

Denver Car Share Program 2013-2014 Assessment

Final Report

Prepared for:



Prepared by:

apexdesign

Project Manager: Jeff Ream, PE. PTOE

Apex Design Reference No. P130145, Task Order #8

December 2, 2014

1. Introduction

In May of 2013, the City and County of Denver (CCD) 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. Denver's car share permit 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 space as well as program administration costs. Such an arrangement adds to the attractiveness of the service because members know that on-street parking will be available for them.

The City outlined a series of goals for the program in the rules and regulations, including reducing parking demand and 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 those goals. Participating members at the time of this reporting included eGo Car Share, car2go, and Zipcar. This report summarizes the results of the program's first year of operation.

2. Program Overview

The membership survey included questions about demographics, mobility needs, travel modes, types of trips made using car share, and reasons for joining the program. This section provides an overview of members and their travel habits.

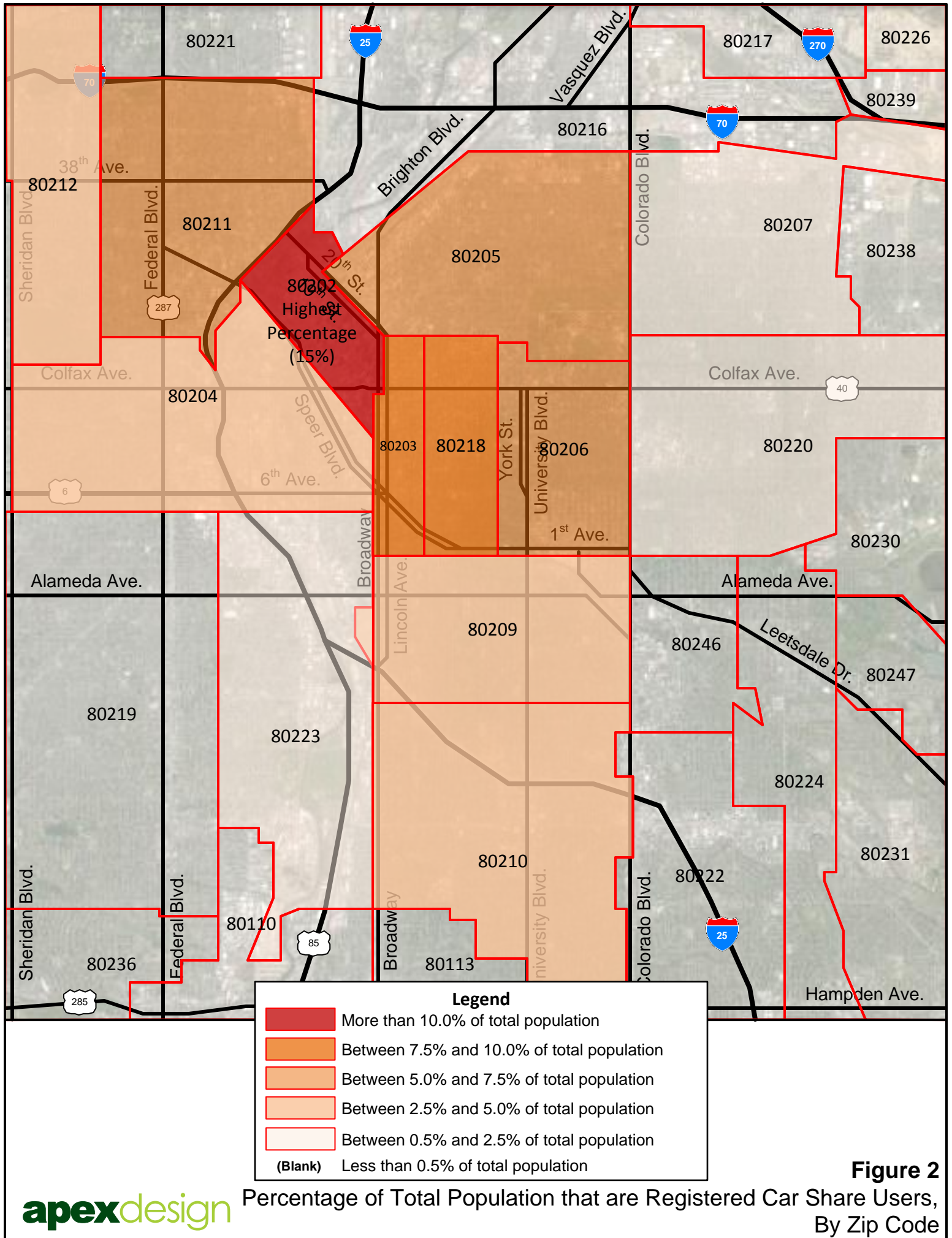
2.1. Membership Demographics

The typical car share member is a white, college-educated, middle class, business professional, aged 25 to 44, who lives downtown or in one of the neighborhoods adjacent to downtown, and does not typically drive to work. Most are either single or married without any children. They are slightly more likely to be male than female and to own their home rather than rent.

Figure 1 shows the total number of members living in each zip code in and around the downtown Denver area, while **Figure 2** shows the percentage of the total population in each zip code that are registered car share members. As shown, the highest number of car share members reside in the Highlands area, but the downtown area has the greatest percentage of the total population that are car share members.

2.2. Personal Mobility

The typical car share member had one or two vehicles and drove as much as an average Coloradan prior to joining car share. After joining, half of the members drove their personal vehicle less, using car share for the shorter trips they previously made with their personal vehicle. A quarter of the members, most of whom had two or more vehicles, gave up a vehicle and then used other means to get to work one or more days a week (i.e. car share or an alternate travel mode). Some of those members who did not have a personal vehicle prior to joining car share elected to use car share to drive to work after joining.



