



Non-Profit Business Plan for Twin Cities Bike Share System

PUBLIC VERSION (price detail deleted from page 36)

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On behalf of:
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THANK YOU!

This Non-Profit Business Plan was made possible by the generous support of the following institutions:

Branding and Marketing:

Duffy and Partners

Legal:

Dorsey & Whitney

Participation in System Design and Vendor Proposal Evaluation:

City of Minneapolis, Community Planning and Economic Development

City of Minneapolis, Public Works

City of Minneapolis, Mayor's Office

University of Minnesota, Parking and Transportation

Metro Transit

Transit for Livable Communities

Midtown Greenway Coalition

Blue Cross and Blue Shield of Minnesota

Minneapolis Bicycle Advisory Committee

Dero Bicycle Rack Company



EXECUTIVE SUMMARY

WHAT IS THE TWIN CITIES BIKE SHARE PROJECT?

City planners across the U.S. are wrestling with a common question: how to build a public bicycle sharing system like the Paris Vélib' without covering the city with billboards? Minneapolis has an answer. In July 2008, the Minneapolis Community and Economic Development Department hired the City of Lakes Nordic Ski Foundation to create a non-profit business plan to bring public bicycle sharing to Minneapolis. With the assistance of local bicycle advocates, bike shops, the University of Minnesota, and Metro Transit, we:

- Created a proposed system design and detailed request for proposals.
- Analyzed proposals from seven vendors and reached consensus on the best.
- Developed a funding plan and submitted proposals for local government, federal, and private funding.
- Initiated promising negotiations with a potential major corporate sponsor.
- Prepared a detailed non-profit business plan showing the long-term sustainability of public bike sharing in Minneapolis.



HOW DOES PUBLIC BICYCLE SHARING WORK?

We will take the best elements from the successful European systems and marry them with new ideas to meet the needs of our cityscape, our culture, and our climate. Key elements include:

An urban bicycle: Public bikes are designed for short trips on urban streets by people wearing business attire. Bicycles may appear “clunky,” but are easy to mount, ride, and stop and have full-fenders, lights, and cargo capacity.

Where I want it: A network of solar-powered, self-service kiosks throughout the service area make it possible for people to take and return bikes where they live, work, play, go to school, and access transit.

Easy access: Subscribers insert a card and take a bike. On your way in seconds.

Price incentives for turnover: Public bicycle sharing systems use price incentives to encourage subscribers



to use the bikes and get them back to any kiosk so they can be used again. The first half hour is free to subscribers. The next half-hour costs about \$1. Subsequent half-hours cost about \$2. With price incentives in place, we can equip each bike with a temporary lock for quick trips to the coffee shop, without worrying that people will lock a bike up all day.

Clean and running smoothly: Full-time crews using small electric vehicles will clean and maintain the bicycles at the kiosks.

Web-based registration: Most users will sign up on-line, where they will receive some mandatory education about the rules of the road. An annual subscription will cost about \$50 and allow an unlimited number of rides (April through November).

Walk-up registration: Each kiosk will have a screen and credit card reader, so tourists can use the system too. A one-day subscription will cost about \$5.

Real-time Maps: Use your PDA or computer to see how many bikes are available at every kiosk at any moment.

Flexibility through innovation: The newest technology, from Montreal Public Bike System, offers kiosks that are both modular and portable, making it possible to reduce installation costs, to remove kiosks for winter and to relocate kiosks to meet demand and accommodate other uses.



WHY SHOULD WE INVEST PUBLIC FUNDS FOR BIKE SHARING IN MINNEAPOLIS?

Public Bicycles Complement Public Transportation

- Public bikes expand the area served by every bus stop and train station.
- Public bikes offer mobility downtown for transit commuters—run errands; go to lunch.
- Combined solutions—transit, car share, and bike share—make it possible to choose not to buy a car.



Public Bicycles Change Culture

- Bikes are great for short trips—fast, fun, healthy, and green—but most people reflexively get in a car.
- Although almost half of Hennepin County residents ride bicycles, only about 5% use a bicycle for transportation. Public bicycle sharing will target the other 95% of people and make bicycle transportation “mainstream.” With that attitude change, bikes will replace thousands of trips, not just downtown on public bikes, but throughout the Twin Cities on personal bikes.
- How does bike sharing take bicycle transportation from “fringe” to “mainstream”?
 - Make it easy to take a bike and go.
 - Promotional campaign—show that bikes belong downtown and build public discourse about safety and sharing the road.
 - Education—more people know where and how to bike downtown.
 - Group dynamics—feel safety in numbers; feel part of a growing trend.
 - Tap into employer wellness programs.
- Bike sharing will expand constituency for bicycle- and pedestrian-friendly infrastructure development.
- The introduction of public bicycle sharing and resulting increase in use of personal bicycles could eliminate over 1 million car trips per year and reduce carbon-dioxide emissions by over 3.5 million pounds.

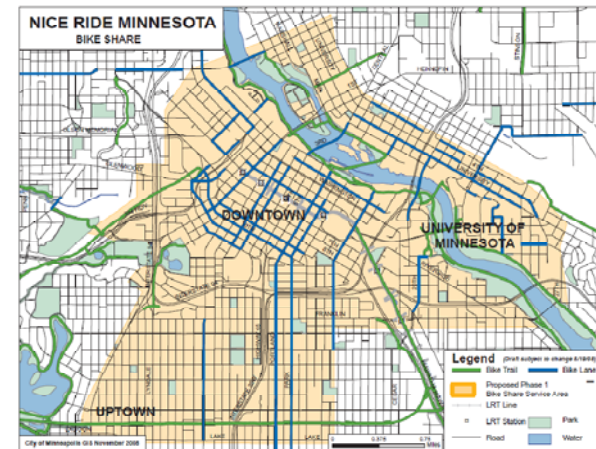


WHAT IS THE PLAN?

Proposed Phase 1 Service Area

Phase 1 will focus on the Minneapolis central business district, the University of Minnesota Minneapolis campus, and the Uptown neighborhood, because:

- A bike share system works in areas where there is both high density and mixed land uses.
- The initial phase of a bike share program should focus on the central core of a system that will later expand to areas with lower density. This approach enables the non-profit to provide the greatest level of reliability to initial subscribers while minimizing maintenance costs.
- The initial phase must also be large enough to include employment, educational, entertainment, and commercial destinations within three miles of people living and working within the area.



