



Planning for a Eugene Bike Share Program:

A Review of Programs in the United States

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INTRODUCTION

Newly released U.S. census data shows that, for the first time in a century, cities are growing faster than surrounding suburbs.¹ The scale of urbanization and density of our cities is making bicycling an ever more popular and practical mode of transportation, and cities are recognizing positive effect of bicycling and greenhouse gas reduction, traffic calming, and economic benefits to local businesses. In the US, over 40 bike share programs are emerging to meet the rise in demand for convenient access to bicycles in downtown areas, by providing their members access to bicycles for short, one-way trips within the city. Bike share programs make bike travel available to more people in urban areas and complement traditional modes of transit. With the existing bicycle infrastructure and strong political and financial support, the city of Eugene could implement a successful bike share program.

OPERATIONS

MEMBERSHIP

Bike share programs across the United States operate differently depending on the climate, population density, tourist attractions and bike-ability of the city. A number of bike share programs, especially those in the north, close during the winter season. The bike share programs in Madison and Kansas City closed in mid-December and plan to reopen mid-march for the 2013 season.

¹ Eisenstein, Paul A. "Shift to City Living Threatens Auto Industry." *The Detroit Bureau*. N.p., 28 June 2012. Web. 20 Feb. 2013. <<http://www.thedetroitbureau.com/2012/06/shift-to-city-living-threatens-auto-industry/>>.

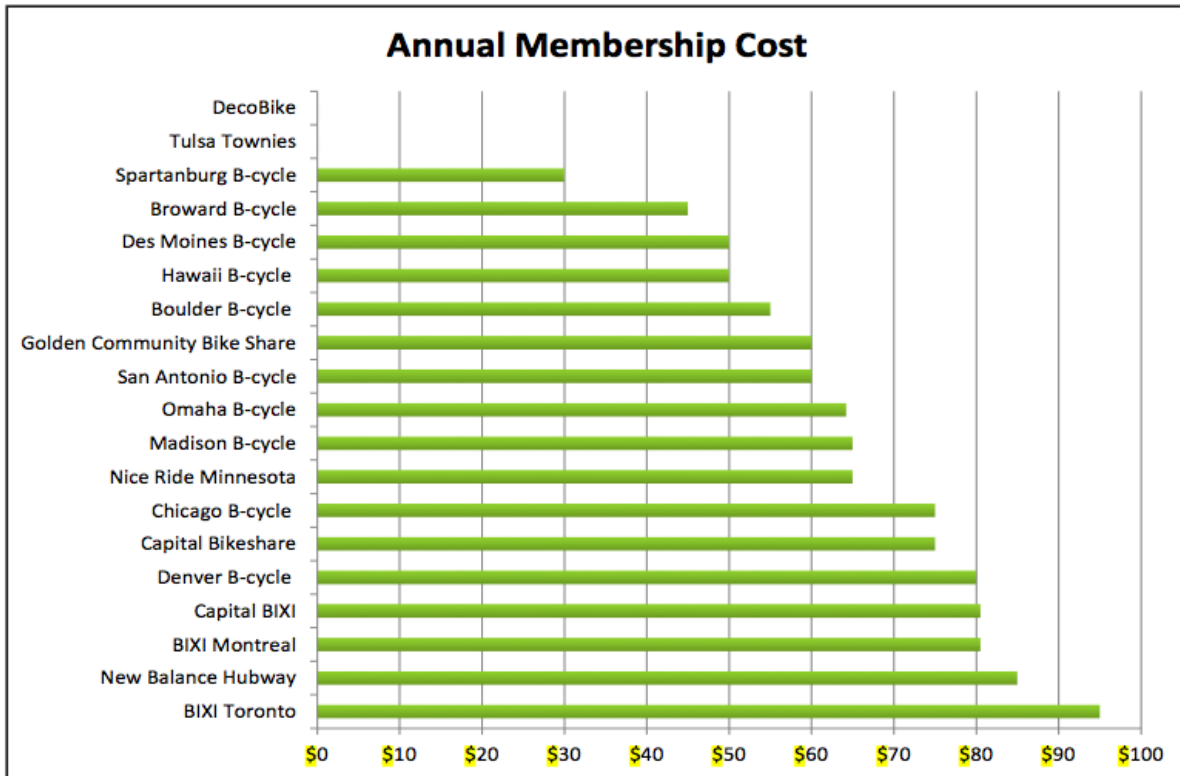


Figure 1: Annual Membership Cost (Mineta Early Users)²

The cost of renting a bike is always defined by time (day, week, month or annual pass). The average cost of an annual pass (subscription) is around \$70 and many programs with universities nearby offer discounts to students and faculty. Casual users, who buy passes by the day or month, are more inclined to rent a bike for recreational purposes, whereas annual members often use the system for a daily commute. The Mineta study indicated that 42% of bike share programs reported their user’s typical trip purpose was recreational.³ Figure 1 shows the annual usage of bike share programs, demonstrating the disparity between the large number of casual users and small number of annual memberships.

