

# Denver Car Share Program 2018 Program Summary

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### Table of Contents

1. Introduction .....	2
2. Program Overview .....	2
2.1. Membership .....	2
2.2. Personal Mobility .....	4
2.3. Trip Purpose .....	5
2.4. Reasons for Using Car Share .....	6
2.5. Parking .....	6
2.6. Car Share and Additional Vehicle Ownership.....	6
3. Program Assessment.....	8
3.1. Reduce Parking Demand.....	8
3.2. Reduction in Vehicle Miles Traveled .....	9
3.3. Enhanced Mobility.....	9
4. Downtown Denver Partnership Survey.....	11
4.1. Downtown Employee Car Share Membership.....	11
4.2. Car Share as an Employer-Provided Benefit.....	12
5. Summary and Recommendations .....	13

### List of Figures

Figure 1: Number of Registered Car Share Users by Zip Code.....	3
Figure 2: Percentage of Total Registered Car Share Users by Zip Code.....	3
Figure 3: Percentage of Total Population That Are Registered Car Share Users by Zip Code ...	4

### List of Tables

Table 1: Annual Denver Car Share Program Membership .....	4
Table 2: Commuting Habits Before & After Membership .....	5
Table 3: Trip Purpose.....	6
Table 4: Car Share and Additional Vehicle Ownership.....	7
Table 5: Weekly Parking Demand Created by Car Share Members before and after Joining the Denver Car Share Program.....	8
Table 6: Annual Vehicle Miles Traveled by Car Share Members Before and After Joining the Denver Car Share Program.....	9
Table 7: Reasons Members Use the Denver Car Share Program .....	10
Table 8: Travel Mode Use after Joining the Denver Car Share Program.....	11
Table 9: Downtown Employee Car Share Membership .....	11
Table 10: Employer-Provided Transportation Benefits .....	12

## **1. Introduction**

In May of 2013, the City and County of Denver (the City) adopted rules and regulations pertaining to private operators providing car sharing to Denver residents, employees, and visitors. Under the arrangement, car share operators provide a fleet of vehicles that individuals may use for personal or business trips, provided they are registered members with the car share provider. The Denver Car Share Program allows qualified car share operators to purchase permits to either dedicate a parking space in the ROW for the operator's use or purchase an area permit that allows the vehicle to park at meters without payment, park in exemption of two hour or greater time limits, and park in Residential Parking Permit areas. Permit fees cover the cost of lost meter revenue and the value of on-street parking, as well as program administration costs. Such an arrangement adds to the attractiveness of the service because it increases the number of on-street parking options available to car share members.

The City outlined a series of goals for the program in the rules and regulations, including reducing parking demand, reducing vehicle miles traveled, and enhancing mobility options for car share members. The rules and regulations required that each service provider conduct an annual survey of their membership to gauge the program's effectiveness in meeting these goals. Each car share provider distributed their own survey language to their respective car share members. Participating car share providers at the time of this report included eGo Car Share, car2go, Zipcar, and Maven. This report summarizes the results of the program's fifth year of operation (2018), and provides a comparison to the program's previous four years of operation (2014-2017) where applicable.