Start-Up Costs and Sources of Funds

Start-Up Costs

Bicycles and kiosks	\$3,200,475
Maintenance equipment and promotions	\$106,475
Salaries and administrative	\$79,963
Total	\$3,386,913

Proposed Sources of Funds for Start-Up

CPED proposed budget	\$100,000	
Mayor's proposed budget	\$250,000	
Bike/Walk Twin Cities federal demonstration project	\$1,750,000	(reduced from \$2.25m preliminary proposal)
Private sponsor contributions	\$1,025,000	
Commercial loan	\$261,913	
Total	\$3,386,913	

In-kind Contributions to Start-up (legal, marketing, ad purchase, etc.) (not-included in above) **\$680,000**

Operating Costs

Annual operating costs \$1,574,453

Operating costs will be paid for by combination of revenue from operations and revenue from corporate sponsorship.

Sustainability

The business plan demonstrates the long term sustainability of a non-profit owned bike share program using:

- Comprehensive start-up and operating costs budgets based on actual bids submitted by Montreal Public Bike System and Dero Bicycle Rack Company (a Minneapolis company).
- A pro forma cash flow summary utilizing conservative assumptions and appropriate contingency reserves demonstrating that the non-profit will generate sufficient cash flows to meet its operating requirements and purchase replacement equipment as bicycles and kiosks reach the end of their useful lives.



Scalability

Although with more start-up funds, we can build a larger system, the converse is not true. A smaller service area would significantly reduce the value of the system to subscribers and undermine a business plan dependent on subscription sales. We cannot reliably serve the proposed service area with less equipment investment than proposed. We do not believe that a lower cost system could be both open to the public and self-sustaining.

Community Outreach

The business of the non-profit will go far beyond operating a bike share system. The non-profit will:

- Use its resources to introduce youth to safe cycling and teach bicycle maintenance.
- Use its subscriber lists to grow the constituency for bicycle- and pedestrian-friendly development.
- Use its hiring capacity to place disadvantaged youth in internship positions in the maintenance program.
- Use its data to create web-based employee wellness incentive programs.

OPPORTUNITY TO LEAD

Minneapolis has a unique opportunity to be the first U.S. City to launch a full-scale public bicycle system:

- Public bike sharing is a green, healthy solution that will improve our streetscapes and showcase Minneapolis as a city where great ideas come to life.
- The City has made, and continues to make, great strides to improve infrastructure for safe cycling. Bike sharing will increase the constituency for bicycle- and pedestrian-friendly development.
- Private corporations will make cash and in-kind contributions to fund over a third of the total cost of the system.
- Public bicycle sharing is a strong candidate for federal funding through the Bike/Walk Twin Cities program. It will have an immediate impact on bicycle transportation and will demonstrate how U.S. cities can create sustainable systems.
- By embarking on a bold and innovative approach to changing mode share, the City is more likely to see new federal funds for more pedestrian and bicycle infrastructure projects in the future.
- Equipment and maintenance vendors are motivated and ready to install a superior system in Minneapolis in 2009 to open the U.S. market.
- Citizens and businesses want green, healthy solutions now.



Business Plan

CONTENTS

Description of Opportunity	10
Non-Profit Structure and Mission Statement	13
Business Model and Proposed Contracts	14
Proposed System Design	18
Size of the System and Timing of Introduction	22
Marketing Plan	27
Programming to Drive Subscription Sales and Further Non-Profit Mission	29
Kiosk Location	30
Cyclist Safety	31
Impact on Transportation Mode and Environmental Benefits	34
Start-Up Costs and Sources of Funds	36
Operating Revenue Analysis	39
Operating Cost Analysis	41
Cash Flow Analysis	48
Conclusion	49

APPENDICES

A. Metro Transit Letter of Support
B. Uptown Neighborhood Association Letter of Support
C. Desired Elements of Proposed Minneapolis Bike-Sharing System
D. Montreal Public Bicycle System Proposal
E. Montreal Public Bicycle System Pricing Supplement (confidential)
F. Montreal Public Bicycle System Technical Illustrations
G. Summary of Initial Discussion Following Vendor Presentations (confidential)
H. Comparison of Potential Vendor Proposals (confidential)
I. Discussion of Operating Costs Analyses and CoLNSF Recommendations (confidential)
J. Dero Bicycle Rack Company Proposal
K. Duffy & Partners Brand Identity Proposal
L. Sensitivity Analysis for Theft and Vandalism Replacement Rates



DESCRIPTION OF OPPORTUNITY

A little history:

Public bicycle sharing has been around for decades. New technology has made it work for large cities. That technology enables a subscriber to access a clean, well-maintained bike at the swipe of a card from a network of self-service kiosks throughout an urban area. The Paris Vélib', which in its second year will grow to over 28,000 bicycles in 1,700 kiosks, is the flag ship, but it has plenty of company around the world. There will soon be over 100 European cities with public bicycle sharing systems. Tel Aviv, Shanghai, Montreal and Beijing also have systems in the works.

The initial successful European systems have been owned and operated by advertising companies and capitalized through sale of billboards or parking revenues. In North America, the advertising industry is unlikely to drive the industry outside of the largest advertising markets. U.S. cities are reluctant to forego outdoor advertising or parking revenues. Some city planners believe the street furniture ownership model does not adequately align interests between the owner of the system and the public users.

Why a non-profit corporation?

The City of Minneapolis has proposed a non-profit ownership model for a public bicycle sharing system. This model is the right one for the Twin Cities.

1. The non-profit mission is aligned with the interest of public users. Economic interests also align, because, unlike advertising companies, the non-profit must sell subscriptions and satisfy its customers to survive.
2. The non-profit corporation can obtain capital funding needed for initial equipment purchase through public subsidies and private sponsorship. A non-profit corporation is well-positioned to operate the system at a low cost by using local contractors and employees and by obtaining cash and in-kind sponsorship.
3. The non-profit corporation can leverage the popularity of bike sharing to accomplish important social benefits, including:
 - o Education about cyclist safety and the potential to reduce car-dependency,
 - o Coordination with employer wellness programs to create incentives for healthy lifestyles, and
 - o Advocacy for bicycle- and pedestrian-friendly infrastructure.



