

Denver Car Share Program 2019 Program Summary

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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, Fluid Truck Share, ShareNow (previously Car2go), and Zipcar. This report summarizes the results of the program's sixth year of operation (2019), and provides a comparison to the program's previous five years of operation (2014-2018) 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 Highlands 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 the highest membership numbers. Figure 2 shows the percentage of the total number of registered car share members in each zip code. The Highlands neighborhood has the highest percentage of car share members. 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 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. It should be noted that Fluid did not provide zip code data, so the results presented are based upon eGo, ShareNow, and Zipcar results.

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

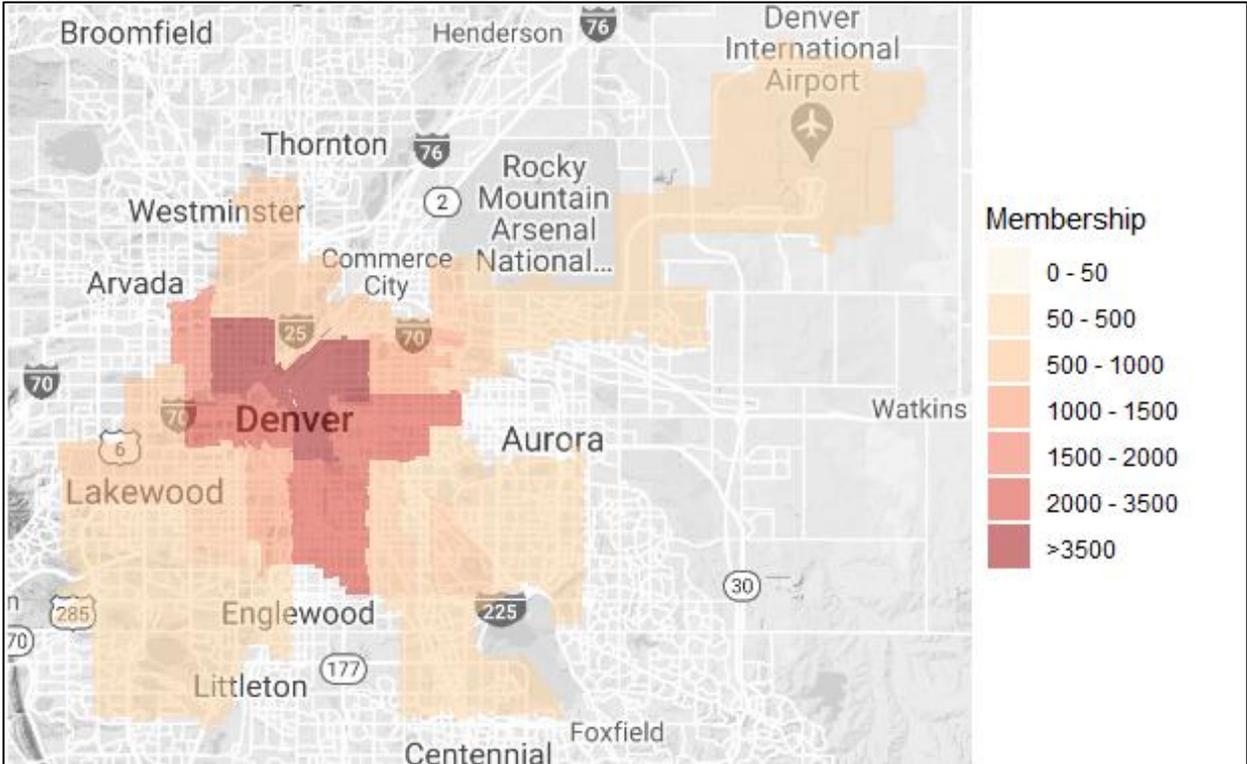
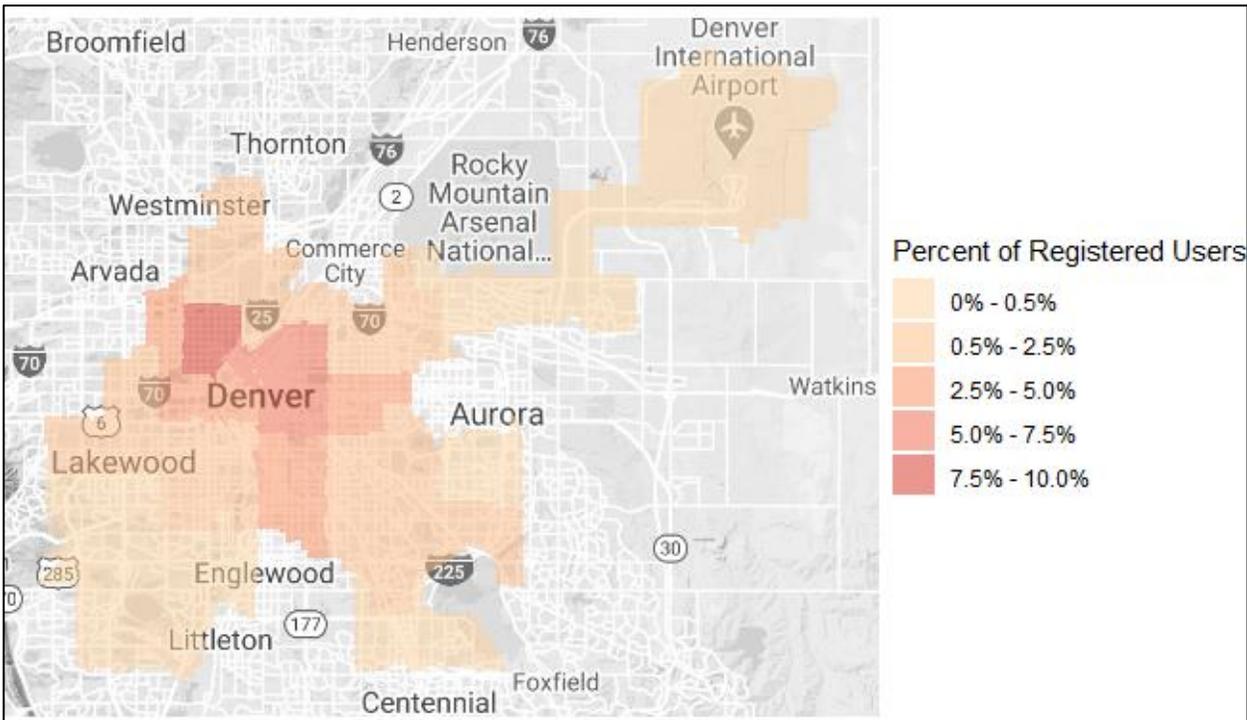
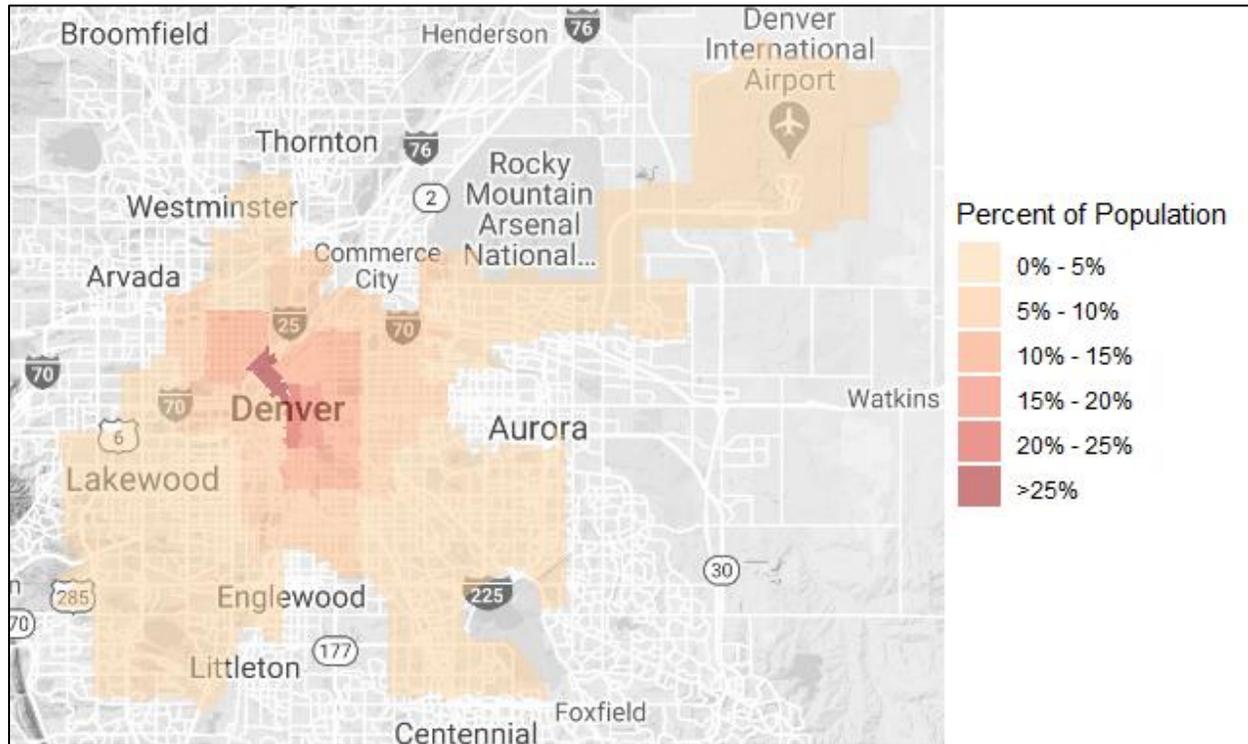


