



*denver* STREETS PARTNERSHIP.org  
Advocating for people-friendly streets in Denver

# Bicycle Rewards Program Final Report

## Executive Summary

The Denver Streets Partnership (DSP) partnered with the Denver Office of Climate Action, Sustainability, and Resiliency (CASR) to test three bicycling incentive pilot programs with the goal of reducing single occupancy vehicle miles traveled and associated greenhouse gas emissions by encouraging participants to replace vehicle trips with bicycle trips.. The pilot took place over the three month period of April 2024 through June 2024. Each pilot program tested unique financial and support incentives to evaluate which were most effective in changing travel behavior.

A total of 101 people participated in the pilot programs with 70 participants assigned to V1: Mileage Reimbursement, 15 assigned to V2: Wrap-around Support, and 16 assigned to V3: Mileage Reimbursement and Wrap-around Support. DSP hired three “Bike Buddies” to provide bike coaching to participants in V2 and V3.

Over the course of the three month program period, participants rode their bicycles 4,101 times traveling 24,716 miles. Sixty-three participants completed the entire three month program, and the program with the highest retention rate of participants was V3 losing only 25% from the start to the end. Both groups that were incentivized per mile traveled, V1 and V3, averaged significantly more miles per month than V2, which did not receive a per mile incentive.

All three program versions successfully increased bicycle ridership and decreased greenhouse gas emissions and vehicle miles traveled. Future programs that have a per mile incentive and clear reporting requirements will have the highest likelihood of creating sustained behavior change. An inherent limitation on the success of these types of incentive programs, however, is a lack of safe bicycling infrastructure. To achieve the greatest mode shift, incentive programs should be paired with meaningful investments in street safety improvements.



## Project Overview

The purpose of the Denver Streets Partnership's (DSP's) Bicycle Rewards program was to test three pilot models of bicycling incentive programs to replace vehicle trips with bicycle trips and identify opportunities to continue these types of programs in Denver.

At the DSP, our mission is to reduce Denver's unsustainable dependence on cars and design communities that put people first. Forty-three percent of all trips in the Denver region are under 3 miles, a distance that can be typically covered within 15 minutes or less by bike. Reimagining how Denver residents get to their daily destinations, including replacing car trips with bike trips, can lead to a significant reduction of vehicle miles traveled and associated air pollution and greenhouse gas emissions, as well as health and wellness benefits to Denver residents.

The DSP was therefore thrilled to partner with the Denver Office of Climate Action, Sustainability, and Resiliency (CASR) on a cycling incentive pilot program aimed at replacing vehicle trips with bike trips. Between April and June of 2024, participants in the DSP Bicycle Rewards Program traveled nearly 25,000 miles by bike. This report profiles the participants of each of the three bicycling incentive pilot programs, describes the outcomes of their experiences riding bicycles for transportation, and highlights lessons learned and opportunities going forward.

Piloting each of these three models provided valuable insight into what types of financial and other incentives are most effective at increasing biking and reducing greenhouse gas emissions, and the feasibility of implementing these incentive programs at scale, through adoption by private businesses, transportation management associations, or similar organizations.

## Project Approach

DSP piloted three different incentive models to motivate Denverites to travel more frequently by bike than in personal vehicles, in order to reduce greenhouse gas emissions (GHGs) and single occupancy vehicle trips:

**Version 1 (V1): Mileage reimbursement (70 participants):** For all transportation-related trips made by bike, participants were paid \$1 per mile, up to \$200 per month.

**Version 2 (V2): Wrap-around support (15 participants):** Participants received "Confident Commuter" training; up to 4 hours of personalized coaching; up to \$500 for bicycle accessories, repairs, and/or subsidy for purchase of non-e-bikes; and \$200 upon completion of the pilot program. This final incentive for completing the program was awarded to anyone who used a bike for transportation at least once per week during the pilot period.

### **Version (V3) 3: Mileage reimbursement plus wrap-around support (16 participants):**

Participants received the benefits of both 1 and 2 above.

To provide participants in V2 and V3 with personalized coaching, DSP hired three “Bike Buddies” from a candidate pool of more than 20 people. The three Bike Buddies were selected for their bicycle knowledge, experience riding a bicycle in Denver, Spanish proficiency and ability to communicate well with others.

Each of these models presented different potential tradeoffs. We anticipated model 1 (mileage reimbursement) would be the easiest to administer, and to scale up through adoption by private businesses, transportation management associations, or similar organizations, but might be less effective at engaging participants who do not already bicycle for transportation purposes on a regular basis.

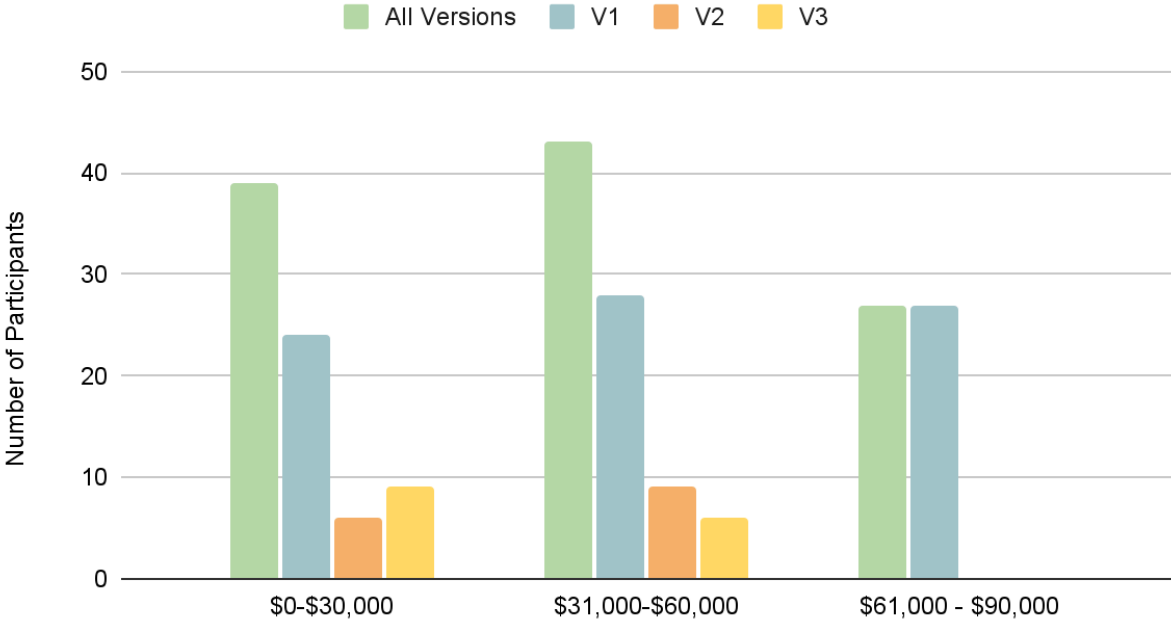
Conversely, we anticipated that model 2 (wrap-around support) would be more labor intensive, and therefore harder to scale, but might be more effective at engaging participants who do not already bicycle for transportation on a regular basis.

