GOOGLE BIKE LENDING PROGRAM

Examining the Effects of a Bike and E-Bike Lending Program on Commuting Behavior

Executive Summary
February 2022

BACKGROUND

In 2015, Google began a new transportation demand management (TDM) program designed to increase bike commuting to their two main corporate campuses in Mountain View and Sunnyvale, California. Following a survey of employees, Google transportation management team determined that bike access and maintenance were strong barriers for bike commuting.

Because of this finding, Google designed an e-bike/bike lending program targeting single occupancy vehicle (SOV) commuters to change to bike commuters.

ABOUT THIS REPORT

Researchers at the Bicycling*Plus* Research Collaborative associated with the UC Davis Institute of Transportation Studies and the Mineta Transportation Institute worked in collaboration with Google to review, process, and synthesize the data used to evaluate their commuter bike program.

Quantitative modeling and outcome estimation was conducted independently by the researchers with guidance from Google on the contextual interpretation of the results. The report was peer reviewed by a selected academic panel.

ABOUT THE PROGRAM

Beyond free commuter bikes and electric-assist bikes for six months, the program included a series of supportive measures to help change and maintain travel behavior including requiring trip reporting and bike commuting for 60% of commutes, free maintenance, free emergency pick-up service, among many others.

At the end of the six-month period, Google incentivized participants to purchase their own bike to continue their bike commuting.

PROGRAM FEATURES

Free bike/e-bike for six months

Free bike maintenance

Free emergency pickup service

Note: this list is not comprehensive

PROGRAM CHANGES OVER THE YEARS

2015

Started initial pilot program

2016

Made pilot program permanent, introduced conventional bikes

2018

Hosted first on-site event

2017

Made conventional bikes permanent

2019

Increased e-bike incentive to $500, increased on-site sales events to 3x/year

2020

Paused program and transitioned to support biking at home due to pandemic

Since 2015, the program has gone through changes that include the introduction of conventional (non-electric assist) bicycles, increases in bike buying incentives, on-site bike buying events, and many others.

In addition, this program is just one in a series of programs that help employees choose non-SOV commute behaviors.

BICYCLING PROGRAMS

BIKE AMENITIES

- Indoor & outdoor bike parking at every office building
- E-bike charging available at indoor locations
- On-site customer service and daily free bike rentals at Bike Hubs
- On-site bike repair services at multiple locations
- Showers, changing rooms, and on-site laundry at some offices
- Lockers for short and long-term use
- Helmets
- GBus and emergency ride home vehicles equipped with bike racks

BIKE INFRASTRUCTURE

Google continues to pursue infrastructure projects that make the area a safer, more pleasant place to bike. Examples include resurfacing the Bay Trail and updating connections between offices (e.g., building buffered bike lanes, bike boulevards, bike boxes, etc.).

BIKE INCENTIVES

- Bike maintenance and advocacy workshops
- "Learn how to ride" bike classes
- Subsidized safety gear sales event
- Discounts at local bike shops with major bike brands
- Biking incentive programs
- Bike fairs to test bikes and e-bikes
- Bike to Work Day celebrations
- Group rides to work
- Mid-day group rides
- Presentations to employees about Google's efforts to improve their commute
- New employee orientation includes custom commute options

BIKE SALE EVENTS

To aid employees in making the transition from the Commuter Bike Program to owning a bike, Google invites select local bike shops to Google campuses to sell bikes 3x a year (560 bikes sold in 2018 through this event).

MOBILITY PROGRAMS

COMMUTE OPTIONS

- Free commuter shuttles
- Public transit subsidies
- Free vanpool
- Free EV charging
- Free microtransit

MID-DAY OPTIONS

- Intercampus shuttles
- On-demand intercampus shared rides
- Hourly car rental
- Bikeshare

At the beginning of the program, Google received a long wait list for participating. By 2017, the waitlist had been cleared, and the program was expanded to include all eligible employees. Google tracked compliance with bike commute goals by requiring self-reported commute data.

From 2015 through the end of 2019, 2,663 employees participated in the program and provided trip data for a total of 224,415 unique person-commute days.

Through multivariate statistical analysis, results indicate the program led to average bike commute increases of approximately 1.7 to 2.3 days per week, roughly a tripling of prior bike commute rates. After the program, bike rates of participants diminished slightly, but still much greater than baseline (increase of 1.3 to 1.9 days per week).