## **2. Program Overview**

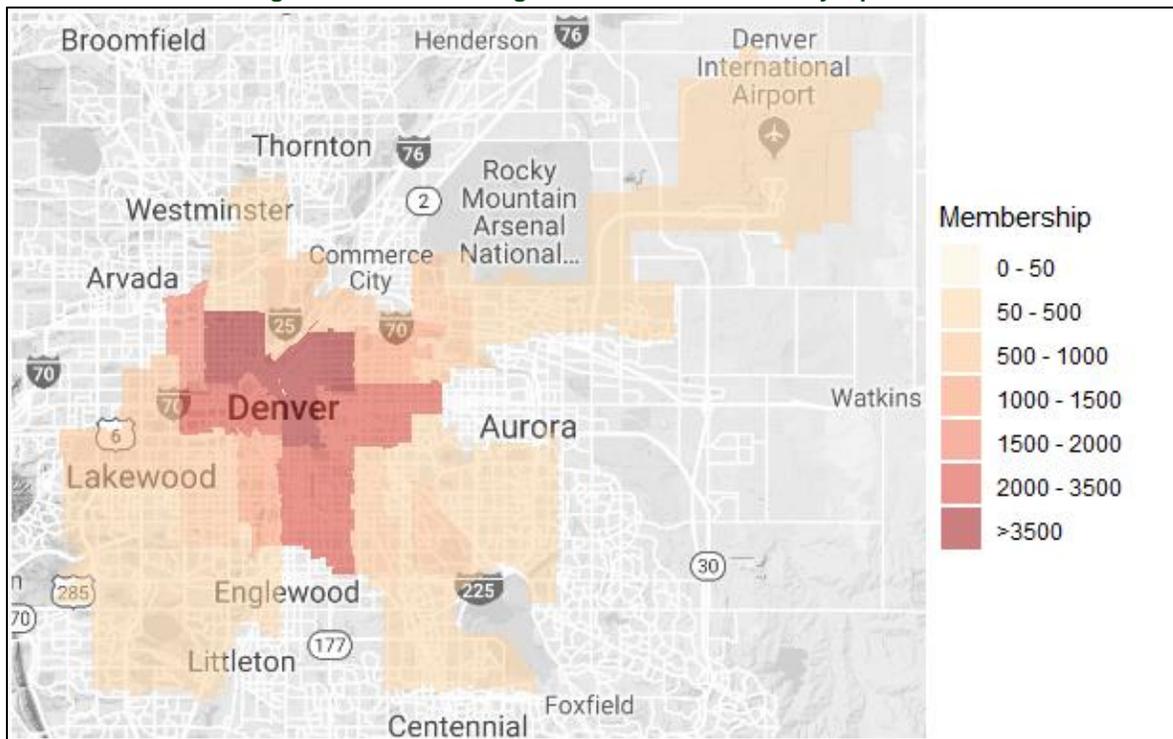
The membership survey included questions about travel habits, modes, and types of trips made using a car share. This section provides an overview of members and their travel habits.