Figure 2: Percentage of Total Registered Car Share Users by Zip Code



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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 up until 2018; following this time car share services from Maven were no longer offered. Additionally, the car share members reported from ShareNow are significantly lower than what Car2go had reported in previous years. Combined, these factors result in a reduction of membership to 15,408 active members. 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 15,408 car share members took approximately 208,038 reported car share trips in 2019, attributing to 15% annual growth from 2014. This number is based on the total fleet trips that the car share providers reported (although it should be noted that Fluid Truck Share did not report any data on this).

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
2019	15,408 ¹
Average Annual Percent Growth	15%

1. Maven was no longer providing services, and ShareNow reported significantly lower active membership than Car2go had in previous years; these factors caused the total number of memberships to decrease.

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 10 miles to their destination. Overall, 31 percent of car share members surveyed have given up a vehicle and another 14 percent have considered giving up a vehicle as a result of becoming a car share member. Prior to becoming a member, 43 percent of those surveyed never commuted by car, while 26 percent commuted by car five days a week. After becoming members, the number of people who never commute by car increased by four percent, and those commuting by car five days a week dropped by six 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 have more flexibility in modes such as transit, micromobility, or other alternate modes for their commute trip.

Table 2: Commuting Habits Before & After Membership

Commuting Habits	2014		2015		2016	
	Before	After	Before	After	Before	After
Never Commute by Car	39%	36%	41%	40%	40%	38%
Commute by Car 5 days a week	31%	26%	31%	26%	31%	25%
Commuting Habits	2017		2018		2019	
	Before	After	Before	After	Before	After
Never Commute by Car	38%	37%	41%	44%	43%	47%
Commute by Car 5 days a week	27%	22%	26%	18%	26%	20%

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, and riding motorcycles/scooters. 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 66 percent of members using car share for those types of trips. Entertainment and Recreation with 47 percent of members, was the second most frequent trip purpose. Around half of all members also used car share services for grocery shopping (46 percent), work-related trips (44 percent) visiting friends (41 percent), and retail shopping (41 percent) at least a few times a year. Other frequent uses include: commuting (38 percent), healthcare trips (33 percent), moving/hauling (31 percent), and giving someone a ride (21 percent). Members rarely used car share services for sporting events (19 percent), trips to the airport (15 percent) and education (10 percent). 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 ¹	2015 Percent of Car Share Members ²	2016 Percent of Car Share Members ²	2017 Percent of Car Share Members ²	2018 Percent of Car Share Members ²	2019 Percent of Car Share Members ²
Entertainment (theater, concert, etc.)	76%	62%	64%	65%	54%	47%
Personal Errands	73%	60%	66%	64%	67%	66%
Commuting	59%	45%	51%	52%	43%	38%
Visiting Friends	60%	44%	48%	51%	45%	41%
Recreation	57%	43%	46%	47%	45%	47%
Work Related Trips	47%	38%	43%	47%	45%	44%
Grocery Shopping	45%	35%	40%	43%	49%	46%
Retail Shopping	42%	33%	38%	39%	44%	41%
Sporting Events	N/A ³	32%	30%	29%	22%	19%
Giving Someone a Ride	36%	26%	26%	26%	25%	21%
Healthcare	37%	24%	32%	31%	34%	33%
Education	12%	9%	9%	8%	11%	10%
Moving/Hauling	14%	9%	13%	14%	26%	31%
Trips to the Airport	11%	8%	11%	9%	18%	15%