While we anticipated model 3 (mileage reimbursement plus wrap-around support) would be both more labor intensive and costly than models 1 and 2, it might have the biggest impact on the goal of reducing greenhouse gas emissions and single occupancy vehicle trips.

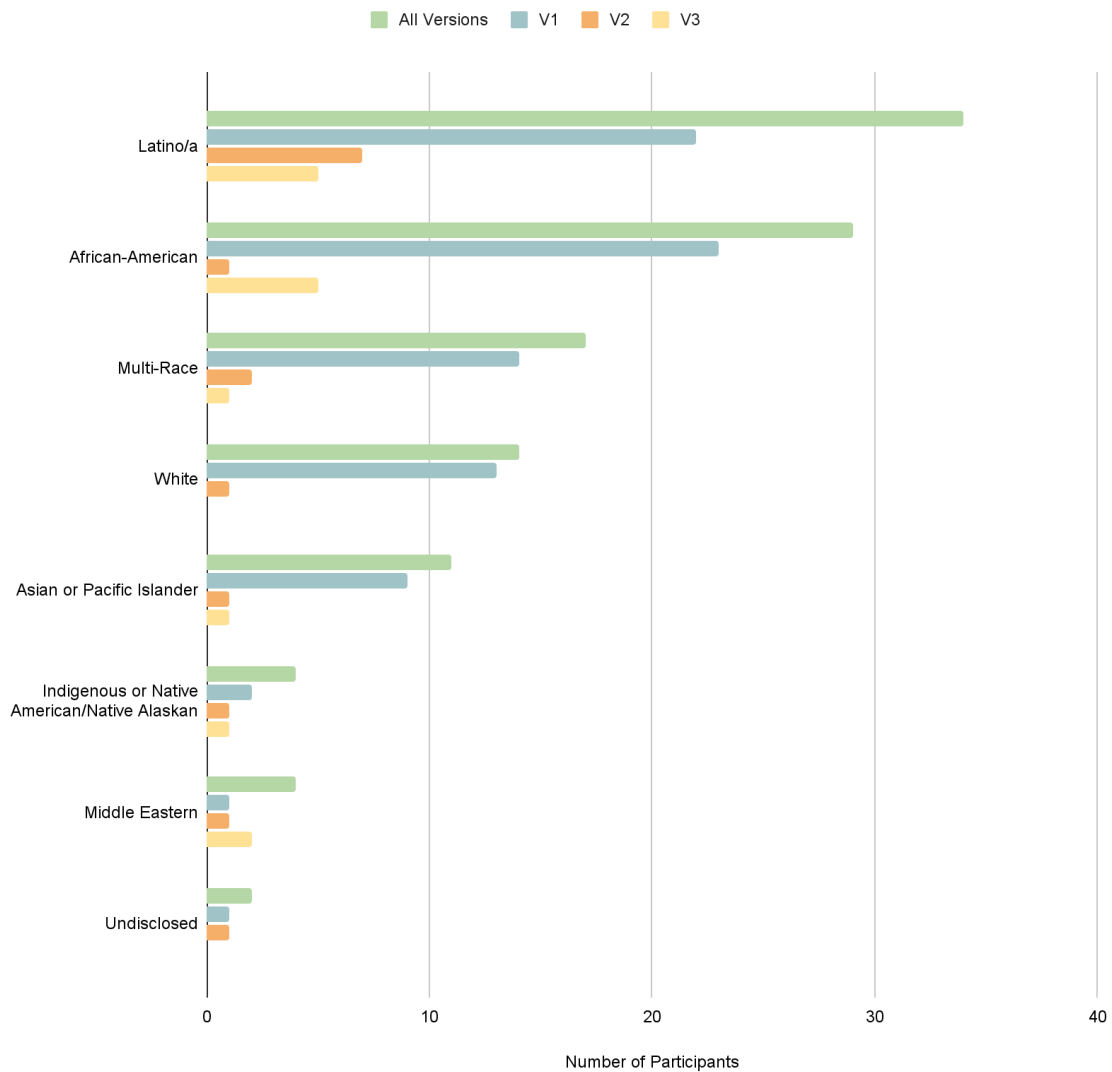
Across these three different models, we sought to engage a total of 115 participants in the pilot program, and through extensive community outreach received more than 1,400 applicants from interested residents. The application form captured information about current travel habits as well as demographic data.

The selection process prioritized applicants who currently did not use bicycles as transportation as well as lowest household income, minority status, residents of the City’s designated “Equity Index Areas” and lowest level of education. Participants were required to attend a mandatory in-person onboarding session where they submitted pre-program waivers, completed a baseline survey, received training on the app used for trip tracking and paying out the financial incentives, received Confident Bicycle Riding education, and had the opportunity to check out bikes and related gear as well as discuss bike-commuting logistics with staff from Lucky Bikes. Over 200 people were contacted with the goal of filling each spot, and 101 participants (70 in V1, 15 in V2, and 16 in V3) attended one of the four onboarding sessions where food, translation and child care were provided. The charts below compare the household income and race/ethnicity of participants in each version.