² "Public Bikesharing in North America: Early Operator and User Understanding." . Mineta Transportation Institute, n.d. Web. 1 Mar 2013. <<http://transweb.sjsu.edu/PDFs/research/1029-public-bikesharing-understanding-early-operators-users.pdf>>

³ Ibid

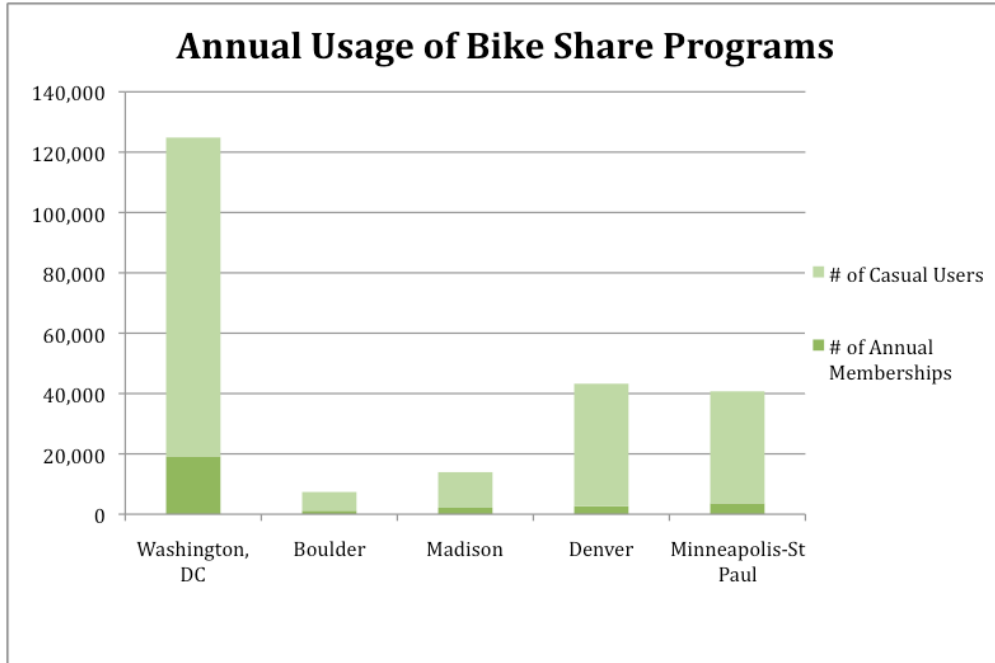


Figure 2: Annual Membership of 5 Bike Share Programs in the US

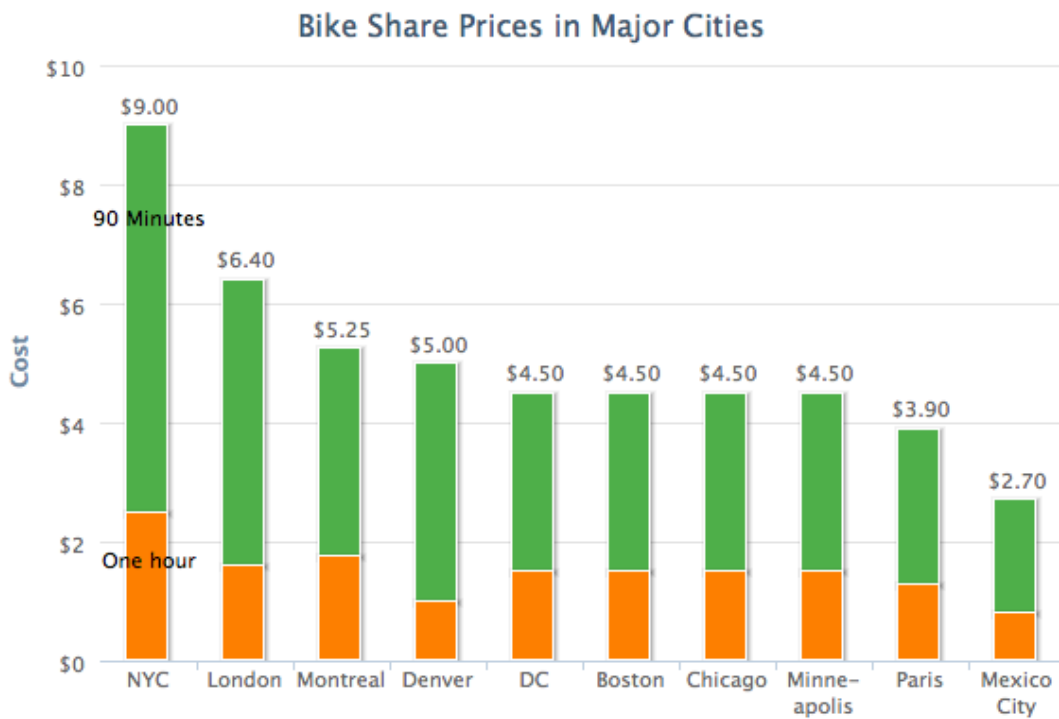


Figure 3: Bike share prices for one hour and 90 minutes intervals

STATIONS & SITING

Bike share is supported in areas with higher populations and employment densities and in university towns with lower rates of car ownership. Choosing the location of a bike share docking station depends on the city's density and a variety of other circumstances, such as business sponsor and public transit locations, but in almost all cases, a robust network of bike lanes and bicycle infrastructure existed prior to the launch of bike share programs in US cities. Operators with larger fleets generally place docking stations in close proximity to one another to help reduce the operational cost of rebalancing. Many systems have between 3.5 to 5 docking stations per square mile of service area.

Station Size (Docks)	Bikes	Equipment and Installation (Includes bikes)	Approximate Annual Operating Costs
11	6	\$35,000 to \$40,000	\$12,000 to \$15,000
15	8	\$45,000 to \$48,000	\$18,000 to \$21,000
19	10	\$53,000 to \$58,000	\$24,000 to \$28,000

Figure 4: Approximate Equipment Costs; Operating costs include rebalancing, staff and customer service support. These ranges are based on in-depth interviews in 2011 with 19 senior level project managers, directors, bicycle planners and administrators from around the country.⁴

Selecting station equipment depends on the vendor, weather and location. Docking stations can either be powered by solar or AC, which supplies electricity for operating the automated check-in/check-out. Solar is more expensive and relies on exposure to sunlight, but can be cost effective over time. AC power connected to the grid requires more infrastructure, takes longer to make, and cannot be easily moved to respond to a changing market.