Figure 1 Paris Vélib'

"Our society is far too dependent on cars for transportation and trips of under five miles. I would challenge everyone to try to replace at least one car trip a week with a bicycle trip or walk. The environment, and your body, will thank you."

NPR Blog 8/26/08



What are the critical design elements of a successful public bike sharing system?

The new public bicycle sharing system will take the best elements from the successful European systems and marry them with new ideas to meet the needs of our cityscape, our culture, and our climate. Core elements critical to the business success of existing systems include:

An urban bicycle: Public bikes are designed for short trips on urban streets by people wearing business attire. Successful systems have bicycles that may appear “clunky,” but are easy to mount, ride, and stop and have full-fenders, lights, and cargo capacity.

Easy access: Annual subscriptions purchased on-line coupled with immediate access to a bike at any kiosk dock make it easy to take a public bike for a ride.

Where I want it: A network of kiosks throughout the service area make it possible for people to take and return bikes where they live, work, play, go to school, and access transit.

Price incentives for turnover: Successful public bicycle sharing systems use price incentives to encourage subscribers to use the bikes and get them back into a dock so they can be used again. The first half hour is free to subscribers. The next half-hour is inexpensive. Subsequent half hours become more expensive.

Clean and running smoothly: Every successful program has full-time crews cleaning and maintaining the bicycles at the kiosks.

A system large enough for subscribers to rely on: Planners in Paris, Barcelona, and Lyon recognized that a small scale bicycle sharing program is not a public transportation system. A minimum size is required. The minimum size system will be sufficiently large that subscribers will feel confident that they will find a bike when they want one and empty docks at their destination. Below that size, subscription revenue will decline and price incentives will not function properly to create turnover.

Negative attributes of the existing systems include high infrastructure costs associated with permanent, hardwired structures and the corresponding difficulty in addressing changes in or unanticipated usage patterns. Systems designed in the last year have solved these problems by creating modular, portable kiosks that can be installed, moved, and expanded quickly and inexpensively. A portable kiosk system makes it possible to remove kiosks from streets and sidewalks during winter, reducing damage caused by exposure to salt and conflicts with snow removal activities.

How will public bicycle sharing benefit Minnesotans?

Public bicycle sharing will be an integral component of our public transportation system. Public bikes expand the reach and convenience of public transit by making it easy for the commuter to ride a bike from the transit stop to work or school. Public bikes give commuters a means to make short trips by bicycle while downtown. When a student or young worker decides not to buy a car because the best and



most cost-effective transportation solution is a combination of transit, car-share, and bike share, the cycle of car-dependence is broken. By making transit more convenient at almost no added cost, public bikes tip the balance.

Public bicycle sharing will change “car culture” and increase bicycle mode share. The Twin Cities has a strong foundation on which to build multi-modal transportation incorporating biking and walking. We value physical activity. Thousands of Twin Cities residents bike and walk for recreation every day. We have made essential investments in infrastructure. We have hundreds of miles of off-road bike and pedestrian trails. Although our downtown bike routes and sidewalks are not everything we want them to be, they are far better than in most American cities, improvements are in the works, and adding public bicycle sharing will be a catalyst for further improvements. What we need is a change in attitudes and perceptions. We have a small group of residents who are passionate about bicycle commuting, but most Twin Cities residents think of the bicycle as recreational equipment, not transportation. It never crosses their mind to use their bike as transportation, no matter how short the trip or nice the weather. Many people perceive downtown streets to be intimidating. Bicycle sharing changes those perceptions by placing bicycles in the areas with the greatest perception challenges. Public bicycle sharing has proven to be a powerful tool to change these attitudes in other cities and will change attitudes in the Twin Cities as well. Public bicycle sharing will become an important component of employee health and wellness programs for downtown workers. People who now ride their bikes around lakes will ride downtown for both exercise and transportation. As the number of riders in the bike lanes increases, riders will feel safer. More drivers will know what it feels like to be on the outside of the windshield looking in. The constituency for safe, livable streetscapes in the Twin Cities will grow.

Opportunity for Minneapolis to lead.

The City of Minneapolis has correctly identified the non-profit business model as the right one for public bicycle sharing in U.S. cities. This business plan will demonstrate that a non-profit business plan is financially sustainable. The non-profit business model is dependent on public subsidy and private donations to fund the initial acquisition of bicycles and kiosks. Due to the availability of federal demonstration-project funding through the Bike/Walk Twin Cities program, we have a unique opportunity to launch a bike sharing program sufficiently large to serve the heart of a major U.S. city in 2009.



NON-PROFIT STRUCTURE AND MISSION STATEMENT

The City of Minneapolis has retained the City of Lakes Nordic Ski Foundation (CoLNSF) to prepare a non-profit business model for the Minneapolis bike sharing program. CoLNSF is a Minneapolis-based non-profit. Although most well-known for our annual cross-country ski race, we also host triathlon and running events. Our outreach programs introduce underprivileged children in Minneapolis schools to healthy lifestyles through outdoor activities and nutrition. CoLNSF has built a financially stable non-profit business by combining revenues from sponsorship, user fees, private contributions, and community grants.

This business plan could be implemented by a new or existing local non-profit. The CoLNSF Board has expressed interest in executing this business plan through the creation of an affiliated non-profit corporation if the proposed capital funding is approved. Benefits of this approach could include reduced administrative expenses for both entities through, for example, shared employees and office space.

The new non-profit corporation would be created to qualify under Internal Revenue Code section 501(c)(3) for exemption from federal income taxes and to allow private contributors to take income tax deductions for donations to the non-profit. Although receipt of certification of 501(c)(3) status may take several months, our counsel sees no impediment to that certification and no problem with working on a “pending” basis until certification is complete.

The new non-profit should also apply for exemption from Minnesota state and local sales taxes due to its charitable purpose. Our counsel has advised that the standard for approval for a sales tax exemption has historically been more stringent than for 501(c)(3) status, but that standard is likely to be revised in the near future. Our counsel has further advised that it is likely that the new non-profit will be able to obtain the sales tax exemption through the exemption process or legislative act.