# Household Income



## Participant Race/Ethnicity



## Project Outcomes

Overall, it is clear that the Bicycle Rewards Program was successful in meeting its stated objective: to replace fossil-fuel-powered vehicle trips with bicycle trips and determine what type of financial incentives would be the most effective for future programs.

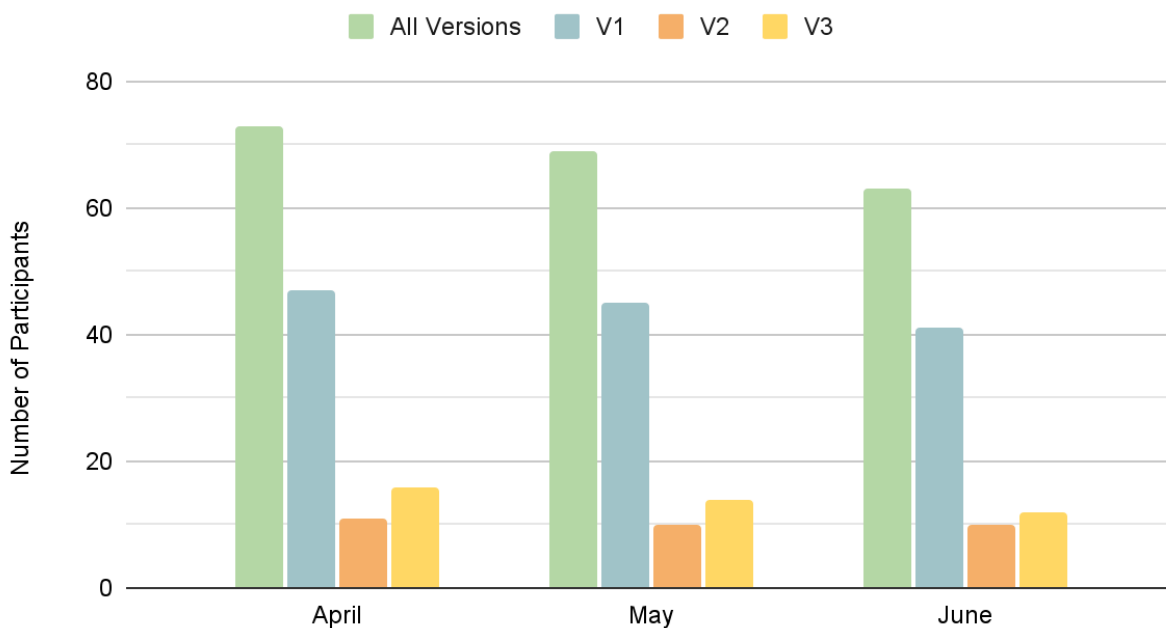
Each participant was trained to use the [Zoho Expense App](#) for tracking bicycle and vehicle miles traveled for transportation related trips and had the option to track via their phone in real time

while taking their trips, or report them manually after the fact through their phone, laptop or desktop computer.

Once participants submitted their trips, DSP staff reviewed and approved the trip reports and, when applicable, issued payments through the Zoho Expense platform.

The program started with a total of 101 participants enrolled in the program, but there was attrition each month, as shown in the chart below. Of those that communicated about the reasons they dropped out, the most common reasons provided were difficulty figuring out the reporting process, and personal health reasons. The program finished with 63 participants completing all three months (41 in V1, 10 in V2 and 12 in V3).

