \$150,000 - \$199,999
- 10 \$200,000 or more
- 11 Prefer not to answer

46 What is the highest level of education you have completed?

- 1 NA
- 2 high school/GED
- 3 some college
- 4 2 year college degree
- 5 4 year college degree
- 6 Masters
- 7 Doctorate
- 8 Prefer not to answer

47 Which of the following best describes your racial or ethnic background?

- 1 Asian/Pacific Islander
- 2 Black/African-American
- 3 Caucasian
- 4 Hispanic
- 5 Other/Multi-Racial
- 6 Prefer not to answer

48 Are you a full-time or part-time student?

- 1 Full-time student
- 2 Part-time student
- 3 Not a student (SKIP to Question 47)
- 4 Prefer not to answer

49 What school are you currently attending?

- 1 American University
- 2 Catholic
- 3 George Mason
- 4 Georgetown
- 5 George Washington
- 6 Johns Hopkins
- 7 Univ of Maryland
- 8 Univ of District of Columbia
- 9 Virginia Tech
- 10 Other university
- 11 Prefer not to answer

50 To the best of your knowledge, what organization runs or is responsible for Capital Bikeshare?

- 1 Alta, Alta Bikeshare
- 2 Alta and government agency (DDOT, Arlington)
- 3 Arlington County, Arlington bikes, Arlington Bikeshare, BikeArlington
- 4 Arlington and DDOT, local governments
- 5 Capital Bikeshare, Bikeshare
- 6 DDOT, DC government
- 7 Partnership government (DDOT, Arlington) with private company
- 8 WABA
- 9 Unspecified non-profit organization
- 10 Unspecified independent private company
- 11 Company based in another city
- 12 Unspecified government agency
- 13 Other
- 14 Don't know

51 What do you like best about using Capital Bikeshare bikes?

52 Do you have any suggestions to improve Capital Bikeshare?