REBALANCING

An important part of bike share operations is redistributing the bicycles between stations, as certain stations fill up or become empty throughout the day. Ten out of nineteen bike share operators interviewed for the Mineta study reported having to rebalance daily, but small programs with 250 bikes or less report having to rebalance only once or twice a season. In large cities like Washington, DC where bike sharing is popular with commuters, operators must rebalance continuously throughout the day.⁵ Larger systems with 50 or more stations use trucks and vans to transport and redistribute bicycles,⁶ through San Antonio's B-cycle rebalances with

⁴ "Bike Sharing in the United States: State of the Practice and Guide to Implementation." . Toole Design Group and the Pedestrian and Bicycle Information Center, n.d. Web. 1 Mar 2013. <<http://www.bicyclinginfo.org/promote/bikeshareintheus.pdf>>.

⁵ "Public Bikesharing in North America: Early Operator and User Understanding." . Mineta Transportation Institute, n.d. Web. 1 Mar 2013. <<http://transweb.sjsu.edu/PDFs/research/1029-public-bikesharing-understanding-early-operators-users.pdf>>.

⁶ "Bike Sharing in the United States: State of the Practice and Guide to Implementation." . Toole Design Group and the Pedestrian and Bicycle Information Center, n.d. Web. 1 Mar 2013. <<http://www.bicyclinginfo.org/promote/bikeshareintheus.pdf>>.

custom-made trailer pulled by a battery powered bicycle for shorter rebalancing trips. Programs in areas with lower urban densities have less need for rebalancing and lower operational costs, but also have less income from lower use. Sometimes operators incentivize their members to leave their bicycle at a station with several empty docks by rewarding them with extra time and account credit, a strategy that helps save on rebalancing costs.