The mission statement of the new non-profit will be created by its founding Board of Directors. We recommend that the founding board include the following principles in the non-profit’s mission statement:

- Promoting bicycle transportation.
- Promoting bicycle-friendly and pedestrian-friendly development.
- Promoting healthy lifestyles.
- Providing opportunities for the public to reduce dependence on automobiles and the consumption of fossil fuels.
- Educating cyclists and drivers to enhance safety and acceptance.

Development trends have led to increased traffic congestion and made public transit, walking, and biking less safe and practical. In fact, 75% of trips under one mile are made by car.

- In 2005, 37% of Minnesota adults reported being overweight, and 23% were obese.

- Only 38% of Hennepin County adults and 50% of sixth-graders get recommended levels of moderate physical activity each week.

Hennepin County Active Living
Brochure (2007)



BUSINESS MODEL AND PROPOSED CONTRACTS

Business Model

This business plan is based on the following model:

1. The non-profit will be capitalized with public subsidy and private contributions and will use that capital to purchase the equipment required to operate a bicycle sharing system.
2. The non-profit will generate approximately 80% of operating revenues from the sale of subscriptions and other user fees. The remaining 20% will be generated from on-going private sponsorships. Operating revenues should be sufficient to:
 - a. Pay on-going operating costs (the largest costs will be for maintenance, system operating contract, payroll, replacements due to theft and vandalism, and insurance),
 - b. Build community outreach programs, and
 - c. Accumulate sufficient reserves to replace bicycles and kiosks at the end of their useful life.

For bicycles, the useful life is five years (Montreal Public Bike System offers a five year warranty). For kiosks, the useful life is approximately 10 years. The non-profit is projected to accumulate reserves in years 1-4 and 6-9, and spend down reserves in years 5 and 10 according to the schedule for replacement of bicycles and kiosks. A projected positive reserve account balance in year 1 (start-up), year 5 (greatest number of bicycle replacements) and year 10 (greatest number of kiosk replacements) indicates a sustainable business model.

The assumptions used in the following analyses are conservative. To the extent that revenues exceed projections or costs are less than projected, the non-profit corporation will be in position to incrementally expand the system and increase expenditures on community outreach. It is assumed that a major expansion of the system would require a second round of capital subsidy. We will actively seek corporate sponsorship and federal support for major expansion.



Proposed Contracts

Equipment Purchase Agreement and Operating Agreement with Bike Share System Vendor

We anticipate that the non-profit corporation will sign two agreements with a system vendor: (1) an initial purchase agreement for bicycles, kiosks, spare parts inventory, and initial installation services, and (2) a multi-year software license and operating agreement covering the provision of back-end services.

In the procurement process, we provided to each vendor a “Pricing Supplement to Request for Proposals” which defined the division of responsibilities between the bike share system vendor and the local non-profit as follows:

Bike Share Vendor Supply	Local Non-Profit Supply
All equipment, including bikes, kiosks, cards and spare parts (excluding maintenance vehicles)	Selection of kiosk locations; local permitting
Initial kiosk installation	Marketing and promotions
Major repairs to kiosks	Maintenance, repair and rebalancing of bicycles
Training for local maintenance and repair staff	Maintenance vehicles and equipment (except tools specific to bike)
Warranty on bikes and kiosks (products under warranty could be replaced, repaired by manufacturer, or repaired locally with reimbursement)	All movements of kiosks after initial installation (including seasonal removals and storage)
Bike share back end application and service:	Regular maintenance and minor repairs of kiosks
<ul style="list-style-type: none">Database of subscriber information, user agreements, usage data, etc.	Web site (build, host, maintain)
<ul style="list-style-type: none">On-line registration interface (linked to local webpage)	Customer service (except financial transactions and registration)
<ul style="list-style-type: none">Walk-up registration interface	Insurance
<ul style="list-style-type: none">Communications between kiosks, web site, and application	
<ul style="list-style-type: none">Data Security/Privacy	
<ul style="list-style-type: none">Financial transactions	
<ul style="list-style-type: none">Real time system map (linked to local webpage)	
<ul style="list-style-type: none">Data reporting (usage, repairs needed, rebalancing needed, etc.)	
<ul style="list-style-type: none">Technical service	
Customer service for registration/financial transactions.	

The Pricing Supplement also solicited proposals regarding warranties, limitations on price increases for replacement equipment, licensing requirements, and branding requirements. Attached as Confidential Appendix E is a copy of the completed pricing supplement of Montreal Public Bike System.



Maintenance Agreements with Local Contractors

The following services will be performed locally:

- Spring set-up of the kiosks (requires boom truck and or flatbed and fork lift and operators)
- Regular maintenance of bicycles and kiosks (typically performed by bicycle mechanics working from on-street electric vehicles and in a central repair facility)
- Rebalancing of bicycles (typically performed by seasonal employees working evenings)
- Fall removal and storage of bicycles and kiosks (interior, cold storage)
- Off-season bicycle tune-ups

The services could be performed either by employees of the non-profit or by local contractors. We have received a proposal from Minneapolis-based Dero Bike Rack Company to perform these services. See Appendix J for a copy of that proposal and additional information regarding Dero. The maintenance expenses contained in this business plan reflect the prices contained in that proposal. If the non-profit chooses to retain employees or other local contractors to perform those services, it will do so at a lower net cost.

Agreements with Local Governments

We anticipate that the non-profit may sign separate agreements with the City of Minneapolis, the University of Minnesota, Metro Transit, and Hennepin County. These agreements could address the following points:

1) Right of Way Usage

We understand that individual kiosk locations will go through applicable review processes and that required permits must be obtained. We also believe it makes sense to address some issues in a master contract applicable to all kiosks, including:

- License to operate public bicycle sharing in right of way, including agreed-upon advertising or sponsor recognition, subject to permit approval.
- Fee waivers.

2) Grant of Funds, Conditions on Use of Funds, Performance Requirements

We understand that any grant of local government funds to the non-profit will be conditioned on the use of those funds for certain purposes and may be accompanied by performance requirements.