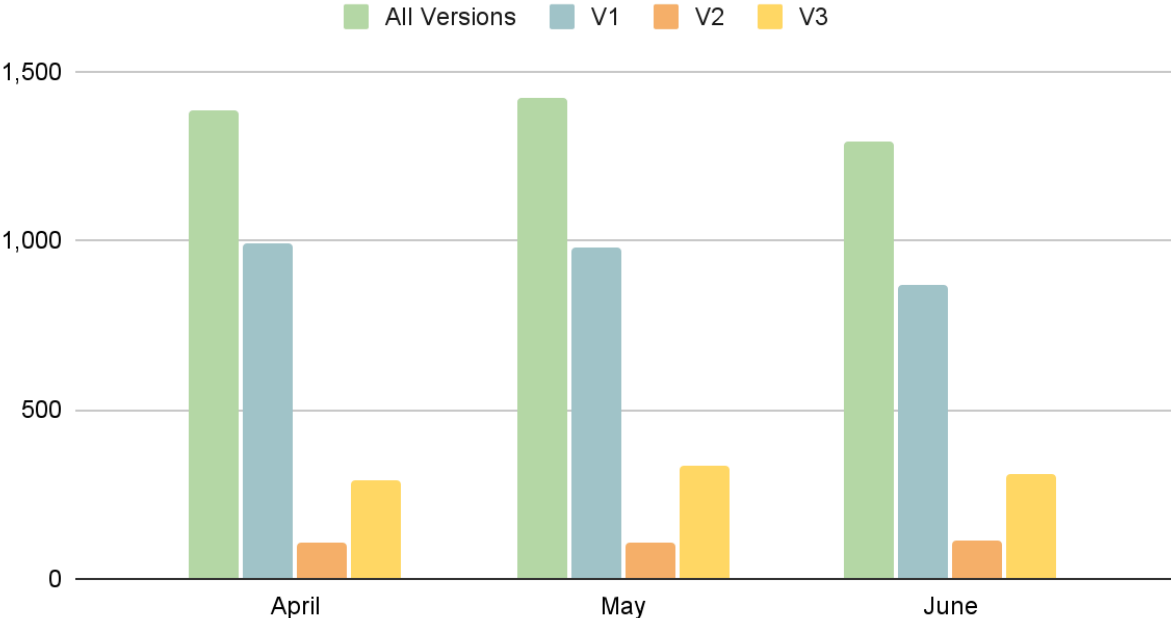
## Participation by Month



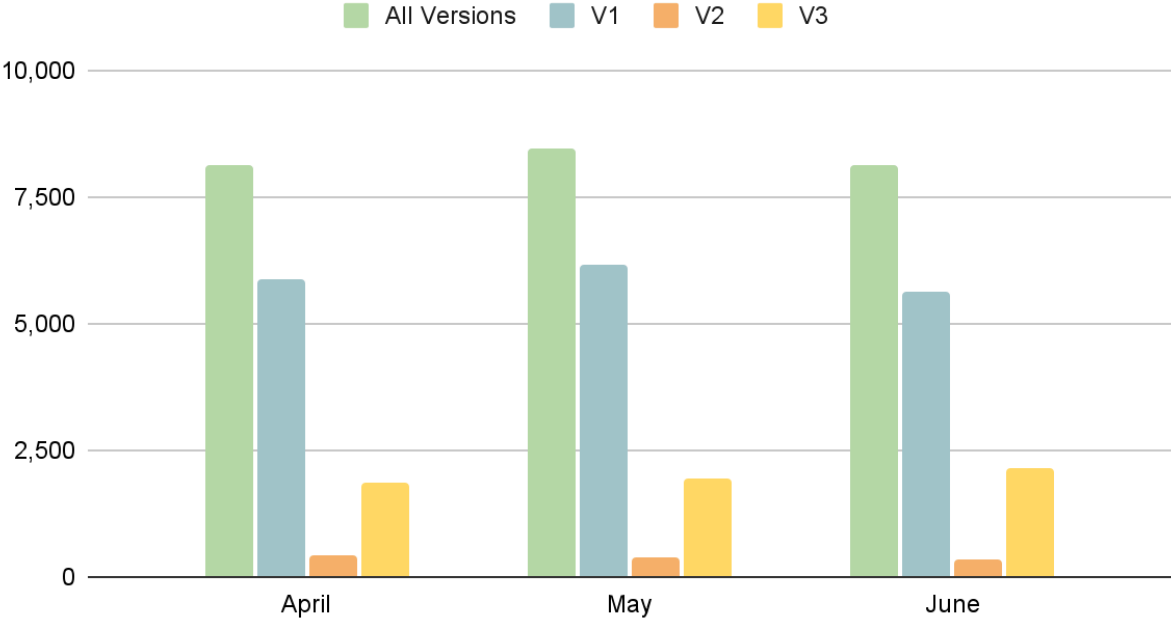
## Bicycle Trips

Over the course of the months of April, May and June, participants reported taking a total of 4,101 bicycle trips and traveling 24,716 miles via bicycle for transportation, shown broken down