### **2.1. Membership**

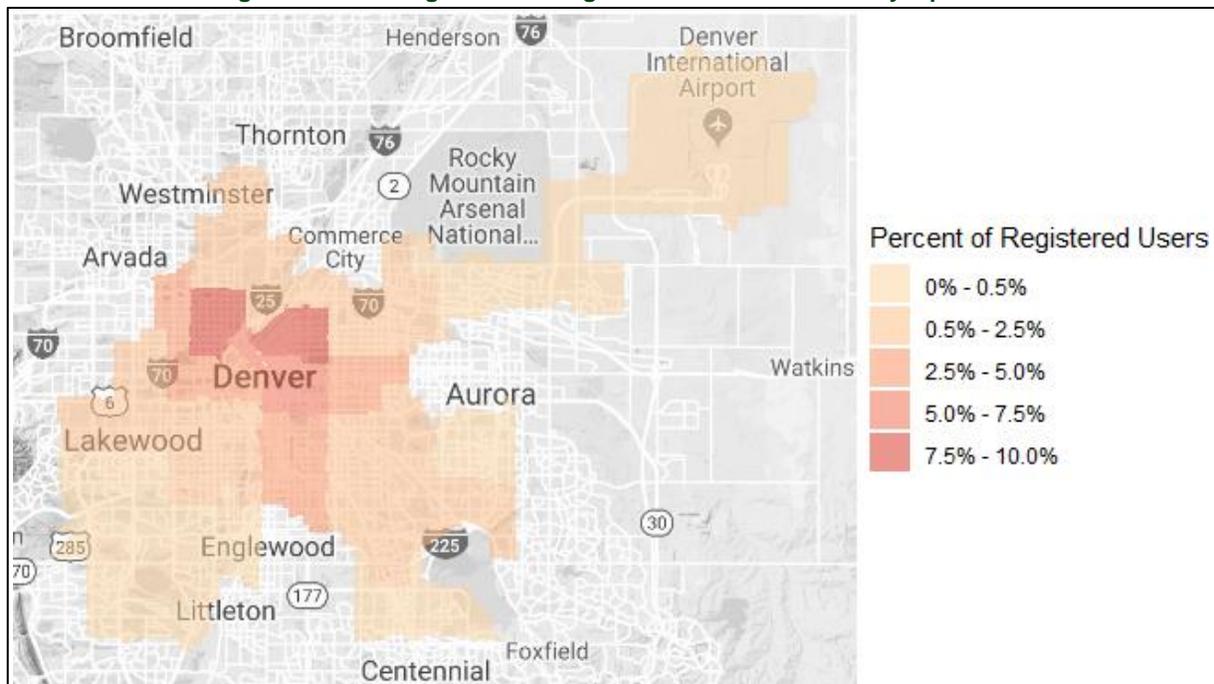
The vast majority of car share members live in or adjacent to downtown Denver, particularly in LoDo, Capitol Hill, Five Points and the Highland neighborhoods. Through the membership distribution by zip code, we can deduce that the typical car share member has a commute of around five minutes; does not typically drive to work; and uses car share for personal use. Figure 1 shows the number of members living in each zip code in and around the Denver metro area. The highest number of car share members now resides in the Highlands and LoDo neighborhoods, with all of the neighborhoods surrounding downtown still showing high membership numbers. Figure 2 shows the percentage of the total number of registered car share members in each zip code. In conjunction with the membership statistics, the Five Points and Highlands neighborhoods have the highest percentage of car share members ranging from 7.5% to 10.0%. It should be noted that some car share providers submitted zip codes only for Denver residents that use the Denver Car Share Program while others submitted zip codes for all individuals that use the Denver Car Share Program, so the results provided in may actually be skewed towards higher percentages in Denver. Figure 3 shows the percentage of the total population that are registered car share users by zip code. The zip code with the highest percent of its population being car share members is downtown, particularly LoDo, where more than one in three residents is registered with a car share provider; the high membership in the Capitol Hill area translates to one in five residents being registered in the program.

