

# Redwood City Bike Share Program: Encouraging Equitable Bike Share Use

## Final Report and Recommendation



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## TABLE OF CONTENTS

Executive summary_____	p. 3
Project Purpose_____	p. 4-5
Literature Review and Case Studies_____	p. 6-12
Methodology_____	p. 13-14
Summary of Results_____	p. 15-18
Recommendations_____	p. 19-22
Works Cited_____	p. 23
Appendices	
<i>Appendix A: National/International Bike Share Program Case Studies</i> ____	p. 24-38
<i>Appendix B: Resident Survey and Responses</i> _____	p. 39-45
<i>Appendix C: Community Leader Interviews</i> _____	p. 45-49
<i>Appendix D: Group Member Bios</i> _____	p. 50-51
<i>Appendix E: Resident Survey</i> _____	p. 52-53

## **EXECUTIVE SUMMARY**

### **Project Purpose**

In August 2013, the Bay Area Air Quality Management District will launch a highly anticipated regional bike sharing pilot project. As one of the partners in the launch of the pilot program, Redwood City is invested in ensuring the program is accessible to all members of the community, including those in low-income neighborhoods. Based on the results of a literature review and community surveying and outreach, this final report of the project presents Redwood City with concrete recommendations on actions they can take to minimize or eliminate the anticipated barriers to full participation in the program.

### **Literature Review and Case Studies**

The literature review looked at four published studies: two discuss the current state of bike share programs in North America; one considers the feasibility of implementing a bike share program in the city of San Mateo, CA; and one looks directly at what current systems are doing to encourage equitable access. The case study summary table compares system statistics, population demographics, and solutions to identified barriers to full participation for low-income communities for 10 currently operating bike share programs.

### **Methodology**

The literature review and case studies provided insight into existing bike share programs and revealed their successes and failures. To discover barriers to use specific to Redwood City, the team utilized multiple forms of outreach – interviews with community leaders in North Fair Oaks and direct surveying of North Fair Oaks residents.

### **Summary of Results**

Our literature review, case studies, and community outreach revealed multiple potential barriers for participation by low-income members of the community in the Redwood City bike share program. The most prominent barriers are station siting, lack of credit card access, and lack of bicycle infrastructure and perceived safety issues.

### **Recommendations**

The final recommendations for Redwood City are as follows:

1. Expand the program (numerically and geographically)
2. Increase biking infrastructure
3. Incorporate access to users less than 18 years old
4. Introduce an alternative payment method
5. Encourage employer sponsorship in Redwood City
6. Host bike riding/safety workshops
7. Tailor marketing/advertising to specific groups