by month in the charts below. This may be an underestimate of trips and miles traveled because several participants hit their monthly limits for reimbursement and did not have incentive to report more mileage.

## Total Bicycle Rides

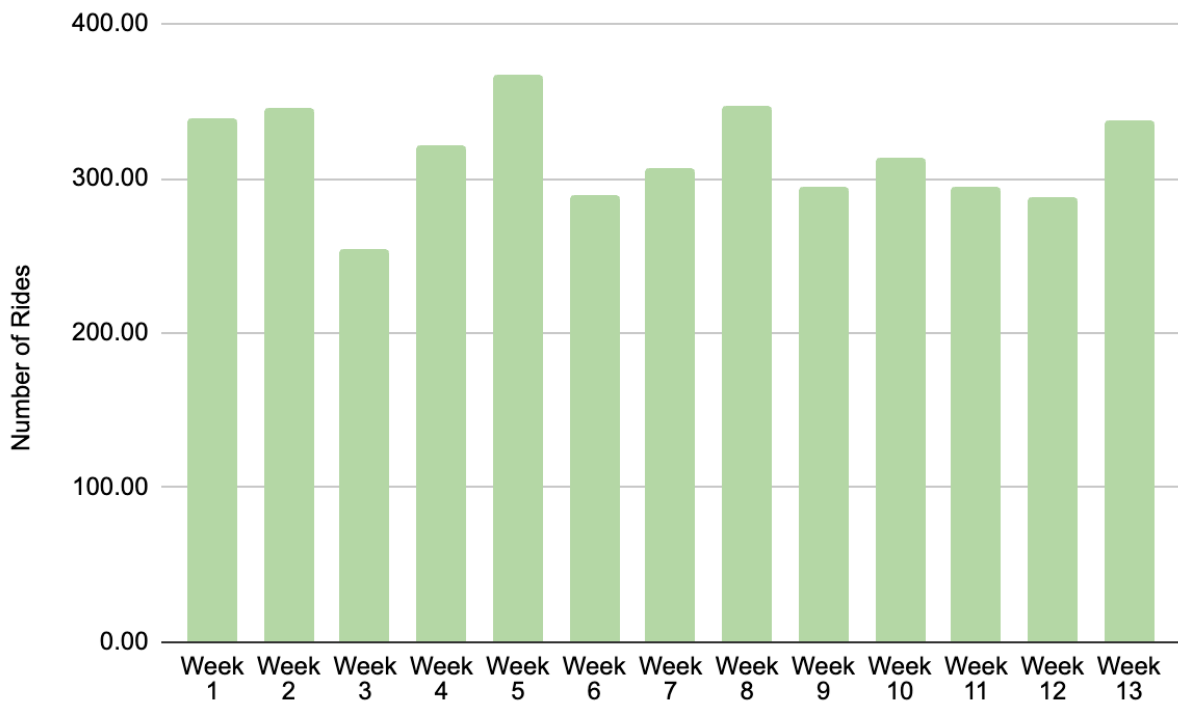
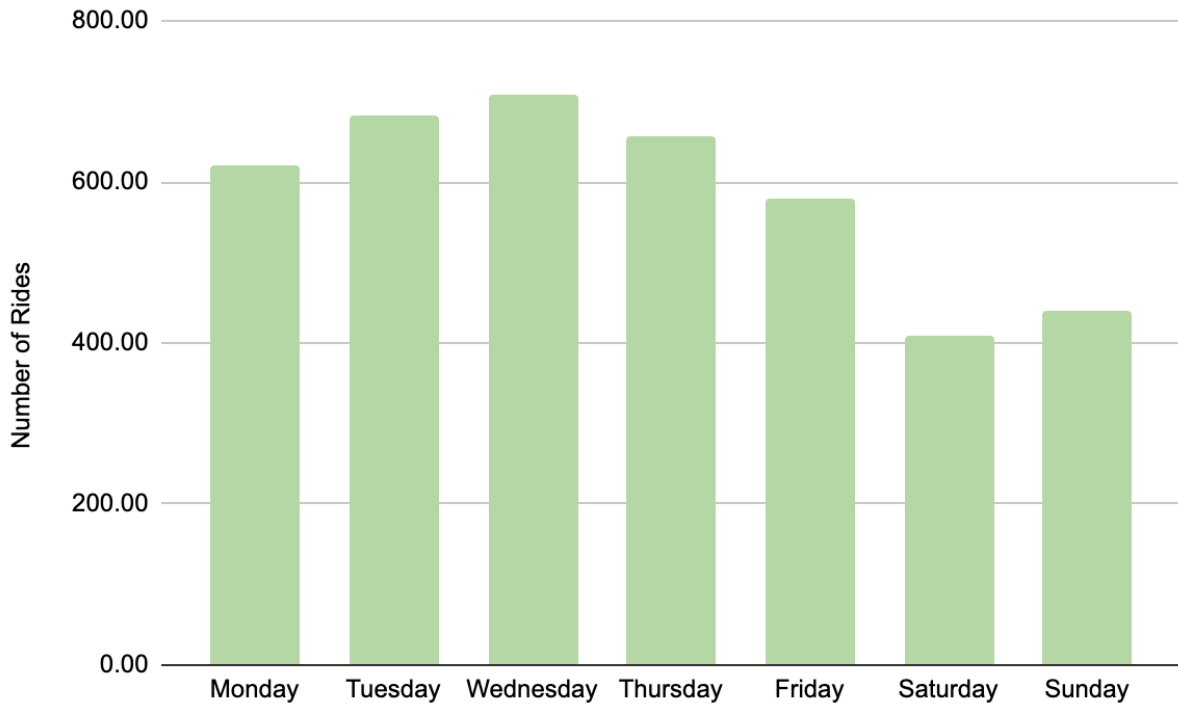