3) Other Support

Other forms of support may be memorialized in contracts, such as a commitment by the City of Minneapolis to purchase a certain number of memberships for employees or joint marketing agreements.

Federal Grant Agreement

We understand that any grant of federal funds will be conditioned on the use of those funds for certain purposes and may be accompanied by performance requirements. We understand that the federal funding may be used for the acquisition of equipment (bicycles and kiosks) by the non-profit, and intend to use the federal grant for that purpose. We understand that the City of Minneapolis would serve as “fiscal agent” for acceptance of the federal grant funds and payment of invoices for equipment purchases would be made by the City on behalf of the non-profit.

Loan Agreements

We anticipate that the non-profit will enter into a 4-year loan agreement to finance the acquisition of electric maintenance vehicles and other maintenance equipment. The non-profit may also enter into a 10-year business loan to cover the gap between Start-Up Costs and Sources of Funds. This loan will likely require a security interest in the bicycles and kiosks.

If a federal grant is approved, but payment of that grant is delayed, the non-profit may seek short term “bridge” financing.



PROPOSED SYSTEM DESIGN

Design and Vendor Selection Process:

Appendix C is the Desired Elements of Proposed Minneapolis Bike Sharing System. This document was prepared with input from representatives of the Minneapolis Community Planning and Economic Development Department, Minneapolis Public Works, Minneapolis Mayor's Office, University of Minnesota Parking and Transportation office, Metro Transit, Transit for Livable Communities, Midtown Greenway Coalition, Dero Bicycle Rack Company, Freewheel Bike, Erik's Bikes, Penn Cycle, Varsity Bikes and several interested individuals. On August 21, 2008, we solicited proposals for the purchase of equipment and services consistent with these Desired Elements.

On September 26, 2008, we received proposals from the following potential vendors:

1. B-Cycle (joint venture of Humana, Trek, and Crispin Porter), Boulder, Colorado
2. Veloway (subsidiary of Veolia Transportation Inc.), Boston, Massachusetts and Paris, France
3. Stationnement de Montréal /8D Technologies Inc., Montréal, Québec
4. City Bike/Ryan Chase & Companies, Maple Plain, Minnesota
5. Central Specialties Ltd/Collegiate Bikes, Crystal Lake, IL
6. Smoove (subsidiary of Deister Electronics Group), Montpellier, France
7. Library Bikes, Arcata, California

Based on review of the written proposals, we invited five potential vendors to present to our group of reviewers, which included representatives of the same organizations listed above, excluding the bicycle retailers due to presentation of competitive pricing information. Confidential Appendices G, H, and I contain a comparison of the proposals and our recommendations. Following the five vendor presentations and two discussion sessions, our group concluded that this business plan should be based upon the proposal submitted by Stationnement de Montreal/8D Technologies. There was strong consensus among the review group that the Montreal Public Bike System offered:

- innovative equipment designed to be both rugged and flexible and to minimize adverse impacts on pedestrian traffic,
- proven "back end" software and customer service,
- the capacity to provide all of the desired elements, and
- favorable operating costs due to longer warranties and limits on future price increases.



An important benefit of the Montreal system is its modular, portable design. The heart of the system is a “technical base,” into which docks and pillars can be inserted as “plug and play” components. Because the technical base is ballasted, the system can be installed at any level location (street or sidewalk) without bolts or other means of attachment. The system is designed to be easily assembled in the spring and disassembled for winter storage.



Figure 2 The Montreal Public Bike System.

At the time of our review of proposals, Smoove/Deister Electronics was introducing a new generation bicycle sharing system. Smoove's innovation is placement of the electronics on the bicycle, increasing the flexibility and decreasing the cost of the kiosk. Important concerns about the system include the high cost of bicycle replacements due to theft or vandalism and the inability to provide service to walk-up users. Our review group concluded that further review of the Smoove product line would be valuable when prototypes are available.



Elements of the Montreal Public Bike System

Detailed descriptions of the Montreal Public Bike System are contained in Appendices D and F. Elements relevant to budget planning are listed below:

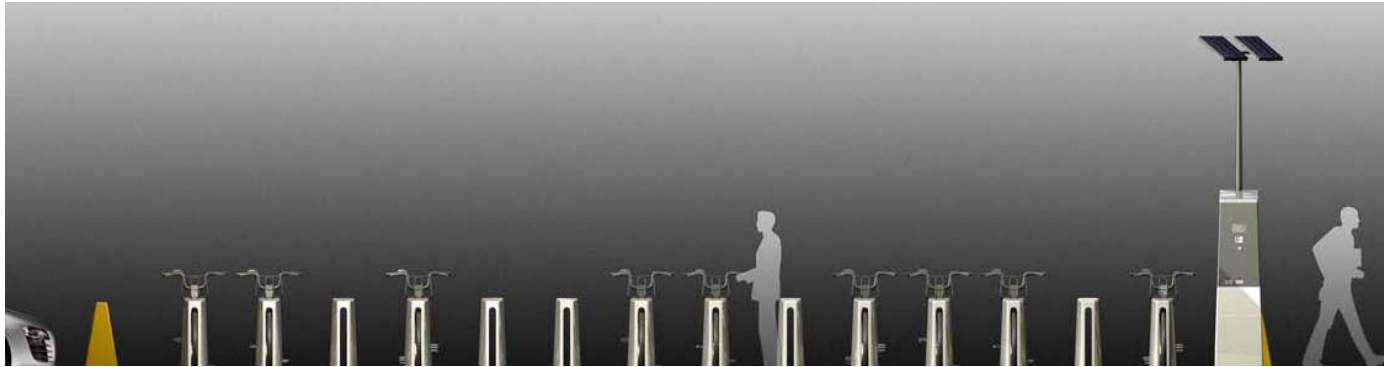
1. Bicycles

- 5-year warranty on entire bicycle, excluding parts that have a short replacement cycle (like tires, tubes, light bulbs, bungees, chains); PBS would be responsible for other parts that fail, unless the failure was caused by something unrelated to riding the bike
- Bicycles should be replaced after 5 years, although some parts may be re-used (such as the bicycle frame, after re-painting)

