IMPLEMENTING MOBILITY SOLUTIONS TO ADDRESS COMMUTING DISPARITIES AND CONGESTION

U.S. Department of Transportation


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IN THIS CASE STUDY YOU WILL LEARN:

1. What Fair Value Commuting is and how a pilot program for it was implemented successfully in the San Francisco Bay Area.
2. How the project secured buy-in from key stakeholders.
3. The benefits for employers, commuters, low-income workers, and the environment.
4. What the lessons learned are from designing and implementing the program.

Introduction

In 2016, the United States Department of Transportation (USDOT) Federal Transit Administration (FTA) competitively awarded 11 Mobility on Demand (MOD) Sandbox grants which funded the deployment of innovative transportation technologies across the United States. This case study details one of these deployment programs, Palo Alto's Fair Value Commuting (FVC) program, which successfully replaced **nearly 5,000 Single Occupancy Vehicle (SOV) trips with non-SOV trips,** during a six-month pilot program.

Other regions looking to reduce SOV commuting to alleviate congestion, reduce environmental impacts, and promote equitable commuting options can find insights from the Palo Alto MOD Sandbox initiative.

Figure 1. *Free Parking at an Office Park* ***Source:*** *iStock*

Background

Free parking has long been an established norm at most workplaces, particularly in the United States. For many workers, especially those in urban central business districts (CBDs), this free parking is a valuable benefit as daily parking rates in CBDs can be very expensive. In contrast, alternative commute modes such as transit, biking, walking, or carpooling are often only lightly subsidized or in many cases completely unsubsidized. This imbalanced subsidy landscape has the effect of encouraging more people to commute by SOV [1].

To encourage non-SOV commuting some employers and municipalities have experimented with flexible commuter benefit programs. These programs offer a variety of commuter benefits such as subsidies for transit passes, biking, walking, or carpooling. In some cases, these programs offer

commuters additional, unrestricted cash benefits for not driving to work. Overall, these types of programs have proven effective in reducing SOV commuting [2].

Table 1. Summary of the MOD Sandbox Program

Problem	Traffic congestion is a serious issue in most urban areas around the world as it decreases people's quality of life and increases emissions. A significant portion of traffic congestion is caused by commuters driving in SOVs.
Goal	Relieve traffic congestion by encouraging non-SOV commuting.
Solution	In 2016, the USDOT's MOD Sandbox Program awarded the City of Palo Alto a $1 million grant to conduct a demonstration of an FVC system. This system would provide incentives to travelers who commuted by transit, bike, walking, or carpooling and charge SOV commuters a fee for parking.

Initial Vision

The San Francisco Bay Area, consisting of nine counties surrounding the City of San Francisco, has rapidly grown into a sprawling urban area that is now home to over seven million people. Consequently, this area has **some of the worst traffic congestion in the United States**. According to the Texas A&M Transportation Institute's 2019 Urban Mobility Report, San Jose traffic congestion was ranked worst in the nation for the classification group "Large Area," and the Bay Area/Oakland was ranked second worst in the nation for the classification group "Very Large Area" [3], [4].

Figure 2. *Downtown Palo Alto* ***Source:*** *iStock*

Given this situation, and the fact that the majority of Bay Area residents commute by SOV, the entire area would likely benefit from more flexible commuter benefit programs that aim to reduce congestion [5], [3]. The USDOT awarded the City of Palo Alto a MOD Sandbox grant in 2016 to address this issue. The pilot was intended to showcase technologies and practices that could help shift commuters away from SOV travel and support alternative commuting through flexible commuter benefit programs.

The City of Palo Alto implemented an FVC Program in the greater Bay Area. Palo Alto was inspired by the success of Stanford University's revenue neutral transportation demand management program where Stanford began charging people a fee for parking on campus and then used this money to subsidize alternative commute modes such as biking and public transit. Through this program Stanford lowered SOV trips to and from the campus from 72 percent in 2002 to 46 percent in 2011 [6, p. 1].

However, Palo Alto took their program further and designed it to be used by both public institutions and private companies. Palo Alto also aimed to incorporate a significant technology component into

their program by developing two applications: an Enterprise Commute Trip Reduction (ECTR) software platform and a Commuter Wallet mobility aggregator.

The purpose of the ECTR platform was to make managing employee commuter benefits easy and convenient. The ECTR would "integrate with employer human resources and payroll functions and distribute [commute] benefits" automatically while also automatically "collecting and reporting commuter mode choices" [3, p. 8]. The Commuter Wallet was intended to be a multimodal trip planner that enabled participants to seamlessly plan their trip across a number of modes and would enable integrated transit fare payments for program participants.

Similar to Stanford's program, Palo Alto intended for the FVC program to be revenue neutral. This meant that employers would charge SOV commuters for parking and use that cash to incentivize non-SOV commuting. The objective was to avoid burdening employers with additional costs, since the money from charging for parking would be used to pay for other types of commuting benefits.

Building Partnerships by Understanding Barriers and Incentives

The project started with a consortium of local cities and counties, transit agencies, non-profit organizations, and private companies, including technology startups; however, the exact mix of partners changed over the course of the project.

Palo Alto's FVC project team offered onboarding and project management materials to guide private sector human resource departments as well as public sector city managers' offices and transportation departments. The toolkit of resources provided to each partner included regular training, employee handouts and memos, and deployment reference materials.

Streamlining Commuter Benefits

Although all pilot sites offered commuter benefits before the FVC program, they wanted to improve their communication, delivery, efficiency, and evaluation of them.