## Total Bicycle Miles



As seen below, the majority of participants rode more on the weekdays than the weekend, finding daily routines to replace their vehicle trips with bike trips such as going to work or

school. Each week roughly had the same number of bicycle trips, with the week where there was a snowstorm being the week with the lowest number of bicycle trips.

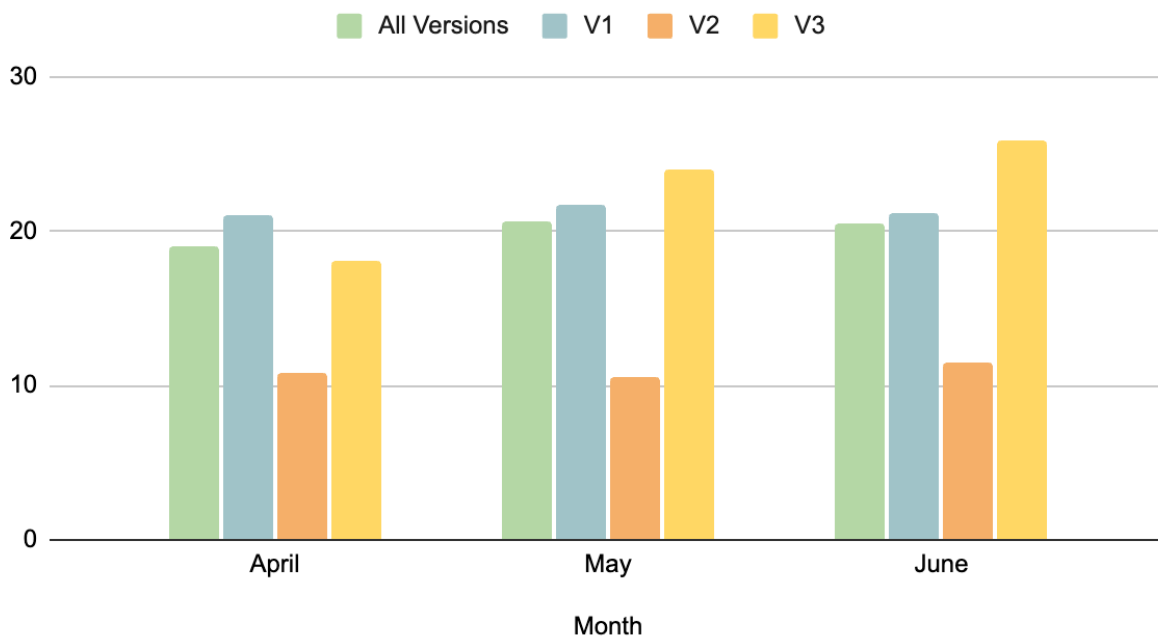




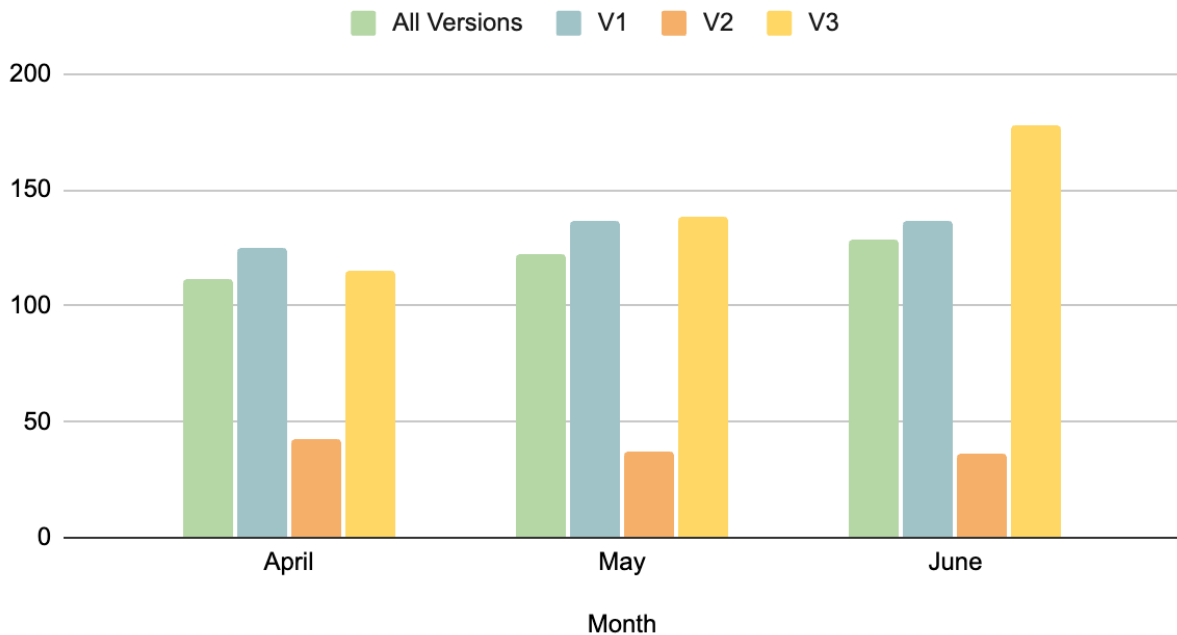
Each program version was successful in incentivizing participants to ride bicycles over driving vehicles. From anonymous pre- and post-program surveys, 24% of participants started the program not taking any bike trips for transportation, and, by the end of the program, 100% of participants were taking at least one bike trip per week. However, there were differences in how many trips were taken and how supported participants felt throughout the pilot period. The charts below comparing the average bicycle trips per person and average bicycle miles traveled per person clearly show that V3 participants, who received both wrap around support and mileage reimbursement, took more trips and traveled more miles per person, and were the only group to increase both trips and miles each month. Notably, the V2 participants, who were not paid per mile, took significantly fewer trips and traveled significantly fewer miles than both V1 and V3 participants on average.

Providing Bike Buddies to check in with participants and stipends for bike supplies seemed to keep more participants in the program. While V1 and V3 trips and miles were comparable, V3 retained 75% of its initial participants, while V1 only retained approximately 50% of its initial participants. V2 fell in between V1 and V2, retaining 66% participants by the end of the program.