## Denver Car Share Program 2018 Program Summary

**Figure 1: Number of Registered Car Share Users by Zip Code**

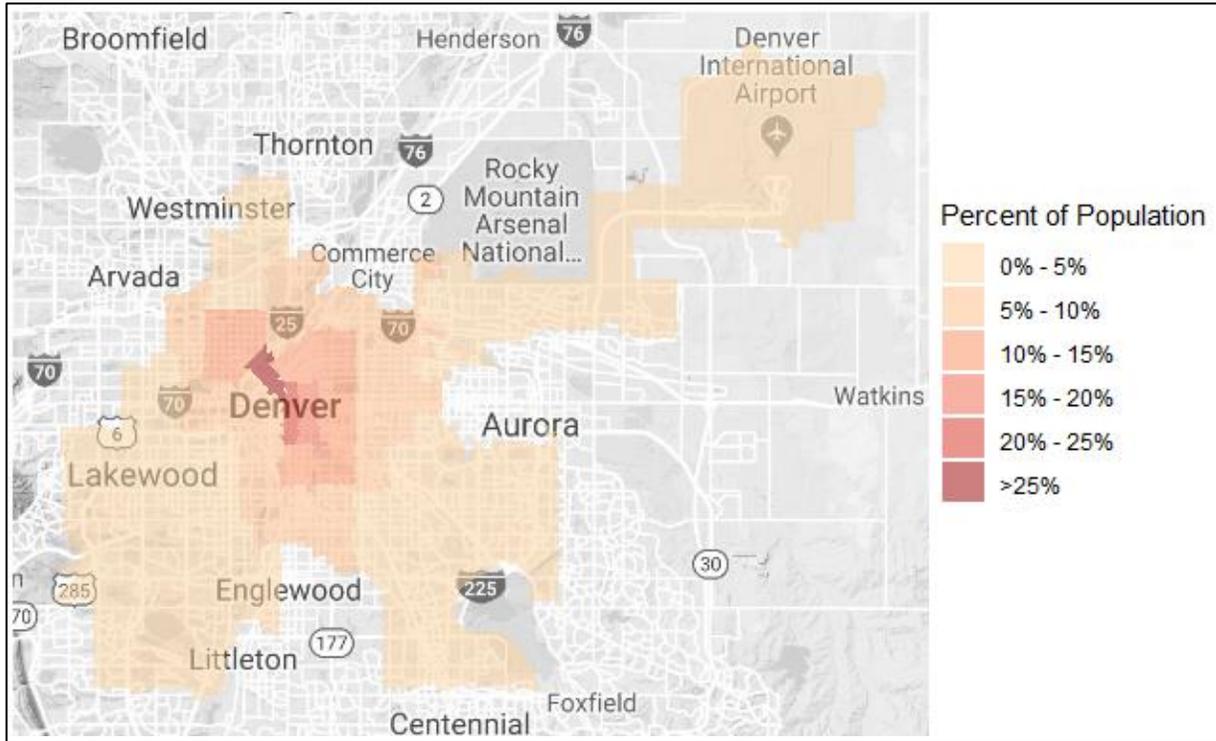


**Figure 2: Percentage of Total Registered Car Share Users by Zip Code**



## Denver Car Share Program 2018 Program Summary

**Figure 3: Percentage of Total Population That Are Registered Car Share Users by Zip Code**



As Table 1 indicates, membership in the Denver Car Share Program has grown steadily in the past four years and there are now approximately 60,535 members in 2018. This number is based on the active members that the car share providers reported (there are additional members that have not actively used their membership within the twelve months prior to the survey). These 60,535 car share members took approximately 764,150 reported car share trips in 2018, a 131% increase from the number of trips reported in 2017.

**Table 1: Annual Denver Car Share Program Membership**

Year	Car Share Members
2014	17,500
2015	28,500
2016	32,750
2017	49,250
2018	60,535
Average Annual Percent Growth	37%

### 2.2. Personal Mobility

The typical car share member owned one or two vehicles and drove less than 10,000 miles per year prior to joining a car share. The vast majority of car share members walk to a car share location when using their membership, are not Denver B-cycle members, and do not have an RTD Eco Pass. Once they arrive at the car share location, they generally drive less than 5 miles to their destination. Overall, 29 percent of car share members surveyed have given up a vehicle and another 16 percent have considered giving up a vehicle as a result of becoming a car share member. Prior to becoming a member, 41 percent of those surveyed never commuted by car,

## Denver Car Share Program 2018 Program Summary

while 26 percent commuted by car five days a week. After becoming members, the number of people who never commute by car stayed fairly consistent, but those commuting by car five days a week dropped by eight percent. As shown in Table 2, these findings are similar to previous survey results. One possible explanation for the shift away from five-day-a-week commuting by car is that the people who used to drive every day because they needed their vehicle during the day now have access to a vehicle even when they do not commute by car, allowing them to shift to transit or some other alternate mode for their commute trip.

**Table 2: Commuting Habits Before & After Membership**

Commuting Habits	2014		2015		2016		2017		2018	
	Before	After								
Never Commute by Car	39%	36%	41%	40%	40%	38%	38%	37%	41%	44%
Commute by Car 5 days a week	31%	26%	31%	26%	31%	25%	27%	22%	26%	18%

After joining a car share service, a majority of members utilized various forms of transportation the same amount as before, these forms include: walking, taking public transit, working from home, riding bikes, carpooling, riding B-Cycles, riding motorcycles/scooters and using car rentals or taxis. These mobility choices are further discussed in Section 3.3 Enhanced Mobility and summarized in Table 8.