This increase in bike commuting led to 8.4 to 10.5 additional bike miles ridden per person per week on average during the program.
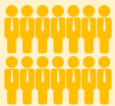
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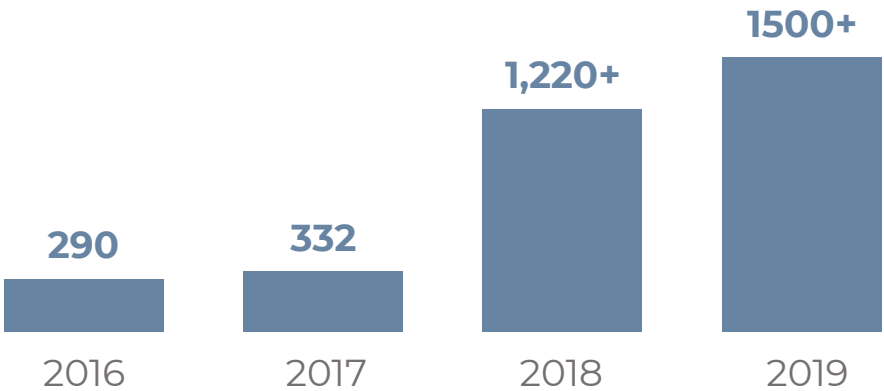
224,415
unique person-commute days

Increases of
1.7 - 2.3
days per week spent bike commuting

Additional
8.4 - 10.5
miles per week spent bike commuting

PROGRAM PARTICIPATION
NUMBER OF PEOPLE

290 — 2016
332 — 2017
1,220+ — 2018
1500+ — 2019

Nearly all of the increases in bicycling are likely attributed to decreases in SOV commuting. Although only a subset of participants reported all travel mode commuting (it was not a requirement to report other modes of travel besides bicycling), results suggest that SOV commuting dropped 2.4 days per week on average.

This drop exceeds the increase in bike commuting which could be attributed to participants doing other changes in their commutes because of the availability of a bike or e-bike, or it could indicate general error in reporting of either bike or SOV commute rates.

When examining the cumulative effects of the program from mid-2015 through 2019, the results suggest the program reduced approximately 400,000 SOV commute miles.

Decrease of

2.4

SOV commute days per week

Reduction of

400,000

SOV commute miles total

The analysis also uncovered other important nuances based on factors like type of bike and trip, commute distance, and bicycling engagement.

OTHER IMPORTANT FINDINGS

BIKE TYPE
Conventional bikes were even more successful than e-bikes. However, e-bikes may still have been necessary given many employees may not have participated had it not been for the availability of an e-bike.

TRIP TYPE
Multimodal trip commuters biked more frequently. The sample of multimodal bike-transit or bike-GBus commuters was small, but they were more likely to bike compared to bike-only commuters.

DISTANCE
Longer commute distances resulted in less bike commuting. However, even participants with long commutes (> 10 miles) biked more than 40% on average suggesting a bike lending program should not limit participation from longer distance commuters.
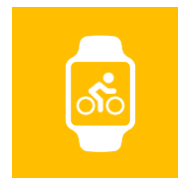
SKILL LEVEL
Self-reported bicycling skill was positively associated with bike commuting. This result is consistent with the general literature on bicycling.

APP USAGE
Results from participants with app integrated reporting (Strava) suggest either over-reporting of bike commutes by non-app participants, or app users biked less than non-app users. More research is needed to determine the validity of each of these potential explanations.

The success of the Google bike lending program should help other employers build their own programs. Although this analysis only includes behavioral modeling, with these results, benefit/cost ratios can be calculated to determine the effectiveness of the program in comparison to alternatives.

Like all TDM programs, Google's lending program can be improved. In the case of bike lending at Google, the results suggest that (a) permanent lending may be more efficacious than a fixed duration intervention, (b) a wider variety of bike/scooter form factors may be needed to attract more participants, and (c) targeting short SOV commuters could be accompanied with longer SOV commuters if a multimodal option is available.

POTENTIAL PROGRAM IMPROVEMENTS

Lending permanently rather than fixed duration

Offering a wider variety of bike/ scooter form factors

Targeting commuters regardless of distance

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Check out the full report **to learn more about this research.**