2. Kiosk

- Each kiosk is comprised of modular components:
 - A pay station (or pillar) containing a central processing unit and the electronic components necessary for walk-up transactions, including a touchscreen, credit card reader, printer, and a bill/coin handler with vault.
 - The 8D pay station can also be utilized as a multi-space parking meter.
 - The pay station provides the power source for the kiosk, either through a solar mast or A/C.
 - The pay station communicates with a system server wirelessly.
 - Docks capable of holding one bicycle. The bicycle is held into a dock with a bolt-type locking mechanism that is integrated into the bicycle. Each dock has a RFID card reader and touch pad, so subscribers can immediately access a bike at the dock by inserting a card and typing a PIN.
 - Technical bases. Each technical base has “plug and play” capacity for either four docks or three docks and one kiosk. By connecting technical bases together, a kiosk can be assembled with the following numbers of docks: 3, 7, 11, 15, 19, 23, etc. Each technical base is 10 feet long.





3. “Back-End”

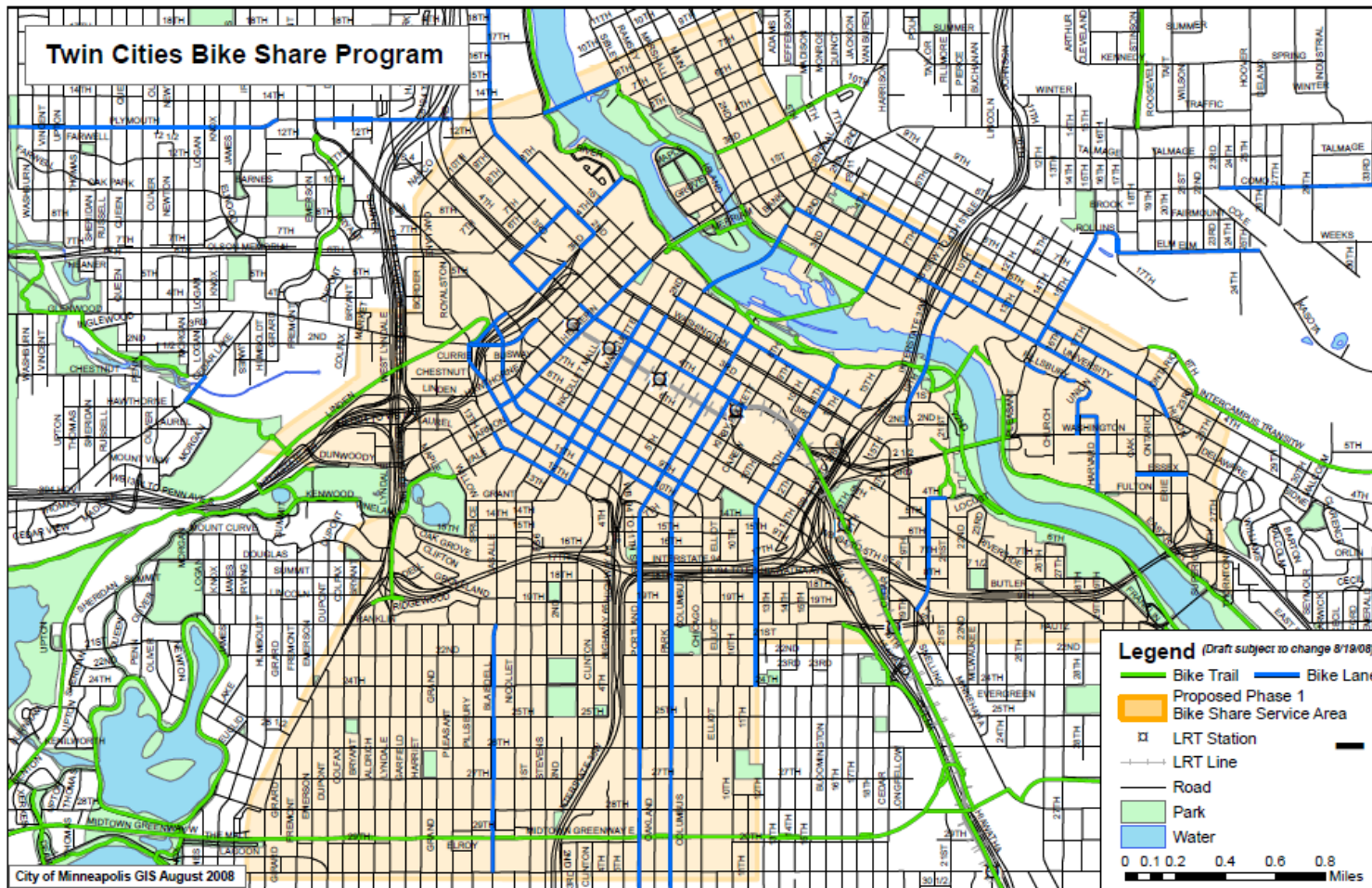
- 8D has developed and will host the operating system software, which includes the following functionality:
 - Subscriber registration: 8D collects registration information via pay station transactions (for walk-up users) and via a web interface. This information will include name, address, e-mail, credit card numbers, consent to user agreement, etc. This data will be housed on 8D servers. The system has the capacity to verify accounts and withdraw a deposit on the credit card account. The nonprofit corporation will integrate the web page registration interface into the system web site, which will be created and hosted locally.
 - Financial transaction processing: The primary transaction types will be:
 - Annual, 7-day, and 1-day subscriptions purchased on-line or at a pay station.
 - Fees charged for rides exceeding the initial free period (1/2 hour)
 - Withdrawal of damage or theft deposits
 - Real-time mapping: The system will provide a real-time map showing the number of bicycles at each kiosk location at all times. This map will be available to the public on the non-profit’s web site.
 - Maintenance reports: The system will generate reports to advise maintenance staff (1) where to rebalance bicycles (from and to), (2) the location of bicycles that have been identified by a customer as needing service, and (3) the location of bicycles requiring periodic regular maintenance.
 - Usage data: The non-profit will utilize usage data to evaluate the success of the program and also to develop employer-based health and wellness incentive programs.