### 2.3. Trip Purpose

As shown in Table 3, members use car share most frequently for personal errands, with 67 percent of members using car share for those types of trips. Entertainment, with 54 percent of members, was the second most frequent trip purpose. Around half of all members also used car share services for grocery shopping (49 percent), visiting friends (45 percent), recreation (45 percent), and work-related trips (45 percent) at least a few times a year. Other frequent uses include: retail shopping (44 percent), commuting (43 percent), healthcare trips (34 percent), moving/hauling (26 percent), giving someone a ride (25 percent), and sporting events (22 percent). Members rarely used car share services for trips to the airport (18 percent) and education (11 percent). Through the findings of the 2018 report, we are beginning to see an even distribution of car share usage given the rise of trips for moving/hauling (+12 percent), trips to the airport (+9 percent), and education (+3%). It should be noted that a change in phrasing of the questions between the 2014 and 2015 surveys may have resulted in overall higher percentages reported in 2014 (in 2015 the “rarely” category was changed to “a few times a year”).

**Table 3: Trip Purpose**

Trip Purpose	2014 Percent of Car Share Members <sup>1</sup>	2015 Percent of Car Share Members <sup>2</sup>	2016 Percent of Car Share Members <sup>2</sup>	2017 Percent of Car Share Members <sup>2</sup>	2018 Percent of Car Share Members <sup>2</sup>
Entertainment (theater, concert, etc.)	76%	62%	64%	65%	54%
Personal Errands	73%	60%	66%	64%	67%
Commuting	59%	45%	51%	52%	43%
Visiting Friends	60%	44%	48%	51%	45%
Recreation	57%	43%	46%	47%	45%
Work Related Trips	47%	38%	43%	47%	45%
Grocery Shopping	45%	35%	40%	43%	49%
Retail Shopping	42%	33%	38%	39%	44%
Sporting Events	N/A <sup>3</sup>	32%	30%	29%	22%
Giving Someone a Ride	36%	26%	26%	26%	25%
Healthcare	37%	24%	32%	31%	34%
Education	12%	9%	9%	8%	11%
Moving/Hauling	14%	9%	13%	14%	26%
Trips to the Airport	11%	8%	11%	9%	18%

1. The percent of car share members shown from 2014 are those that used car share for the type of trip listed anywhere from rarely to more than five times a month.

2. The percent of car share members shown from 2015-2018 are those that used car share for the type of trip listed anywhere from a few times a year to more than twice a week.

3. This option was not included as a possible response in the 2014 survey.

### 2.4. Reasons for Using Car Share

Over half of car share members surveyed cited convenience/increased mobility options as one of the reasons why they joined a car share (61 percent). Additionally, parking flexibility (41 percent) and the unmet needs due to alternate transportation modes (42 percent) highlighted common reasons members utilized a car share service. Other common reasons include usage due to the lack of a personal vehicle (40 percent), cost savings opportunities (31 percent), and environmental awareness (18 percent). These findings are discussed further in Section 3.3 and summarized in Table 7.

### 2.5. Parking

The vast majority of car share members surveyed (92 percent) have not changed their personal parking habits since becoming members. The majority of car share members surveyed that do own a personal vehicle predominately park off-street (72 percent), with the remaining 28 percent predominately parking on-street.

### 2.6. Car Share and Additional Vehicle Ownership

The survey included a question about whether members would consider giving up a car because of becoming a car share member. Approximately one in three members surveyed cited that they either gave up a car before becoming a member or gave up a car after becoming a member, while 16 percent cited that they have considered giving up a car but have not yet done so. Similarly, the majority of members surveyed cited that they would not purchase a new vehicle if car sharing

## Denver Car Share Program 2018 Program Summary

disappeared (54 percent). Approximately one in four members surveyed are unsure if they would purchase an additional vehicle if car share disappeared, and another 20 percent would purchase an additional vehicle. As shown in Table 4, these results are similar to those from the previous surveys, but it should be noted that more members continue to be actually giving up a car as opposed to just considering giving up a car.