2.3. Changes in Travel Modes

After joining the car share program, members drove alone significantly less than before joining. They also carpooled less, used a motorcycle/scooter less, and used public transit less. On the other hand, after joining the program, members increased the amount they walked and bicycled. Joining car share had no impact on the frequency of members working from home.

2.4. Trip Purpose

Members use car share most frequently for entertainment-related trips (theater, concert, etc.), with 44 percent of the members indicating they have used it for entertainment at least once a month. Attending sporting events, commuting and making a personal errand are all tied for the second most frequent trip type, with a third of the members indicating they use car share for those types of trips at least once a month. Other frequent uses include visiting friends (29 percent), and recreation (25 percent). Members very rarely use the service for education-related trips (4 percent), moving/hauling (3 percent) and trips to the airport (3 percent).

2.5. Reasons for Using Car Share

Nearly all members cited convenience/increased mobility options as one of the reasons why they joined car share (91 percent). Parking flexibility was also a very common reason members joined a car share service (76 percent). Cost savings was cited by nearly half of the members, (45 percent), followed by diversity of vehicles the car share provider offers (36 percent), environmental awareness (35 percent) and lack of alternative transportation (29 percent).

2.6. Parking

Virtually all car share members use on-street parking when driving car share vehicles. Around $\frac{3}{4}$ (72 percent) park at a parking meter and the remaining park on streets without a meter. This suggests that most members are taking advantage of the “free” on-street parking that is included in the car share membership fee.

2.7. Car Share’s Influence on Additional Vehicle Ownership

The survey included a question about whether members would consider the car share program as an alternative to purchasing an additional personal vehicle. Around 60 percent of members indicated that the availability of a car share program would have no influence on their decision to purchase an additional vehicle, 15 percent indicated that they would purchase an additional vehicle if car sharing disappeared and 25 percent were uncertain if the car share program would influence their decision on purchasing an additional vehicle.