## PROJECT PURPOSE

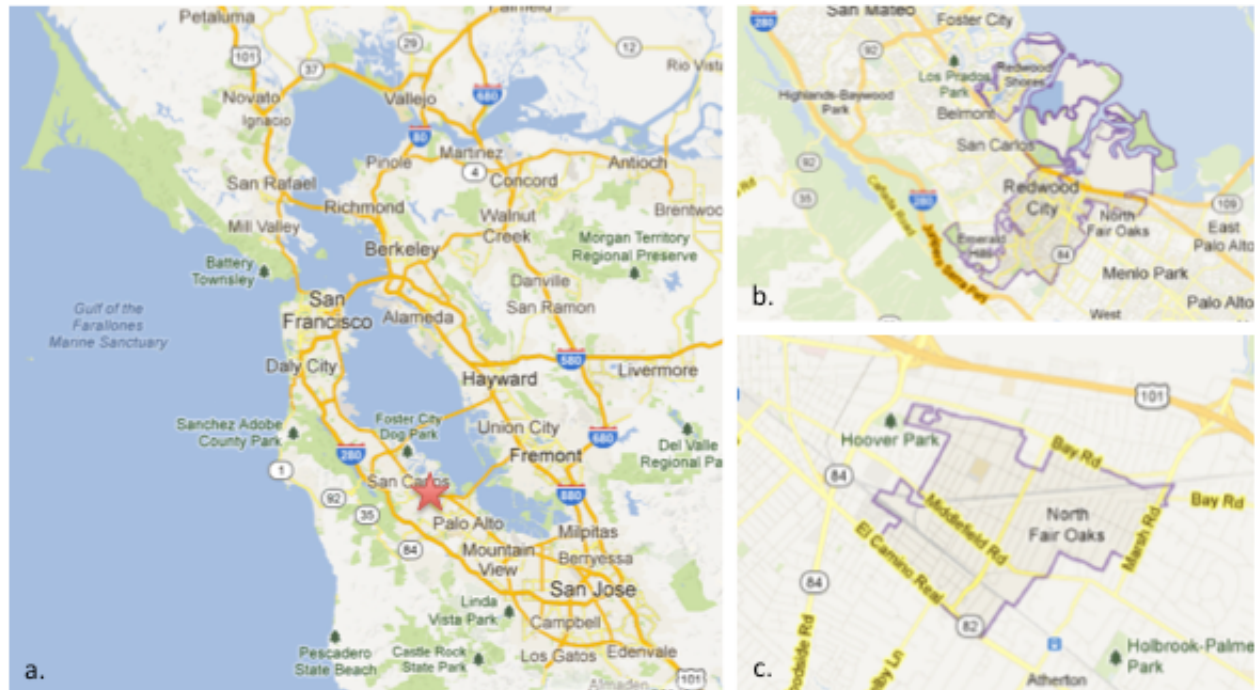
In August 2013, the Bay Area Air Quality Management District will launch a highly anticipated regional bike sharing pilot project. In partnership with the City and County of San Francisco, San Mateo County Transit District, City of Redwood City, County of San Mateo, and Santa Clara Valley Transportation Authority, the 12-month pilot program will deploy 700 bikes in the cities of San Jose, Palo Alto, Mountain View, Redwood City and San Francisco. The pilot program seeks to evaluate the potential of a bike share system to reduce vehicle traffic and improve local air quality by providing convenient quick connections that complement existing transportation infrastructure. Kiosks will be located near transit hubs, high-density residential areas, and key urban destination points, and the program is primarily intended for short-distance trips between these kiosks to keep bikes on the move and available for the greatest number of users. The goal of the program is to develop a larger bike share network in the region that will be self-sustaining through rider memberships and usage fees.

Out of the 700 total bikes in the pilot program, 70 bikes will be located in Redwood City, spread out over 7 kiosks centered downtown. The bike share program will complement ongoing efforts to revitalize the downtown to increase the sense of community and make the roads more bike- and pedestrian-friendly. As one of the partners in the launch of the pilot program, Redwood City is invested in ensuring the program meets the needs of the local population, both within the city bounds and in the neighboring pocket communities such as the unincorporated North Fair Oaks. Redwood City is developing different metrics to determine the effectiveness of the program, one of which is evaluating the program's ability to improve accessibility to underserved bike sharing participants. Our refined focus was to identify, locate, and understand the North Fair Oaks population as best as possible and provide recommendations on how the City can increase North Fair Oak's participation in the program.

Located on the San Francisco Peninsula (see Figure 1), Redwood City has a population of 77,745 and a racial makeup that is 60% white, 35% Hispanic, 2% black, and 3% Asian. The average household income is \$77,111. The neighboring community of North Fair Oaks is an unincorporated area of San Mateo County usually discussed alongside Redwood City that is 73.1% Hispanic or Latino and made up mostly of low-income immigrant families. North Fair Oaks is surrounded by Highway 84 on the west, Highway 101 to the north, Marsh Road on the East, and El Camino on the South; this results in a slightly isolated community geographically. Most of the commercial businesses on the primary thoroughfare - Middlefield Road - have their signage in Spanish. Given the fact that the demographics of Redwood City and North Fair Oaks vary so widely, the question of accessibility should be explored as broadly as possible and should include physical location, cultural differences, and communication channels as potential barriers.

Traditionally understood barriers to accessibility are structural, financial, attitudinal, and outreach. Structural barriers relate to the number of bike stations and their physical location. Financial barriers can include requiring a credit card for participation in the

program. Attitudinal barriers can include viewing bikes as a visible sign of poverty. Outreach barriers include a lack of translation or other communication. We were tasked with finding which barriers applied to North Fair Oaks, and how each existing barrier affected residents.



**Figure 1. Project location: (a) San Francisco Peninsula, (b) Redwood City, (c) North Fair Oaks**

The project centered on three key research questions:

1. What would members of the low-income community of North Fair Oaks potentially use the bike share program for?
2. What barriers will keep them from using it?
3. How can Redwood City address these barriers?