MARKETING

Building excitement and buzz around the launch of a new bike program is essential for creating interest. Unveiling the new program during a popular city event with the help of a local leader is a good strategy for maximizing publicity and creating momentum for early success. As the program matures, ongoing marketing campaigns and a recognizable brand help establish the bike share program's identity with account members, city residents and tourists alike. Programs should maintain a public profile during their first years by advertising at local events, using social media and holding creative membership challenges. Denver B-cycle uses Groupon to sell 30-day memberships,⁷ and Capital Bikeshare launched a "Winter Weather Warrior" challenge that rewarded the member who posted the most trips taken from January 1st to February 28th. The winner received a three-year extension to their membership, annual membership for two friends and a \$100 gift card.

SOCIAL EQUITY

One concern of bike share program managers is the low participation and membership rates for low-income and minority communities. While surveys show that there can be many reasons for this, it is commonly a lack of access to credit card account required to create a membership at a bike share program. Capital Bikeshare in DC addressed this by partnering with a local bank to offer free checking accounts along with a reduced membership rate to low-income applicants. Denver took another approach by subsidizing memberships for new tenants in low income housing nearby a bike share station. Some programs such as San Francisco and Washington DC also have plans to integrate their stations with public transportation fare systems by reducing the overall cost if both are used during a trip.

BUSINESS MODELS

Bike share programs across the United States typically implement one of three main business models: jurisdiction owned and managed, non-profit or for profit. Before determining which business model is appropriate, stakeholders should decide the main goal of the program, which is strongly tied to and will influence funding and community involvement. Common goals include economic sustainability, increased biking and lowering greenhouse gas emissions or vehicle miles travelled (VMT). Small to medium size bike share systems from 2 to 50 stations have tended to use the non-profit model, while larger systems have greater government involvement since larger jurisdictions usually have more access to transportation funding sources.

⁷ Denver B-cycle 2011 Annual Report

JURISDICTION OWNED & MANAGED

In a jurisdiction owned and managed bike share program, the public agency or local government pays the upfront capital costs and owns the equipment, but contracts the day to day operations to a vendor. The main advantage to this model is the local government's ability to control station permitting and defining boundaries of services areas. Government risk is reduced since the vendor is liable for program operations. Compared to other business models, receiving funds may take longer because of federal restrictions, and potential conflicts can arise around advertising in public spaces. Capital Bikeshare in DC has successfully used this model; it owns the equipment and contracts the day-to-day operations to a third party operator.

NON-PROFIT

In this model, a non-profit agency in the community (such as a bicycle advocacy organization) or a newly assembled agency is chosen to operate the bike share system. It is responsible for fundraising, operations, costs and revenues, thereby removing most financial responsibility from the jurisdiction. Generally, a non-profit is more flexible than a government agency in obtaining funding from a variety of sources, and more responsive to changing user needs. The non-profit can either receive funding directly from the federal government, or the local jurisdiction can request this funding on behalf of the non-profit. Boulder and Denver B-cycle both use the non-profit business model.

FOR-PROFIT

In a for-profit model, a private company owns and operates the services and equipment and is responsible for all costs and expenses, while the government plays a limited role in siting and issuing permits. In this model, the company may raise money quickly and respond to market conditions. However, profit models might not consider social equity when designing their bike share program and appeal more to tourists than community members. The only program in the US using this model is Miami's Beach Deco Bike, but Barcelona and Paris are privately owned and operated as well.

FUNDING & REVENUE

The four basic types of funding are private, public, sponsorships, and membership and usage fees. Public and private grant funds usually cover the capital costs, while membership, user fees, advertising and sponsorship revenues cover the ongoing operational costs. Public funding can come from local, state and federal levels, but federal funding from transportation, health and sustainability oriented grant programs is most common. A possible drawback of using federal sources is the potential delay in deployment from the domestic vendor requirement, ADA considerations for station siting, and stricter timeframes. Since federal funding is usually restricted to government agencies and can only be used for capital costs, the availability of this source depends on the operator's business model.

The non-profit business model relies heavily on private funding for their initial capital costs. Health related organizations and private local foundations that support active living initiatives are the most popular private funding sources, but money can also come from individual donors, private investments and sponsorships. Both Boulder and Denver B-cycle programs report receiving 5-10% of the funding from private gifts and donations.