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 2015-2019 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 (68 percent). Additionally, parking flexibility (40 percent) and the unmet needs due to alternate transportation modes (44 percent) highlighted common reasons members utilized a car share service. Other common reasons include usage due to the lack of a personal vehicle (51 percent), cost savings opportunities (39 percent), and environmental awareness (27 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 (93 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 (67 percent), with the remaining 33 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 14 percent cited that they have considered giving up a car but have not yet done so. Similarly,

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about half of members surveyed cited that they would not purchase a new vehicle if car sharing disappeared (48 percent). Approximately 35 percent surveyed are unsure if they would purchase an additional vehicle if car share disappeared, and another 17 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

Vehicle Ownership	2014 Percent of Respondents	2015 Percent of Respondents	2016 Percent of Respondents	2017 Percent of Respondents	2018 Percent of Respondents	2019 Percent of Respondents
Either gave up a car before becoming a member or gave up a car after becoming a member	23%	22%	27%	29%	29%	31%
Have considered giving up a car	22%	19%	15%	19%	16%	14%
Would not purchase a new vehicle if car sharing disappeared	58%	55%	60%	52%	54%	48%
Unsure if they would purchase an additional vehicle if car share disappeared	27%	20%	25%	26%	26%	35%
Would purchase an additional vehicle	15%	17%	15%	18%	20%	17%

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 15,408 current car share members generated a combined parking demand of 34,857 vehicles per week. After joining the program, those same members generated a parking demand of 29,740 vehicles per week, thereby reducing demand by fifteen percent. This is similar to the percent reduction seen in 2018 and continues to suggest that the program is having a positive effect on reducing parking demand

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in the areas that it serves. However, it should be noted that the total parking demand was not impacted as significantly in 2019 due to the overall drop in car share membership.

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	6,653	0	7,180	0
1	1,131	1,131	1,479	1,479
2	916	1,832	1,102	2,205
3	1,024	3,071	995	2,985
4	781	3,125	1,049	4,195
5	4,067	20,337	3,012	15,058
6	485	2,909	323	1,936
7	350	2,451	269	1,882
Total	15,408	34,857	15,408	29,740
			Percent Reduced, 2019	15%
			Percent Reduced, 2018	16%
			Percent Reduced, 2017	11%
			Percent Reduced, 2016	8%
			Percent Reduced, 2015	7%
			Percent Reduced, 2014	4%

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 6,570 miles per year, and after joining they drove approximately 5,533 miles per year, a 16 percent reduction. This corresponds to approximately 16 million fewer vehicle miles traveled by car share members in the past year. Despite the membership reduction and associated decline in mileage reduction, the program and its availability continue to meet its goal in reducing vehicle miles traveled.