Through a review of currently established bike share programs and associated studies, as well as community surveying and outreach focused particularly in the North Fair Oaks community, this final deliverable of the project presents Redwood City with concrete recommendations on actions they can take to minimize or eliminate the anticipated barriers for full participation in the program by all members of the community. With the program's August launch date quickly approaching, achieving the project goals will be critical in ensuring the pilot is implemented in an equitable and accessible way from the very start.

## LITERATURE REVIEW AND CASE STUDIES

In recent years, bike share programs have been emerging throughout North America. The majority of the programs, however, are less than three years old, and the relative newness of these systems is represented in the limited existence of studies about program impacts, success, and user demographics. In particular, there is very little statistical information regarding the equity of system access in these programs. While this presented a challenge in finding sufficient information for a literature review, four published studies informed our understanding of the current status of bike share programs in North America.

### Public Bikesharing in North America: Early Operator and User Understanding

A study published by the Mineta Transportation Institute, titled “Public Bikesharing in North America: Early Operator and User Understanding,” (MTI 2012) evaluates the present condition of bikesharing from several angles, “including current operational practices and business models, and environmental and social impacts” (MTI 2012). Their study methodology was two-fold: first, in-depth interviews were conducted with local government representatives and bikesharing experts, as well as program operators for 19 bikesharing programs in the US and Canada; second, program users were surveyed in four current bikeshare programs.

The results of the interviews and surveys were evaluated to identify trends in program usage and impacts using a large variety of metrics. Looking at program equity in particular, the socioeconomic demographics of survey sample reveal interesting data about bike share users. The survey respondents were generally young, with 60% under the age of 34. Nearly 80% of the survey population was Caucasian, with more than 85% of the sample having a Bachelor’s degree or higher. In each of the surveyed program cities, these statistics are not representative of the general population, suggesting inequity in bike share program usage.

The study addresses one particular barrier to program usage, namely in the requirement to use a credit card, since low-income and younger riders have less access to credit cards. Some current programs are creating partnerships to address this barrier: Capital Bikeshare in Washington, D.C., “has partnered with multiple banks to offer discounted annual memberships to ‘unbanked’ residents who sign up for either a debit card or credit card” (MTI 2012); additionally, Capital Bikeshare launched a program to offer memberships to homeless individuals with the condition that they attend weekly fitness programs and educational/job-training programs.

Looking at the study as a whole, the results identify many positive impacts that bikesharing programs have. Public bikesharing is used to enhance public transit and increases user mobility in most cities, and provides health benefits both directly to the participants and to the community through the positive environmental impacts associated with decreased vehicle usage. The study does acknowledge that “the survey results suggest that public bikesharing plays a different role in different cities,” (MTI 2012) revealing that the results

of a case study analysis may not be representative of the impact the bike share program will have in Redwood City and North Fair Oaks.

### **City of San Mateo Bike Share Feasibility Study Report**

Inspired by the planning of the Bay Area Bike Share pilot program, the City of San Mateo conducted a feasibility study to determine the viability of implementing a bike share program in the city. As part of the study, San Mateo conducted a case study on programs relevant to the city in terms of similarity in demographics and achievement of program success. Since San Mateo has a population similar to that of Redwood City, and considering its geographical proximity, many of the findings of feasibility study are applicable to bike sharing in Redwood City. San Mateo, like Redwood City, is smaller than most North American cities with bike share systems, but the population density is similar to larger cities with successful programs. Density of both system kiosks and population are important in establishing the groundwork for success. In the case study review of programs, the report states: “as more success is realized, larger cities are expanding bike sharing into lower density and lower income area and new, smaller cities” (City of San Mateo, 2013). The report also addresses a risk that echoes some concerns with the size of the Redwood City program: if a program has too few stations, it could result in low ridership and possibly negative press and public perceptions of the program. One possible solution that is presented to address low station density is to supply a secondary lock so that bikes can be used to travel to locations not near kiosks.