FEDERAL					STATE and LOCAL
U.S. Department of Transportation (USDOT) ⁵⁹		Centers for Disease Control (CDC)	Department of Health and Human Services (HHS)	Department of Energy (DOE)	
Federal Highway Administration (FHWA) ⁶⁰	Federal Transit Administration (FTA) ⁶¹				Public Health Grants
Congestion Mitigation Air Quality (CMAQ)	Job Access Reverse Commute (JARC)				
Surface Transportation Program: Transportation Enhancements (TE)	Bus Livability Pilot Programs	Health and Obesity Prevention Grant	Communities Putting Prevention to Work ⁶²	Energy Efficiency Conservation Block Grant ⁶³	Local Transportation Funds
Transportation, Community and System Preservation Program (TCSP)					
Transportation Investment Generating Economic Recovery (TIGER) Grant	Paul S. Sarbanes Transit in Parks Grant Program				
Nonmotorized Transportation Pilot Program					

Figure 5: Existing Sources of Funding Used by Bike Share Programs.⁸

The top three public bike share revenue sources are user fees, sponsorships and advertising. Most bike share programs raise revenue through user fees based on a variety of memberships, including daily passes, weekly passes, monthly memberships and annual memberships. Generally, the first half hour is free and the user pays for each additional half hour increment, which encourages short trips and high turnover.

Partnerships between bike share programs and government and the private sector are emerging as bike share programs become more popular. Programs can secure funding for an entire year of operation, as Boston’s Hubway did, or for individual stations, like Boulder and Denver’s B-cycle programs.

INSURANCE

A bike share program’s insurance coverage usually depends on whether the operator is a non-profit, government entity or private business. Each model has different requirements for employee insurance, and each has the potential to extend their coverage to the bike share program. Most bike share programs carry some form of liability coverage. One broker indicated the minimum premium for liability coverage begins at \$5,000 for a basic \$1 million policy.

Three bike share programs reported their insurance costs are less than 5% of their total operating costs. Bicycles are not insured individually, since a repair typically costs less than the insurance deductible. Generally, bike share insurance premiums are tied to the number of bicycle rides since that is a good proxy for operator risk.⁹

⁸ "Bike Sharing in the United States: State of the Practice and Guide to Implementation." . Toole Design Group and the Pedestrian and Bicycle Information Center, n.d. Web. 1 Mar 2013. <<http://www.bicyclinginfo.org/promote/bikeshareintheus.pdf>>.

⁹ Ibid

ECONOMIC CO-BENEFITS

Bicycling wheels in economic activity by the spokedload in cities and towns across the country, where investing in bicycle infrastructure paves the way for increased ridership, bike share programs and overall economic returns. After \$6.7 million investment over ten years to improve bicycle infrastructure in the North Carolina Outer Banks, the area annually hosts 680,000 visitors, who spend an estimated \$60 million on bicycle related tourism each year. Bicycle friendly Portland, Oregon saw \$90 million in bike related activity in 2008, with over 60% coming in retail, rental and repair. Bicycling and bike infrastructure can help rejuvenate a struggling commercial area. Commuter and recreational bicycling in Iowa generates more than \$400 million in economic activity annually, and results in health savings of \$87 million. In Wisconsin, the health benefits from decreased short car trips and increasing bicycling is a total of \$409 million. A revitalization project for the Broad Avenue Arts District in Memphis took off after the addition of temporary bike lanes to the streets. One local business owner said sales have gone up 30% since the project began, and another remarked that the bicycle infrastructure “was probably one of the best things to happen for my business.” People also enjoy having more transportation choices, whether they are commuting to work, enjoying their free time, or vacationing in a new area. A survey found 83% of Capital Bikeshare members in Washington, DC were more likely to visit a local business if it is located near a bike share kiosk. Bike share programs complement infrastructure by increasing ridership and improving accessibility to local businesses.¹⁰

Bicycling and bicycle infrastructure is also becoming recognized as a source of job creation and cost savings for businesses. Compared to road projects, investing in bicycle infrastructure creates up to twice as many jobs per dollar because it requires significantly less construction materials. Businesses can also attract young employees by offering wellness programs that encourage bicycling to work, and can save money through lower health insurance premiums and a healthier workforce. At \$300 for purchase and installation of an inverted U-rack that fits two bicycles, bicycle parking is much cheaper than paying \$15,000 to create a single parking space.¹¹

RECOMMENDATIONS

Designing and operating a new bike share program depends on the goals, funding, demographics and politics of each city. There is no tried and true method for implementing a bike share program yet, but results have shown that if existing bicycle infrastructure and strong political and financial support are present, a successful bike share program can be a boon to the city’s economy. Comparing current bike program trends with their host city demographics can provide some guidance for planning a successful program in Eugene. The following

¹⁰ “Advocacy Advance: Bicycling Means Business: The Economic Benefits of Bicycle Infrastructure”, Darren Flushe. 2012

¹¹ April Economides talk <http://vimeo.com/60422589>

recommendations are provided for the City of Eugene and Lane County Transit District to consider in planning and implementing a bike sharing system in Eugene.