**Table 4: Car Share and Additional Vehicle Ownership**

<b>Vehicle Ownership</b>	<b>2014 Percent of Respondents</b>	<b>2015 Percent of Respondents</b>	<b>2016 Percent of Respondents</b>	<b>2017 Percent of Respondents</b>	<b>2018 Percent of Respondents</b>
Either gave up a car before becoming a member or gave up a car after becoming a member	23%	22%	27%	29%	29%
Have considered giving up a car	22%	19%	15%	19%	16%
Would not purchase a new vehicle if car sharing disappeared	58%	55%	60%	52%	54%
Unsure if they would purchase an additional vehicle if car share disappeared	27%	20%	25%	26%	26%
Would purchase an additional vehicle	15%	17%	15%	18%	20%

### 3. Program Assessment

Per the City's Rules and Regulations, the intent of the Denver Car Share Program is to provide the opportunity to reduce parking demand, reduce vehicle miles traveled, and enhance mobility options for members. This section assesses how well the program is meeting these three metrics.

#### 3.1. Reduce Parking Demand

Members were asked how many days a week they drove to work or school prior to joining a car share and how many days a week they drove to work or school after joining the program; this information was used to estimate the parking demand generated by car share members before and after joining the program. As Table 5 indicates, prior to joining, the 60,535 current car share members generated a combined parking demand of 141,565 vehicles per week. After joining the program, those same members generated a parking demand of 118,735 vehicles per week, thereby reducing demand by sixteen percent. This continues a trend of greater decreases in parking demand in each year of the program, and continues to suggest that the program is having a positive effect on reducing parking demand in the areas that it serves.

**Table 5: Weekly Parking Demand Created by Car Share Members before and after Joining the Denver Car Share Program**

Days/Week Driving to Work/School	Before Joining Car Share		After Joining Car Share	
	Number of Members	Parked Vehicles/Week	Number of Members	Parked Vehicles/Week
0	24,992	0	26,515	0
1	4,237	4,237	5,920	5,920
2	3,719	7,437	5,920	11,840
3	4,497	13,491	4,586	13,758
4	4,151	16,604	4,419	17,677
5	15,566	77,831	10,756	53,781
6	1,643	9,859	1,167	7,004
7	1,730	12,107	1,251	8,755
<b>Total</b>	<b>60,535</b>	<b>141,565</b>	<b>60,535</b>	<b>118,735</b>
<b>Percent Reduced, 2018</b>				<b>16%</b>
<b>Percent Reduced, 2017</b>				<b>11%</b>
<b>Percent Reduced, 2016</b>				<b>8%</b>
<b>Percent Reduced, 2015</b>				<b>7%</b>
<b>Percent Reduced, 2014</b>				<b>4%</b>

### 3.2. Reduction in Vehicle Miles Traveled

Members were asked approximately how many miles they drove per month prior to joining a car share and how many miles they now drive per month after joining the program. As Table 6 indicates, prior to joining a car share, members drove an average of approximately 6,924 miles per year, and after joining they drove approximately 5,700 miles per year, an 18 percent reduction. This corresponds to approximately 74 million fewer vehicle miles traveled by car share members in the past year. In 2018 car share members drove almost 6 million fewer vehicle miles than members did in 2017, suggesting that as membership in the program increases, it is having a positive effect on reducing vehicle miles traveled in the region.

**Table 6: Annual Vehicle Miles Traveled by Car Share Members Before and After Joining the Denver Car Share Program**

Average Annual Mileage Before Joining Car Share	Average Annual Mileage After Joining Car Share	Net Average Reduction in Mileage
6,924	5,700	1,224
Total Car Share Members		60,535
2018 Approximate Total Mileage Reduction		74,094,840
2017 Approximate Total Mileage Reduction		68,983,839

### 3.3. Enhanced Mobility

Members were asked to identify the reasons they use car share. As Table 7 indicates, 61 percent of the respondents in 2018 identified convenience and increased mobility options as one of the reasons for joining the program. This level of response would indicate that a majority of car share members believe that the program meets the stated intent of enhancing mobility options. It should also be noted that the convenience and increased mobility options response has dropped significantly between 2014 and 2018, from 91 percent to 61 percent. In fact, the percent of respondents that selected each reason for using car share generally dropped from 2014 to future years. The drop in responses across the board may be due to changes in the survey after 2014 (i.e., more options being provided and respondents only choosing a limited number of options). Other notable changes in the results over the years include a trend upward of people using car share due to lack of a personal vehicle, and a decrease in members using the car share program to provide parking flexibility.