### **Bike Sharing in the United States: State of the Practice and Guide to Implementation**

This study “presents a snapshot of current municipal bike share systems” (Toole Design Group, 2012). From the extensive case study, the report reveals a number of trends and findings that can inform other bike share programs, both planned and existing. The report emphasizes the importance of programs explicitly defining their implementation goals to be able to document their impact. Evaluating program metrics will be key in gaining insight into the success of a program and informing projects for system improvement. These metrics should be established early in the program to ensure all stakeholders share the same definition of program success and are working towards the same goal.

The report acknowledges the potential bikesharing has in providing affordable transportation for low income and minority communities. At the same time, it is recognized that current programs have not had success in reaching these populations. Bike share programs need to continue to actively strive for their participation - the “long term success [of bike share programs] will depend in part on being able to show that bike share can serve everyone “ (Toole Design Group, 2012). The Boulder and Denver programs have taken on this user demographic disparity through initiatives such as collaborating with local housing authorities to offer reduced memberships to residents. There is little data to reveal the success level of these initiatives, but it is important for bike share programs to continue to think of ways to include minority and low-income populations early on in the planning process.

## Encouraging Access to Public Bikesharing

This study was conducted for a master's thesis at Virginia Tech Alexandria Center (Buck 2012). The report begins by acknowledging the current concerns that bikesharing may not be reaching residents of low-income communities or members of socioeconomic groups disproportionately underrepresented in bicycling. The study was conducted through a voluntary survey distributed to the managers of North American bike share systems, both current and planned, to identify measures they have taken to ensure equity in their programs. The survey asked respondents to "characterize the status of equity programs that provide or promote access in seven broad categories: Station siting, financial assistance, safe places to ride, interoperable fare-card media, community-specific outreach, overcoming bicycling barriers, contributing to the local economy" (Buck 2012). Of the programs surveyed, fifteen are currently in operation, while five are still in the planning stages. The results of the surveys were compiled to provide a broad picture of the various measures that programs are taking within the defined categories.

Station siting was identified as the most critical barrier to address; if there are no stations located near low-income populations, then efforts to address other barriers will have significantly less impact. The survey results indicate that a majority of programs are actively planning to install bike share stations in low-income communities, with many considering the input of these communities. The most prevalent equity program being pursued by survey respondents was to provide some form of financial assistance, similar to the Capitol Bikeshare program described previously. Five of the surveyed systems indicated plans to integrate access to the program with regional transportation fare-cards. The survey additionally asked about efforts to make resources such as helmets and basic bicycle instruction easily available, as well as ways in which the program operations directly contribute to the economic well-being of low-income communities, through active recruiting of employees from these communities, locating facilities in accessible locations, and partnering and subcontracting with community-oriented nonprofit agencies.

The study concluded by noting where additional studies are needed: "further research comparing socioeconomic traits of bikesharing users, bicyclists in general, and a region's overall population is needed to firmly establish whether or not there is a significant equity gap in bikesharing participation" (Buck 2012). For the purposes of this study, the presence of an equity gap is assumed, but it is important to keep in mind that there is limited data to support this assumption.

## Case Studies

In addition, the literature review was supplemented by in-depth case studies of current bike share programs, both in the United States and internationally. Table 1 presents a summary of the findings from these case studies. In total, ten bike share programs are evaluated in this table. The data presented for each system includes total number of bicycles and stations, membership numbers, fare information, and population demographics. In addition, research was conducted to find barriers to participation for low-income and minority community members that have been identified within each

program. Finally, the case studies included the solutions to eliminate or mitigate these barriers that these programs have implemented or are planning to in the future.

These case studies reveal that the most common barriers to participation for low-income community members are related to financial limitations and kiosk siting. In terms of financial barriers, many systems found that some potential users are held back by lack of access to a debit or credit card. Others found that the annual membership fee was cost prohibitive to some, and this barrier was addressed through subsidized memberships in some programs and installment payment plans in others. Most programs are actively seeking to expand into low-income neighborhoods, but an associated issue is that finding sponsorship for these stations can be difficult, and these stations are generally not the most profitable. Many programs hold safety trainings for members of the community to promote the programs and bike ridership in general. Although the system sizes and population demographics vary widely, the experiences of existing programs and the success of their measures to encourage equity can inform Redwood City's future practices in many ways.

In addition to the summary statistics presented in the case study table, more in-depth write-ups were completed for case study programs, both in North America and internationally. These in-depth case studies can be found in Appendix A.