STATIONS

The City of Eugene previously prepared a grant application for a 10 station, 100 bicycle program. Based on population density, Figure 6 shows that Eugene could support a bike share system as large of 40 stations, 400 bicycles.

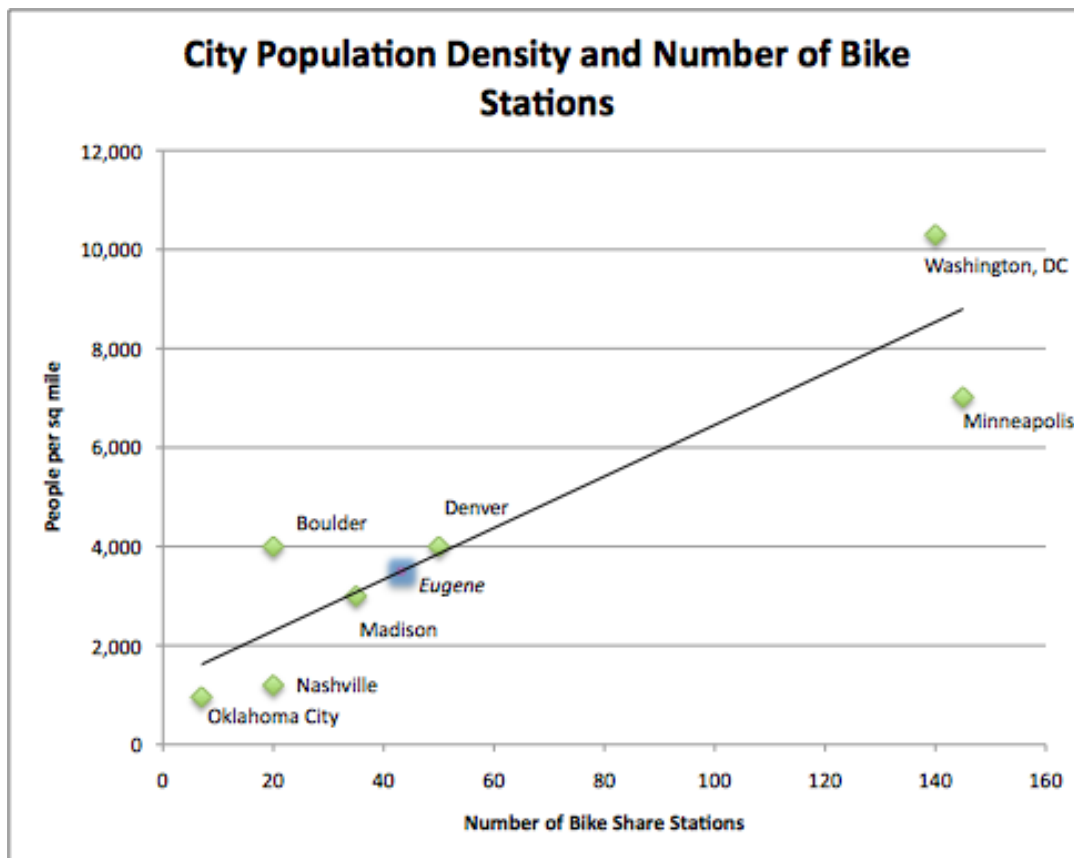


Figure 6: City Population Density and Number of Bike Stations

Figure 6 shows that cities with higher population densities typically have more bike stations. If plotted on this chart, Eugene’s approximate population density of 3,600 people per square mile would require **40 stations** with **10 bicycles** per station, or **400 bicycles total**. Population density is an important indicator for how many bike stations a city can support.

REBALANCING

In the 40 station bike model, rebalancing is a large part of operational cost and upkeep. Bikes will likely have to be redistributed between stations on a weekly, possibly daily basis, depending on usage. A smaller bike station model will require less redistribution and may only be necessary on a monthly basis.

BUSINESS MODEL

Eugene Bike Share Program should adopt a **jurisdiction owned and managed business model**, in which the City of Eugene partners with Lane Transit District to define the boundaries of the bike share stations and integrate with public transit. The bike share program could benefit by aligning with Downtown Eugene Inc. and SouthTowne Business Association.

COSTS

Figure 7 below uses per bicycle operating costs from two different sources: a March 2012 Toole Design Group and the June 2012 Mineta study. These bicycle operating costs include expenses for all system components, staff and administrative support.