3. Program Assessment

Per the City’s Rules and Regulations, the intent of the Car Share Permit Program is to provide the opportunity to reduce parking demand and vehicles miles traveled, and enhance mobility options for members. This section assesses how well the program is meeting these three metrics after the first year of operation.

3.1. Reduce Parking Demand

Members were asked how many days a week they drove to work/school prior to joining the car share program and how many days a week they drove after joining the program. As **Table 1** indicates, prior to joining the program, the 17,555 car share members generated a combined parking demand of 41,309 vehicles per week. After joining the program, those same members generated a parking demand of 39,637 vehicles per week, thereby reducing demand by four percent. Based on this result, the program has achieved the stated intent of reducing parking demand.

Table 1. Weekly Parking Demand Created by Car Share Members Before/After Joining the 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	6,864	0	6,250	0
1	1,475	1,476	2,194	2,192
2	1,211	2,406	1,633	3,254
3	1,088	3,285	1,264	3,792
4	1,124	4,488	1,282	5,144
5	5,407	27,110	4,617	23,105
6	123	738	70	456
7	263	1,806	246	1,694
Total	17,555	41,309	17,556	39,637
	Percent Reduced			4.0%

3.2. Reduction in Vehicle Miles Traveled

Members were not directly asked how many vehicle miles they travelled both before and after joining the car share program, but they were asked to provide an assessment of how their household annual mileage changed in the past year. 33 percent indicated their household mileage decreased, while only 11 percent indicated their household mileage increased, for a net of 22 percent of the respondents driving fewer miles now that they are members of the car share program. This result suggests that the program has been effective in reducing vehicle miles travelled. However, it should be noted that the question was phrased to garner subjective answers, so it is not possible to provide a quantitative assessment of the effectiveness for this first year.

Members were also asked to provide an estimate of their household mileage driven in the past year. As **Table 2** indicates, car share members drove, on average, approximately 9,100 miles last year, which is generally equal to the statewide average annual miles traveled by Colorado households. It is recommended that this mileage be used as the baseline mileage assessment, and that the same question be asked of members in future year surveys. The results of the future year surveys can then be compared to this baseline to provide a more definitive, quantitative assessment of how well the program is reducing vehicle miles travelled by its members.

Table 2. Annual Mileage Driven by Car Share Members in the Past Year

Mileage	Number of Members	Total Mileage
Zero	180	0
1-5,000 miles	5,044	12,610,000
5,001-10,000 miles	5,158	38,685,000
10,001-15,000 miles	3,620	45,250,000
15,001-20,000 miles	1,980	34,650,000
20,001-25,000 miles	324	7,290,000
25,000+ miles	725	21,750,000
Average Annual Mileage		9,128

3.3. Enhanced Mobility

Members were asked to identify the reasons they use the car share program. As **Table 3** indicates, over 90 percent of the respondents identified convenience/increased mobility options as one of the reasons for joining the program (members were asked to select all that apply so the percentages are greater than 100). This level of response would indicate that the members believe that the program meets the stated intent of enhancing mobility options.

Table 3. Reasons Members Use the Car Share Program

Reason	Percent of Respondents
Convenience - Increased Mobility Options	91%
Parking Flexibility	76%
Cost Savings	45%
Variety of Vehicle Choices	36%
Environmental Awareness	35%
Lack of Alternative Transportation	29%

A second way of assessing the program's effect on enhancing mobility is to examine how member's travel modes changed after they joined the program. **Table 4** summarizes the responses to the various travel mode questions posed in the member survey. As indicated, members drove alone significantly less after joining the car share program, and were also less likely to carpool, use a motorcycle/scooter, and use public transit. On the other hand, members increased their number of walk trips and bicycle trips. Based on these results, it would appear that the program has also been moderately effective in getting members to use other transportation options for their trip, and not just switching their personal vehicle with a car share vehicle.