Private Sector

Although Palo Alto originally intended to include private sector partners in its FVC initiative, conversations with potential private sector pilot partners exposed conflicting incentives that dissuaded private companies from participating. **Many of the large private sector companies already offered commuting incentives** to their employees and did not see a need to change their benefits. For example, some offered their own shuttle services.

Because of competition among employers to attract and retain talent, the perception of employee benefits was important. So, while private sector companies were interested in promoting non-SOV commuting patterns, they were hesitant to charge for parking which could be perceived as the removal of an employee benefit. The pressure to maintain free parking as an employee benefit was even greater for small employers, who were more concerned about attracting and retaining talent. Furthermore, in some cases, free parking was a union negotiated benefit which blocked the possibility of a feebate system (i.e., fee-for-service).

Public Sector

Palo Alto's public sector partners showed great interest in the program as demonstrated by their email inquiries and letters of support.

Many of the potential public sector partners were concerned, however, that their organizations would not have the bandwidth to operate an in-house FVC program for the full duration of the project. In response to this issue and the lack of interest from private sector employers, Palo Alto decided it would scale down the number of pilots from 11 to 4 and offer a higher level of support to the pilot partners [3]. With this higher level of support Palo Alto worked more closely with each site to build trust, which led to Palo Alto getting **buy-in from executive leadership and city councils,** ensuring the program was implemented as intended.

***Figure 3**. Alternative Commute Modes (e.g., biking) Increased*
***Source:** iStock*

Using the resources developed by Palo Alto, the four pilot partners, who were local municipal governments near Palo Alto, adopted their own FVC programs over a six-month period, each implementing FVC strategies that worked best for their organizations. Partners were able to set up their own incentives to encourage non-SOV commuting trips.

The success of each pilot was measured by reductions in SOV trips, Vehicle Miles Traveled (VMT), and fossil fuel consumption as well as by increased benefits for lower income workers, greater accessibility to pre-tax transit benefits, favorable opinion shifts toward transit, cash-outs (i.e., opt-out refund) from SOV commuters to non-SOV commuters, and lessons learned from deploying FVC policies. Data were gathered from an employee survey administered before and after each pilot as well as from the ECTR and Commuter Wallet platforms.

According to survey data, the FVC program significantly improved participants' perception of public transit; **mean satisfaction ratings jumped from 5.5 before the program to 7 after the program** [7].

Results

Overall, the FVC program had positive effects on commuting patterns at the pilot sites. Selected results from the project include [3], [7]:

- **Participants replaced nearly 5,000 SOV trips with non-SOV trips** of which 42 percent were by transit, 26 percent by bike, 25 percent by carpool, and 7 percent by walking.
- Participants collectively saved **$21,046 in commuting costs.**
- 70 percent of surveyed participants **reported driving less.**
- The pilot program collectively **decreased overall CO2 emissions by 10.2 metric tons** and total participant **energy consumption by 46 percent.**

These results suggest that **FVC initiatives have the potential to reduce traffic congestion.** Additionally, results suggest that FVC programs may help address inequalities that exist in commuting patterns as lower income households may benefit relatively more from commuting subsidies [7]. By providing incentives for carpooling and transit use, FVC can help mitigate some of

the challenges a suburban commuter might experience by encouraging commuters closer to downtown to take non-SOV trips which can help to free up the road network for those who may be limited to car-based travel.

Lessons Learned

A Relatively Small Investment Led to Substantive Behavior Changes.

Over the course of the six-month pilot the FVC program made relatively modest investments, of about $5,000 or less per site, in direct commuting incentives. However, even this modest investment generated very positive outcomes for pilot participants, with a majority of pilot participants driving less over the course of the pilot. This demonstrates that alternative commute programs need not be expensive to have an impact [3].

These findings also demonstrate that in urbanized areas, with robust public transit systems, there may be a fine line between driving to work and not driving to work. A number of commuters would gladly give up SOV travel if organizations would provide incentives for other travel modes. Moreover, additional research suggests that commute behavior affects non-commute behavior. Those who drive to work are more likely to drive for non-work trips, and those who take transit to work are more likely to use that mode for non-work trips. Thus, alternative commute benefit programs may reduce overall congestion, not just commute congestion [8].

Being Flexible and Responsive to Local Needs was Critical for Success.

At the beginning of the pilot program, Palo Alto wanted to implement revenue-neutral FVC programs at each of the pilot sites. However, in the end, the four pilot **sites did not want to implement feebates (i.e., fee-for-service, charging for parking to subsidize other modes) for reasons related to policy, benefits, or infrastructure.** Instead, the pilot sites opted for a "parking cash-out" (i.e., opt-out parking refund). Although charging for parking was initally considered important, Palo Alto was flexible and recognized the unique, local needs of each of the pilot sites and thus each pilot site was able to implement the policies that worked best for them [3].

No Single Software Solution Can Currently Satisfy the Complete Range of MOD Functions

This FVC project demonstrated "that existing software solutions, even those that perform well and are successful in the marketplace, are not comprehensive enough to satisfy the range of MOD functions needed by busy commuters" [3, p. 44]. In this case, Palo Alto used two software solutions because, while the ECTR offered many insights on commuting behavior and some MOD functionality, it was insufficient on its own to demonstrate universal trip planning and payment. Therefore, to fill this gap, Palo Alto deployed a real-time, intermodal trip planning and payment tool (i.e., Commuter Wallet) [4].

Future deployers of FVC or other MOD programs should be aware of potential software limitations since no single software is likely to satisfy the complete range of user needs.

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