**Table 7: Reasons Members Use the Denver Car Share Program**

Reason	2014 Percent of Respondents <sup>1</sup>	2015 Percent of Respondents <sup>1</sup>	2016 Percent of Respondents <sup>1</sup>	2017 Percent of Respondents <sup>1</sup>	2018 Percent of Respondents <sup>1</sup>
Convenience and Increased Mobility Options	91%	66%	72%	75%	61%
Parking Flexibility	76%	61%	56%	65%	41%
Alternative Modes of Transportation (Transit, Biking, etc.) Do Not Meet All Mobility Needs	29% <sup>2</sup>	42%	44%	49%	42%
Lack of a Personal Vehicle	N/A <sup>3</sup>	29%	12%	32%	40%
Cost Savings	45%	32%	32%	33%	31%
Environmental Awareness	35%	22%	25%	25% <sup>5</sup>	18% <sup>6</sup>
Variety of Vehicle Choices	36%	11%	13%	18%	13%
Other	N/A <sup>3</sup>	18%	10% <sup>4</sup>	11%	8%

1. Members were asked to select all of the options that applied to them, so the percentages shown add up to greater than 100.

2. This response was listed as “Lack of Alternative Transportation” in the 2014 survey.

3. This option was not included as a possible response in the 2014 survey.

4. “Other” option was only included in the survey by one car share service in 2016

5. “Environmental Awareness” option was only included in the survey by three car share services in 2017.

6. “Environmental Awareness” option was only included in the survey by two car share services in 2018.

A second way of assessing the program’s effect on enhancing mobility is to examine how members’ travel modes changed after they joined the program. Table 8 summarizes the responses to the various travel mode questions posed in the member survey. As indicated, members drove alone significantly less after joining a car share, and were also less likely to carpool, use a motorcycle or scooter, and use B-cycle. On the other hand, members increased their frequency of walking, taking public transit, working at home, and biking. Based on these results, it would appear that the program continues to be moderately effective in getting members to use other transportation options for their trips, instead of just switching their personal vehicle with a car share vehicle. Overall, the 2018 results are similar to those from previous years.

**Table 8: Travel Mode Use after Joining the Denver Car Share Program**

Travel Mode	2018				2017 Net Change	2016 Net Change	2015 Net Change	2014 Net Change
	Less	Same	More	Net Change				
Walk	7%	62%	31%	24%	31%	29%	21%	15%
Public Transit	14%	60%	26%	12%	8%	14%	5%	-5%
Bicycle	14%	67%	19%	5%	6%	9%	5%	7%
Work at Home	8%	74%	18%	10%	8%	4%	3%	0%
B-Cycle	19%	76%	5%	-14%	-7%	-7%	-8%	-2%
Motorcycle/Scooter	18%	75%	7%	-11%	-10%	-10%	-12%	-6%
Carpool	21%	72%	6%	-15%	-13%	-13%	-14%	-11%
Drive Alone	38%	56%	6%	-32%	-36%	-27%	-34%	-37%

### 4. Downtown Denver Partnership Survey

Each fall, the Downtown Denver Partnership (DDP) surveys employees working in downtown Denver to examine the trends and habits of downtown commuters. The Downtown Denver Commuter Survey measures a sample of the downtown employee population to analyze commuting patterns, explore the attractiveness of transportation benefits and determine how commuters currently travel to their downtown work destinations. This survey differs from the Denver Car Share Program survey because it represents a cross-section of all employees in the downtown area, rather than just car share members.

Since 2012, the DDP survey has included several questions about car share membership, whether it is employer-provided or something the employee has elected to do on their own. This section summarizes the responses to car share-related questions from the DDP survey.