### Average Rides per Person



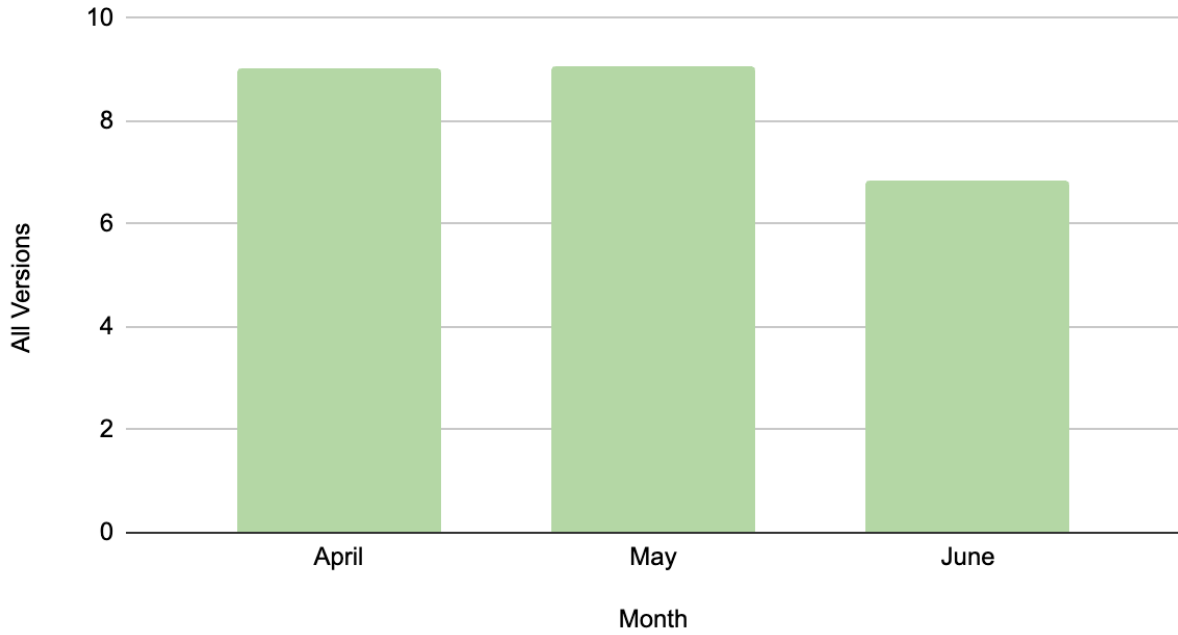
## Average Bicycle Miles Per Person



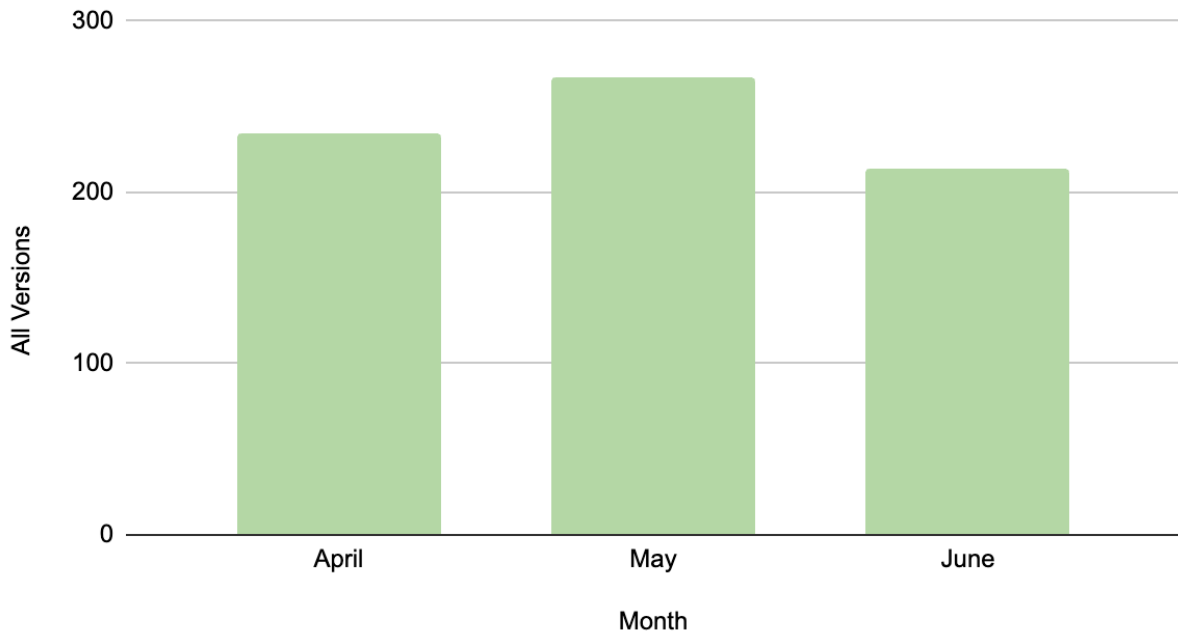
## Vehicle Trips

The number of vehicle trips and vehicle miles traveled reported by participants were reduced from the start to the end of the program, as shown in the charts below, although this may have been at least partly due to the lack of incentives to report these trips. There was a significant portion of participants that reported minimal to no vehicle miles throughout the program, which strongly suggests an undercount of vehicle miles and trips for each version of the program and makes comparing the miles and trips between the different programs difficult. However, the pre and post survey data does support program-wide vehicle replacement. Participants were asked how many bicycle trips per week they were taking to replace vehicle trips, and those taking more than five bicycle trips increased from 14.5% to 40.6% of participants by the end of the program.

## Vehicle Trips Per Person



## Vehicle Miles per person



## Wrap-Around Supports

Having money to spend at a local shop was instrumental in program participation. To provide the stipends, we worked out an agreement with the bike shops to provide a list of participants and a purchase limit, so when participants wanted to buy something, no money needed to change hands. We then reimbursed the shops every two weeks after receiving their invoices. Of the thirty-one participants in V2 and V3 who received a stipend, 16 bought a bicycle.

Participants could spend their stipends at one of two local shops: [Bikes Together](#) (1060 Osage St) or [Lucky Bikes](#) (4394 S Federal Blvd). All but four of the participants in V2 and V3 of the programs used at least some of their stipends, and most used almost all of it. The total value of the purchased items was \$9,360.41, with an average of \$360.02 per participant. The types of purchases included bicycles (16), lights (10), locks (14), helmets (10), accessories (36), and repairs or parts (34).

A post-program discussion with Lucky Bikes and Bikes Together staff revealed that they overall believed the program went well and were happy to have been a part of it. What went well: getting new people on bikes who didn't "see" themselves biking before the program; participants used their stipends on a variety of things, from physical products to Learn-to-Repair classes; people who made initial purchases early on returned to the stores later for more items, to expand their knowledge or ability (which increased the longevity of the habit change), and to be part of the community of these shops. By putting the stipend money into these small shops, both of which also have nonprofits related to biking, the program had a larger, more equitable effect on the community.

What the bike shops felt could be improved: participants who came into the bike shops were confused about how much of their stipend remained, so staff had to manually do the math, which was a burden (they reported using gift cards would have been preferable); more time spent in the orientation highlighting the differences between the shops; more promotion about how to spend the money, i.e. classes options vs gear and associated costs; more planned collaboration between the shops, i.e. "get a bike from Lucky Bikes, take a class from Bikes Together"; more consistent check-ins with us to ensure needs were met and confusion was clarified; receiving an email reminder about the stipend spending deadline to the shops, not just the participants.

## Testimonials

Each participant was given the opportunity to give feedback on the program throughout the program via phone interview. Below are some of the highlights from the interviews:

### Desirae (V1)

*"I love this program. It's really fun. It's been really fun. It's been motivating me a lot to get out*

*there and ride my bike, especially to work, which is super, super easy to ride my bike to...I'm a teacher, so I need that little pick-me-up, it helps me de-stress from the day."*

### **Gina (V3)**

*"It's beautiful in Colorado, and when you're in a car all the time, you don't see as much as you do on a bike, when you go places a car can't go, to different areas of your neighborhood that you wouldn't have normally been going."*

### **Julian (V3)**

*"It's really changing my life. I was diagnosed with cancer and the chemo messes with me. But since I started [the program] I've acquired five or six bikes. I work on them. I try to bike whenever I can, and it's keeping me motivated and in shape."*

### **Jason (V1)**

*"It's going great. I am a person who rode my bike in the past, but having a financial incentive is definitely an additional motivator to hop on two wheels as opposed to four wheels...Being on a bike just makes everyone happier. It's much easier to get your kids on an e-bike than it is to try to get them in a car seat and get out snacks and do everything. But my son literally requests when I get home to go for e-bike rides, so it's a fun way to connect with your kids, your family, and your community."*

### **Onyx (V2)**

*"I would say that infrastructure, the biking infrastructure, or the lack thereof in Denver, makes it really hard. And I think that's been my biggest obstacle... I was motivated by the program to try to ride all the way down to get my hair cut this past week when that is such a long ride that I probably would have taken a car otherwise....I am a disabled person. And so I don't commute to work every day or anything"*