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
6,570	5,533	1,037
Total Car Share Members		15,408
2019 Approximate Total Mileage Reduction		15,978,096¹
2018 Approximate Total Mileage Reduction		74,094,840
2017 Approximate Total Mileage Reduction		68,983,839

1. The total mileage reduction is lower than previous years due to overall membership decline in 2019.

3.3. Enhanced Mobility

Members were asked to identify the reasons they use car share. As Table 7 indicates, 68 percent of the respondents in 2019 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 2019, from 91 percent to 68 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

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(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 ¹	2015 Percent of Respondents ¹	2016 Percent of Respondents ¹	2017 Percent of Respondents ¹	2018 Percent of Respondents ¹	2019 Percent of Respondents ¹
Convenience and Increased Mobility Options	91%	66%	72%	75%	61%	68%
Parking Flexibility	76%	61%	56%	65%	41%	40%
Alternative Modes of Transportation (Transit, Biking, etc.) Do Not Meet All Mobility Needs	29% ²	42%	44%	49%	42%	44%
Lack of a Personal Vehicle	N/A ³	29%	12%	32%	40%	51%
Cost Savings	45%	32%	32%	33%	31%	39%
Environmental Awareness	35%	22%	25%	25% ⁵	18% ⁶	27%
Variety of Vehicle Choices	36%	11%	13%	18%	13%	19%
Other	N/A ³	18%	10% ⁴	11%	8%	7%

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 and carpooled significantly less after joining a car share service, and were also less likely to 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 providing flexibility for members to use other transportation options for their trips, instead of just switching their personal vehicle with a car share vehicle. Overall, the 2019 results are similar to those from previous years.

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

Travel Mode	2019				2018 Net Change	2017 Net Change	2016 Net Change	2015 Net Change	2014 Net Change
	Less	Same	More	Net Change					
Walk	5%	64%	31%	26%	24%	30%	29%	21%	15%
Public Transit	13%	62%	25%	12%	12%	8%	14%	5%	-5%
Bicycle	12%	73%	14%	2%	5%	6%	9%	5%	7%
Work at Home	8%	74%	18%	10%	10%	8%	4%	3%	0%
B-Cycle	17%	77%	6%	-11%	-14%	-7%	-7%	-8%	-2%
Motorcycle/ Scooter	14%	76%	10%	-4%	-11%	-10%	-10%	-12%	-6%
Carpool	21%	73%	6%	-15%	-15%	-13%	-13%	-14%	-11%
Drive Alone	34%	57%	9%	-25%	-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

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 generally remained at the same percentage from 2014 - 2018. The updated survey does provide information that 45 percent of the downtown employees value car share as a transportation benefit.

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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%
2019	8% ¹

1. The reduction in the percentage of car share membership (as a percent of total downtown employees) is in line with the overall car share membership reduction discussed previously.

4.2. Car Share as an Employer-Provided Benefit

Although employee car share 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 2019, only three percent of employees indicated it was a service offered by their employer, and only one percent of the employees indicated that they elected to utilize the 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 ¹						Percent of Downtown Employees Using Benefit					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Car Share Membership and/or Usage Fees	8%	7%	6%	6%	4%	3%	1%	1%	1%	1%	2%	1%
Parking Space	62%	61%	58%	65%	N/A	N/A ³	30%	31%	31%	35%	N/A	N/A ³
Transit Pass	85%	81%	77%	80%	N/A	N/A ³	56%	54%	50%	52%	N/A	N/A ³
B-Cycle Membership and/or Usage Fees	17%	14%	13%	12%	2%	N/A ³	3%	2%	2%	2%	2%	N/A ³
Secure Bicycle Parking	57%	53%	54%	58%	17%	N/A ³	12%	11%	11%	13%	17%	N/A ³

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.

3. Due to DDP's adapted survey, data was not available for any of the fields other than Car Share Membership and/or Usage Fees.

5. Summary and Recommendations

The 2019 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 15 percent after joining the program), reducing vehicle miles traveled (car share members reduced their annual vehicle miles traveled by 16 percent after joining the program), and enhancing the mobility options for its users (68 percent of the members identified increased mobility as one of the reasons they joined the program). Further, almost half of the downtown employees (45 percent) agreed that Car Share services are somewhat valuable to very valuable.

In addition to meeting the Denver Car Share Program's goals, the 2019 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 2019 survey, 39 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 approximately 16 million miles in 2019. 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, it is recommended that the City continue to support the Denver Car Share Program through the provision of parking permits. While overall membership in the program did decline in 2019, the individuals that have chosen to continue as car share members have seen benefits that continue to help the City in reaching the Denver Car Share Program goals and achieving Denver's Mobility Action Plan.