Table 4. Member's Travel Mode Use After Joining Car Share Program

Travel Mode	Less	Same	More	Net Change
Walk	7%	71%	22%	+15%
Bicycle	8%	77%	15%	+7%
B-Cycle	9%	83%	7%	-2%
Public Transit	17%	71%	12%	-5%
Motorcycle/Scooter	9%	88%	3%	-6%
Carpool	15%	81%	4%	-11%
Drive Alone	40%	57%	3%	-37%

4. Downtown Denver Partnership Survey

Each fall, the Downtown Denver Partnership (DDP) surveys employees working in downtown Denver to examine the commuting 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.

Since 2012, the DDP survey has included several questions about car share membership, whether it be 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 2014 survey, 12 percent of downtown employees indicated that they were members of a car share program. This percentage has increased in each of the past three years; in 2012, the first year the question was asked, only 1.5 percent of downtown employees were car share members, while in 2013, when the City adopted regulations that allowed car share providers to purchase parking permits and provide “free” on-street parking to members, membership increased to 7 percent. This positive trend would appear to indicate that car share is both meeting the needs of downtown employees and is marketing itself well to that user group (nearly 80 percent of downtown employees are familiar with the program).

4.2. Car Share as an Employer-Provided Benefit

Although employee membership has increased significantly 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. As of 2014, only 8 percent of the employees indicated it was a service offered by their employer, and only one percent of the employees indicated that they elected to receive it as a benefit. Instead, most employees elect to receive benefits such as transit passes and subsidized parking that are more directly related to their current commute mode (43 percent use transit and 38 percent drive alone).

4.3. Carshare Member Responses

The DDP survey included three questions specifically directed at car share members:

4.3.1 Use of Car Share for Commuting

55 percent of the car share members surveyed indicated that they used car share for commuting, but a quarter (27 percent) only use it to commute a few times a year and 20 percent using it 1-3 times per month. These results are generally consistent with the membership surveys summarized in Sections 2 and 3, where 50 percent of the responders indicated they used car share for commuting 5 times a month or less.

4.3.2 Use of Car Share for Other Trips to Downtown

70 percent of the car share members surveyed indicated that they used car share for non-commute trips to downtown, with 1/3 (34 percent) using it a few times a year and ¼ (26 percent) using it 1-3 times a month. These results are also consistent with the care share membership surveys summarized in Sections 2 and 3.

4.3.3 Car Share Influence on Commuter Habits

Car share members were evenly split on whether car share membership has changed their commuting habits, with 49 percent indicating it has and 51 percent indicating it hasn't. The membership surveys conducted by the car share providers did not ask a question specific to commuting habits.

5. Summary and Recommendations

Based on the user survey results, the car share program has been successful in achieving the three-pronged intent of reducing parking demand (car share members reduced their weekly parking impact by four percent after joining the program), reducing vehicle miles travelling (1/3 of the members reported driving fewer household miles after joining the program) and enhancing the mobility options for its users (91 percent of the members identified increased mobility as one of the reasons they joined the program). Furthermore, the Downtown Denver Partnership's annual survey indicates that the car share program is becoming increasingly popular with downtown employees, with 12 percent of all downtown employees indicating they are car share members (up from 1.5 percent in 2012 when the question was first asked).

Given the positive results, it is recommended that the City continue to support the car share program through the provision of parking permits. However, to better measure the program's effectiveness at meeting the intent of reduce parking demand, reducing vehicles miles traveled, and enhance mobility options for members, the following changes are recommended to the car share provider survey:

- For those respondents that indicated they gave up a car either before or after joining the program, provide a follow-up question about how many cars they had before they gave one up.
- Add a question asking about the approximate mileage driven by the respondent's household in the year prior to joining the car share program.
- Add a question asking about how many times a month the respondent uses the car share program.
- Coordinate the car share provider survey and the DDP's employee survey so both use the same frequencies in their respective frequency of use questions (i.e., never, a few times per year, 1.3 times a month, once a week, twice a week, more than twice a week).