#### 4.1. Downtown Employee Car Share Membership

In the 2018 survey, 16 percent of downtown employees indicated that they were members of a car share. While the car share membership percentage increased steadily between 2012 (when car share usage was first surveyed) and 2014 (one year after the City adopted regulations that allowed car share providers to purchase parking permits and provide “free” on-street parking to members), membership has generally remained at the same percentage for the past four years.

**Table 9: Downtown Employee Car Share Membership**

Year	Car Share Membership (as Percent of Total Downtown Employees)
2012	2%
2013	7%
2014	12%
2015	14%
2016	13%
2017	15%
2018	16%

## Denver Car Share Program 2018 Program Summary

### 4.2. Car Share as an Employer-Provided Benefit

Although employee membership has generally increased each year, very few employers have embraced it as an employer-provided benefit, and even fewer employees have elected to participate in it through their company. In 2018, only four percent of employees indicated it was a service offered by their employer, and only two percent of the employees indicated that they elected to receive it as a benefit, which is consistent with the results of previous surveys, as shown in Table 10.

**Table 10: Employer-Provided Transportation Benefits**

Transportation Benefits Offered by Downtown Employers	Percent of Downtown Employees Offered Benefit <sup>1</sup>					Percent of Downtown Employees Using Benefit				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Car Share Membership and/or Usage Fees	8%	7%	6%	6%	4%	1%	1%	1%	1%	2%
Parking Space	62%	61%	58%	65%	N/A	30%	31%	31%	35%	N/A
Transit Pass	85%	81%	77%	80%	N/A	56%	54%	50%	52%	N/A
B-Cycle Membership and/or Usage Fees	17%	14%	13%	12%	2%	3%	2%	2%	2%	2%
Secure Bicycle Parking	57%	53%	54%	58%	17%	12%	11%	11%	13%	17%

*1. This includes employers that offer the benefits regardless of how much of the cost is covered.*

*2. The DDP Survey in 2018 did not include Parking Space or Transit Pass as employer-provided transportation benefits to select.*

## **5. Summary and Recommendations**

The 2018 survey results suggest that the Denver Car Share Program continues to be successful in achieving the three-pronged intent of reducing parking demand (car share members reduced their weekly parking impact by 16 percent after joining the program), reducing vehicle miles traveled (car share members reduced their annual vehicle miles traveled by 18 percent after joining the program), and enhancing the mobility options for its users (61 percent of the members identified increased mobility as one of the reasons they joined the program). Overall membership in the program continues to grow steadily each year, and the Downtown Denver Partnership's annual survey continues to indicate that 16 percent of all downtown employees participate in car share.

In addition to meeting the Denver Car Share Program's goals, the 2018 survey results also suggest the program is helping to achieve Denver's Mobility Action Plan released in July 2018. Specifically, one of the strategies listed in Denver's Mobility Action Plan is to help with transportation demand management by "promot[ing] and strengthen[ing] the role of car-sharing and bike-sharing as convenient and cost-effective alternatives to car ownership, and as solutions for occasional-trip and first-mile/last mile issues for residents, employees and visitors." In the 2018 survey, 31 percent of the users surveyed stated cost saving as their reason for using a car share program. Additionally, the survey results show that the program reduced vehicle miles traveled by 74,094,840 in 2018. This reduction in vehicle miles traveled results in reduced greenhouse gas emissions, and plays a part in creating smart connections, two more goals of Denver's Mobility Action Plan.

Given the positive results and the continued growth in membership, it is recommended that the City continue to support the Denver Car Share Program through the provision of parking permits. However, to better measure the program's effectiveness, it is recommended that the car share providers all be encouraged to provide resident zip codes for anyone that utilizes the Denver Car Share Program. As discussed in Section 2.1, some car share providers submitted zip codes only for Denver residents that use the Denver Car Share Program while others submitted zip codes for all individuals that use the Denver Car Share Program. Consistency in how each provider submits data will help to generate a better understanding of Denver residents using the program verses residents of Denver's surrounding Metro Area using the program.