SIZE OF THE SYSTEM AND TIMING OF INTRODUCTION

Proposed Phase 1 Service Area

The Proposed Phase 1 Service Area is focused on the Minneapolis central business district, the University of Minnesota Minneapolis campus, and the Uptown neighborhood.



Primary reasons for this selection include:

- A. A bike share system functions best in areas where there is both high density and mixed land uses.
- B. The initial phase of a bike share program should focus on the central core of a system that that will later expand to areas with less density. This approach enables the non-profit to provide the greatest level of reliability to initial subscribers while minimizing maintenance costs.
- C. The initial phase of a bike sharing system must also be large enough to include many employment, educational, entertainment, and commercial destinations within three miles of people living and working within the area.

We asked each of the seven respondents to the request for proposal to evaluate this proposed Phase 1 service area. Each agreed that the Proposed Phase 1 Service area offered a good balance between capturing the largest population of potential subscribers and destinations and maintaining a compact district to provide reliable service.

Statistics for Proposed Phase 1 Service Area

Size	7.75 square miles
Longest in-system ride	5 miles (Lake & Hennepin to UofM east bank campus)
Residential population	100,200 (2000 census)
Employment population	200,000 (estimate)
Students attending classes in service area	70,890
Hotel rooms	6,000
Bicycle commuters	4,600 (2006 estimate)
Bicycle mode share percentage	2.5% (2006 estimate)
Public transportation (bus and train) mode share percentage for commute to CBD:	40% (2007)
Population of Minneapolis-St. Paul-Bloomington MSA	3,175,041 (2006)
Annual tourist trips to metro area	10.98 million
Annual business trips to metro area	7.32 million



Future Expansion

A central goal of the non-profit will be to move quickly from the Minneapolis-based core to regional service. Targets for expansion will include:

- The St. Paul central business district and the commercial and educational centers near Grand Avenue.
- Areas of high density and mixed-uses along major transit corridors.

The plan for expansion will include applications for future capital grants. It is anticipated that demonstrated success in Phase 1 will facilitate the availability of future public subsidies and private sponsorship to purchase equipment needed for expansion.

Proposed Number of Bicycles and Kiosks

The request for proposals and preliminary funding plan for the Twin Cities Bike Share project have been based on a system comprised of 1,000 bicycles and 75 kiosks. We continue to believe 1,000 bikes is the right target. There are two primary considerations relevant to system size:

1. To accomplish cultural change, the size of the system must be sufficiently large to enable a “fringe” activity to become “mainstream.”
2. To be successful, the system must be large enough to convince subscribers that there will be a bike available when I want it and an empty dock near the places I want to go.

Our target is to launch a system with the minimal size necessary to accomplish those goals, allowing a margin for error.

One method of evaluating the size of a bike share system is by projecting the number of annual subscribers and one-day users, and then determining the number of bicycles needed to serve that demand. A conservative estimate of subscription sales follows:



Proposed Phase 1 Service Area	Population Estimate	Projected Annual Subscription Rate	Projected Number of Subscribers
Residents	100,000	5.0%	5,000
Workers	200,000	3.0%	6,000
Students	50,000	7.0%	3,500
Total annual subscribers	350,000		14,500
One-day subscribers			50,000
Seven-day subscribers			2,000

Vendors estimate, based on successful European systems, that a range of 13-20 subscribers per bicycle can be maintained. (Paris has only 8 subscribers per bike, but has a greater proportion of one-day subscriptions than other cities.) The proposed estimate of 1,000 bikes for 14,500 subscribers, or 14.5 subscribers per bike, is reasonable.

We anticipate that, if we launch the system with substantially less than 1,000 bikes, it will be necessary to limit subscription sales at an early point. For example, if the system contained only 800 bikes, we would anticipate capping annual subscriptions sales at approximately 15,000 subscribers.

Another method of evaluating the size of a bike share system is by comparison to other successful systems during their first year of operation. When drawing these comparisons, some important differences between them should be noted:

- The Paris Vélib' system has an annual subscription price (approximately \$40) similar to the proposed Minneapolis price, but, to encourage tourist use, the Vélib' system offers low prices on one-day subscriptions (only 1 Euro). As a result, Vélib' had over 3.6 million one-day users in year 1.
- The Barcelona system is restricted to residents who are annual subscribers.
- The Lyon system offers a very low annual subscription price (only \$7).
- In the proposed Minneapolis Phase 1 Service Area, a substantially greater percentage of people live outside the service area and commute into the service area daily. For this reason, residential population usage will understate total Minneapolis system usage in comparison to these European cities.

All three of these systems experienced demand greater than their initial supply of bicycles and have subsequently greatly expanded their systems.



Statistics for First Year of Operations

City	Number of Bikes	Square Miles within Service Area	Bikes per Square Mile	Residents within Service Area ¹	Residents Per Bike
Paris	16,000	37.1	432	2,166,200	135
Lyon	3,000	17.4	173	466,400	155
Barcelona	3,000	19.3	155	1,000,000	333
Montreal (launch 4/09)	2,400	9.3	259	356,200	148
Minneapolis (proposed)	1,000	7.8	129	171,090	171

Based on these comparators and on the responses to our request for proposal, we believe that a 1,000-bike system is an appropriate target.

Timing of Introduction

We propose to launch the bicycle sharing system in the spring of 2009. If the core components of capital funding are in place by mid-January, we will be able to meet that goal. Stationnement de Montreal and 8D Technologies are in manufacturing and can deliver equipment to Minneapolis within four months after receiving firm orders.

If funding cannot be secured in time for a system launch before mid-summer 2009, we will recommend that that an introductory launch be completed in 2009, with the scale launch delayed until April 2010.

¹ In Montreal and Minneapolis residential totals, student population within the service area is included.



MARKETING PLAN

Core elements of each successful bike sharing program have included:

- A local identity and unique brand,
- A major promotional effort corresponding with the launch of the program to
 - Create awareness of the service and drive subscriptions
 - Facilitate education about safety and traffic laws
 - Encourage public discourse demonstrating that bicycles belong on city streets, led by public officials.

Working on a pro bono basis, Duffy and Partners have created a proposed identity for the bicycle sharing program: Nice Ride or Nice Ride Minnesota. The proposed logo:



Attached as Appendix K is a portfolio of brand materials proposed to create a unique, local identity for bike sharing in Minnesota.