Source	Per Bicycle Operating Cost			Annual Operating cost for 10 station/ 100 bicycles		
	low	average	high	low	average	high
Toole Design Group	\$4,200	\$4,800	\$5,400	\$420,000	\$480,000	\$540,000
Mineta Study		\$3,865			\$386,500	

Figure 7: Annual and per Bicycle Operating costs for 10 station/100 bike model.

Using the price range estimates for equipment, installation and operating costs from the Toole Design Group, if purchasing **40 stations** and **400 bicycles**, the Eugene bike share program can expect to pay from \$2,120,000 to \$2,320,000 for station equipment, installation and bicycles.

REVENUE

Figure 8 below averages the city population and subscription rate from four cities to estimate Eugene's potential revenue from annual membership. Using a conservative estimate of this data, Eugene's projected revenue from annual membership fees is about \$83,728 per year.

	Boulder	Madison	Minneapolis	Denver	Eugene (Projected)
Population Estimate	97,400	233,200	388,000	620,000	160,000
Subscription Rate (Percent)	1.20%	0.92%	0.94%	0.43%	0.87%
Number of Subscribers (Annual)	1,171	2,150	3,630	2,659	1,395
Annual Membership	\$65	\$65	\$65	\$80	\$60
Revenue from Annual Membership	\$76,115	\$139,750	\$235,950	\$212,720	\$83,728

Figure 8: Eugene's Projected Revenue from Annual Memberships

Figure 9 below uses a similar methodology as Figure 8 to estimate the revenue from daily memberships. This table does not include monthly or weekly fees, or fees from bikers' accumulated time. Casual memberships usually are a majority of daily users, but because accumulated time is not included, these estimates are conservative. The two charts above predict for Eugene the revenue from annual and daily membership fees at **\$138,794** total per year.

	Boulder	Madison	Minneapolis	Denver	Eugene (Projected)
Population Estimate	97,400	233,200	388,000	620,000	160,000
Subscription Rate (Percent)	6.37%	5.06%	9.56%	6.55%	6.88%
Number of Casual Subscribers	6,200	11,794	37,100	40,600	11,013
Daily Membership	\$7	\$5	\$6	\$8	\$5
Revenue from Daily Membership	\$43,400	\$58,970	\$222,600	\$324,800	\$55,066

Figure 9: Eugene's Projected Revenue from Daily Membership. This table only considers daily membership fees; it does not consider weekly memberships or additional fees from bikers' accumulated time.

SOCIAL EQUITY

As the program grows larger its operator could partner with local banks to reduce barriers to credit card and membership access.

MARKETING

There are many opportunities for marketing a bike share program, such as:

- Provide Eugene college students and faculty discounts on annual membership.
- Launch grand opening during popular local event like Lane County Fair to maximize publicity.
- Promote bike share in downtown hotels and tourism initiatives.
- Encourage PacificSource Health Care to host a Bike Share Awareness event.

FUNDING AND SPONSORSHIP

Eugene should identify opportunities for sponsorship with local health and transportation organizations, bike stores, corporate brands and non-profits with environmental or health-oriented missions.

In 2011 Boulder B-cycle aligned their brands with businesses that shared environmental and health values like Whole Foods and Crocs. Badge and Basket Sponsors put their logos on the bicycles, and Station Sponsors received recognition on the individual stations. The system's Membership Sponsor logo was on every membership card in the system. 92 percent of the first season riders said they noticed the sponsors' logos on the bikes, baskets, stations and membership cards.¹²

Other Sponsorship highlights include:

- Denver Bike Share has a number of partners and cash and trade sponsors including: Clif Bar, New Belgium, Kaiser Permanente and Chipotle
- A local bike shop and two community car share programs, Community Car and Green Cab, sponsor Madison Bike Share.

METHODS

Over 15 bike share case studies were analyzed in a spreadsheet to determine the most relevant case studies to Eugene in terms of demographics and applicable data. The spreadsheet compared a wide range of figures including: annual memberships, casual users, annual cost, city population, city population density, program business model, city median household income and number of bike share stations. The majority of this data was used for the general analysis but only a few case studies were compared to Eugene specifically.

Two reports provided the foundation of our findings about bike share programs in the United States: The Mineta Transportation Institute's Public Bike Sharing in North America: Early Operator and User Understanding, and the Toole Design Group's State of the Practice and Guide to Implementation. Both documents were released in 2012, and provide a current and comprehensive overview of bike share programs in the United States.