### **Jen (V1)**

*"I think other than it being a little bit of a hassle logging everything, but otherwise it's going really well. I apparently needed the kick in the pants of a couple dollars to get me to actually start biking...Prior to this, there was always an excuse. Even though the [program] incentive is not that much financially, it's just enough to think 'OK, I have to do it, so I'm going to address the hurdles [of learning to bike for transportation] and actually do it."*

### **Jugaad (V1)**

*"A lot of places I would typically drive, I've been using the bike. I wasn't too comfortable [biking on] roads or taking my bike on RTD. [I would think] 'why would I want to do that? I'll just drive,' but this incentivized me to get out of my comfort zone and learn how to [ride for transportation] and the proper etiquette."*

### **Gwynne (V1)**

*"The program is going well. I am riding more. I want to go further, because I usually go over to my grandkids' house. They're on the other side of town...I'm on my electric bike. And my endurance is*

*building. And I get up because when I ride to the grocery store, up to my house, I usually would have trouble going up the hill or whatever and have to use my electricity. But I only want to use my electricity as a backup. But now I can go up the hill by myself without the electricity and not be out of breath.”*

### **Erin (V1)**

*“I think Denver feels a lot smaller to me now. I think even when I was going places before, I was thinking of it in terms of, like, oh, I have to get in my car, I have to go and park somewhere and deal with driving around to park somewhere. And when you add all of that time in, it makes it seem like Denver is this huge, unattainable place to go. But now, on my bike, I can park my bike anywhere. So I feel like even when I'm going somewhere, it feels like a shorter traveling time, a shorter distance.”*

### **Sara (V1)**

*“I like being a part of it, when there are those moments where I'm debating if I want to drive or bike, [the program] has gotten me to bike instead. So there's a lot of times where there's not really the option between one or the other, but there are plenty of times when really it is a choice, and it's been a great inspiration to get me on my bike.”*

### **Connie (V3)**

*“The Bike Buddy is awesome. Like, the first time I biked to school, I kind of just went down the road along the interstate on Colfax. Big mistake. Almost got killed. But the Bike Buddy told me a route, how to get there the other way. So she's super helpful.”*

## **Lessons Learned**

We would recommend the City continue to fund a bicycling incentive program as a means of reducing vehicle miles traveled and greenhouse gas emissions, and key elements for success of the program would be clear and concise reporting guidelines, money for mileage-based incentives, and bicycle infrastructure for participants to ride safely and comfortably.

### **1) Per Mile Incentives**

Participants were clearly more likely to reduce their driving and shift their transportation trips such as work or school commutes to biking when they were compensated per mile. Adding financial incentives to each bicycle ride encourages people to choose bicycle trips over vehicle trips and is more likely to lead to lasting behavior change.

### **2) Reporting Requirements**

Participants were required to submit their own trips through the Zoho Expense App. The platform had a learning curve and some attrition of participants was due to frustration with

learning how to log trips and submit reports as well as input their own banking information. In a future program, using a trackable device that could automatically log the trips would be ideal to relieve the burden from those that are under-resourced and unable to figure out an expense platform. Zoho Expense did work nicely for data collection and online reimbursements, and could still be paired with a system that used a trackable device to make it ideal and still get good data from participants.

### 3) Infrastructure

While the City and County of Denver has come a long way—thanks in part to the work of the *Denver Streets Partnership*—the program has surfaced the ongoing issues with a lack of connected, safe biking infrastructure on our streets. With safety being a priority concern, route-finding for bicycle trips often involves detours to side streets with fewer automobiles for better peace-of-mind for all participants, but especially those that live in areas that have less access to safe bike infrastructure. As we selected from all areas of Denver, there were some participants that had more trouble than others. The lack of safe infrastructure is an inherent limitation on the success and equity of an incentive-based program.

## Additional Findings

### Bike Coaching

While the Bike Buddies were good resources to the participants in V2 and V3 of the program, only about half of the participants used them as resources and of those, many did not need continued support after the first month. It was good to provide coaching to help people plan their routes and get them started, but in a future program, the time allocated to coaching could be redistributed to the administration of trip reviewing and reimbursing.

### Vehicle Use Tracking

As stated above, there were no incentives for vehicle tracking, and, in combination with the extra effort it took to submit reports, this probably was the least accurate data we got from participants. With a wearable device with automatic GPS tracking capabilities to identify car trips and bike trips, more accurate tracking would be possible.

## About the Denver Streets Partnership (DSP)

The DSP is a coalition of community organizations advocating for people-friendly streets in Denver. We envision an equitable and vibrant Denver where human dignity is the guiding principle for our transportation system and communities, with living, public spaces that allow everyone to thrive and connect to what matters most to them. Our mission is to advocate for the cultural and systemic changes necessary to reduce our city's unsustainable dependence on cars and to design communities that put people first. For more information about the DSP visit [denverstreetspartnership.org](http://denverstreetspartnership.org).

## About the Denver Office of Climate Action, Sustainability, and Resiliency (CASR)

CASR's mission is to act with urgency to proactively mitigate climate change by advancing science-based strategies to reduce greenhouse gas emissions on a scale and timeline that align with the recommendations from the Intergovernmental Panel on Climate Change, cultivate resiliency in the face of potential climate change-related emergencies, secure an economically, socially, and environmentally sustainable city for generations to come; and ensure that the setting of goals and metrics and monitoring of results considers equity.

On November 3, 2020, the people of the City and County of Denver voted in favor of Ballot Initiative 2A, raising the local sales and use tax by 0.25% to create the Climate Protection Fund (CPF). The CPF is dedicated to eliminating greenhouse gas emissions and air pollution, supporting climate adaptation, and creating new jobs to improve the lives of Denverites. Funding for this project came from the CPF. For more information about CASR and the CPF, visit [www.denvergov.org/sustainability](http://www.denvergov.org/sustainability).