Our estimates for operating costs and subscription revenue are conservative, rough estimates based on average subscription rates for Boulder, Denver, Madison and Minneapolis, as explained in their relevant sections. Since this is an emerging field, there is a range in estimates for operating costs per bicycle, from \$750 to \$7,000 per bicycle. Operating cost per bicycle is a useful metric, but can vary widely from program to program and is dependent on variables that change from year to year such as sponsorships, private grants, revenue, station expansion, capital expenditures and accounting methods. Using the more conservative estimate of operating costs found in the Mineta and Toole studies Operating costs of around \$4,000 per bicycle was more appropriate for our paper and goals, as it accounts for staff and administrative support.

¹² "Boulder B-Cycle 2011 Annual Report." B-Cycle.

<http://boulder.bcycle.com/LinkClick.aspx?fileticket=wrmQ-L2GXgl%3D&tabid=429>

Email contact with B-cycle vendors led to their annual reports, which was read for information on operations, sponsorships and funding methods.

FURTHER RESEARCH

The city of Eugene can conduct a more thorough investigation of sponsorship opportunities since it is a crucial element of launching a bike share program. Eugene has excellent bicycle infrastructure but a less than robust private sector could make securing sponsorship a challenge. A more thorough investigation of Eugene's demographics would result in a clearer picture of potential revenue and cost estimates, as well as how to implement the program expansion in phases.

APPENDIX

Model	Ownership	Operations	Operating Procedures	Revenue Sources*	Potential Benefits	Potential Short-Comings	Examples*
Jurisdiction Owned and Managed	Jurisdiction	Independent contractor	<p>Provide bike sharing services under supervision of local public authority.</p> <p>Net revenues are reinvested into the program.</p> <p>Jurisdiction provides majority of capital funding.</p> <p>Contractor may use advertising and sponsorship to maximize revenues.</p> <p>All capital costs are covered by jurisdiction.</p> <p>Jurisdiction and contractor share net revenues.</p>	<p>Federal, State and local grants.</p> <p>Advertising and sponsorship.</p> <p>(Various sponsorship options including title sponsor, local businesses, advertisements on bike share equipment and communications, etc.)</p> <p>Membership and usage fees.</p>	<p>Greater control over permitting and deployment of stations.</p> <p>Reinvestment of profits is controlled.</p>	<p>Jurisdiction is financially liable for costs of program.</p> <p>Assembling funding sources may require more time.</p> <p>Some jurisdictions do not allow advertising on public space.</p> <p>Requires contract negotiation skills.</p>	<p>Capital Bikeshare (Washington, DC and Arlington County)</p> <p>Hubway (Boston)</p>
Nonprofit Business	Nonprofit organization	Nonprofit organization	<p>Nonprofit entity may be created to provide services under support of jurisdiction.</p> <p>Jurisdiction may provide some of initial capital while nonprofit charged with providing additional funding.</p> <p>Most operating costs are assumed by nonprofit.</p>	<p>Federal, State and local grants.</p> <p>Local/national foundation grants.</p> <p>Local business sponsorship.</p> <p>Membership and usage fees.</p>	<p>Reduced financial liability for the jurisdiction.</p> <p>Reinvestment of profits is controlled.</p>	<p>Reliance on fundraising for private grants can slow down deployment and expansion.</p> <p>Limited jurisdiction oversight.</p>	<p>Boulder B-Cycle</p> <p>Denver B-Cycle</p> <p>Nice Ride MN</p> <p>San Antonio B-Cycle</p> <p>Spartanburg B-Cycle</p>
For-Profit Business	Private company	Independent contractor	<p>Provide bike sharing services with minimal government involvement.</p> <p>Jurisdiction does not provide funding, only certain aspects of planning for stations.</p> <p>Percentage of profits is shared with jurisdiction in exchange for use of public space and permitting costs.</p>	<p>Private investment.</p> <p>Advertising and sponsorship on bicycles and bike sharing stations.</p> <p>Membership and usage fees.</p>	<p>Startup capital may be assembled more quickly.</p> <p>Flexibility to adjust the system to reflect changes in market.</p>	<p>Limited jurisdiction oversight.</p> <p>Requires contract negotiation skills.</p>	<p>Deco Bike (Miami Beach)</p>

Above: Bike Share Business Models¹³

¹³ "Bike Sharing in the United States: State of the Practice and Guide to Implementation." . Toole Design Group and the Pedestrian and Bicycle Information Center, n.d. Web. 1 Mar 2013. <<http://www.bicyclinginfo.org/promote/bikeshareintheus.pdf>>.