We have received strong interest from a large local advertising firm to assist the non-profit to prepare television, radio, and print advertising materials to announce the launch of the bike share program. We are currently in negotiations with local television, radio, and print media outlets to obtain donated advertising time and space. We are also in discussions with the University of Minnesota, Augsburg College, and Metro Transit to reach out to students and transit riders through existing information channels. We will also market the system through internet advertising targeted at likely subscribers.

Even absent the promotional effort, the launch of public bicycle sharing in Minneapolis will be a major local media event and will attract national coverage as well.

Early promotions have proven effective to drive subscriptions. In the case of Paris Vélib', over 13,000 annual subscriptions were purchased on-line before the system opened for use.



PROGRAMS TO DRIVE SUBSCRIPTION SALES AND FURTHER NON-PROFIT MISSION

The largest revenue source for the nonprofit will be annual subscription sales. To drive sales of subscriptions and further the non-profit mission, the non-profit will implement the following programs:

Employer-based health and wellness programs:

Large employers (most of which are self-insured) are making substantial investments in programs to incentivize employees to lead healthy lifestyles. The benefit to employers includes reduced health insurance costs (building exercise into the daily lives of employees will make them more healthy), a more productive workforce, and increased employee retention. There may also be employer-based tax incentives to encourage bicycle transportation. Downtown employers have shown great interest in public bicycle sharing as a means to add a measurable incentive. Several large employers have expressed a desire to pay some or all of the annual subscription price for their employees. The non-profit will offer to these employers a customized web page, accessed through the employer's intranet, to track usage and establish employee incentives.

We are also discussing with local health insurers the potential to jointly brand and market this employer outreach program and/or to offer insurance premium reductions for bike share subscribers.

Hotel Programs:

One-day subscriptions will also be a substantial revenue source. Hotels in the service area will be eager to provide this amenity to their guests. We will create promotional packages (and potentially registration terminals) to be located at hotel concierge and museum information desks.

Subscriber benefits program:

Local restaurants and other small businesses in the service district will be beneficiaries of a bike sharing program, particularly if they have limited parking space. In exchange for putting their establishments on the system map (which will be on-line and at every kiosk), we will ask small businesses to commit to discounts for subscribers who arrive on a bike (such as 10% off at restaurants). By providing these types of subscription benefits, we can promote the system as "effectively free" to subscribers.

Outreach to Communities Outside the Service Area:

The proposed bicycle sharing system is an urban system for adults. Through outreach programs, it can also provide education and opportunities to children and in lower-density neighborhoods outside the service area. Young people in low-income neighborhoods can benefit the most from bicycle transportation. This outreach will both strengthen sponsor support and further the goal of reducing car-dependence. We are considering educational programs, potentially in conjunction with the Minneapolis Public Schools, to teach middle school aged students how to maintain a bike and ride in traffic. We will also use the maintenance program as a opportunity to hire disadvantaged youth, teach them a skill, and give them positive incentives.

We don't expect newly minted motorists to use the roadways safely without some education. Why should it be any different for cyclists?

NPR Blog 8/2008



KIOSK LOCATION

To select locations for kiosks, the following criteria will be considered:

1. Creation of “network” of stations serving the entire service area, making it possible to walk to a kiosk from any point in the service area in a few minutes.
2. Minimization of impact on pedestrians.
3. Visibility from transit and access to transit stops.
4. Greater density of stations in the areas with the highest usage—in the CBD, on the UofM campus, and in commercial corridors.
5. Proximity to tourist points of interest and buildings with large numbers of visits (i.e., museums, government buildings, student union).

We will conduct a kiosk location study and recommend kiosk locations before placing equipment orders. We will seek the participation of Minneapolis Public Works, University of Minnesota Parking and Transportation Services, and Metro Transit in that process. It is likely that the equipment mix in the equipment order will be slightly different than the proposed equipment mix identified in the Start Up Costs below.

The number of docks at each kiosk will vary. Where space permits, there will be more docks per kiosk in the highest traffic areas.

Because the kiosks are both modular and portable, kiosk location decisions are not final. We expect to both move dock sections and kiosks in the first months of operations to adjust to actual usage patterns and reduce rebalancing requirements. Because the kiosks are portable, if a conflict arises with another use or construction requirements, we have the flexibility to resolve those conflicts.



CYCLIST SAFETY

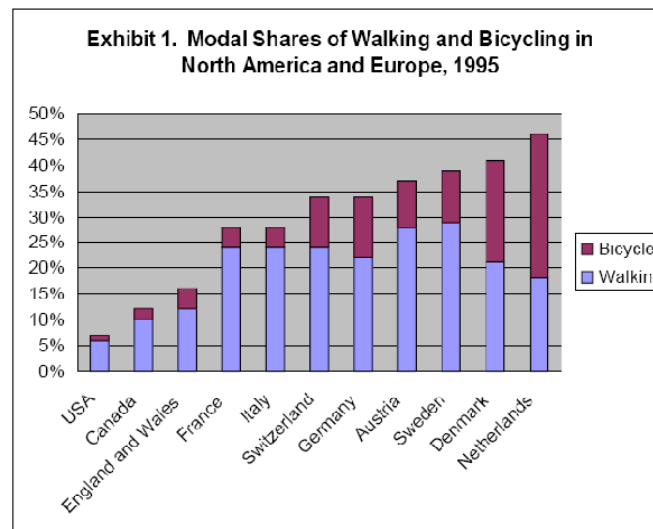
Safety in Numbers

Cyclist safety must be considered whenever public funding is used to encourage bicycle transportation. The fitness, environmental, and economic benefits of bicycle transportation are well-known and warrant public investment. But cycling must also be safe.

A public bicycle sharing program is intended to increase the number of people who use bicycles for transportation. The critical question is whether, by increasing the number of people who use a bicycle for transportation, we will improve cyclist safety. Safety is a fundamental threshold. It is also critical to the success of any bicycle transportation program. Cyclist safety, as well as perceived cyclist safety, is a key component of a person's decision to commute by bicycle.[1]

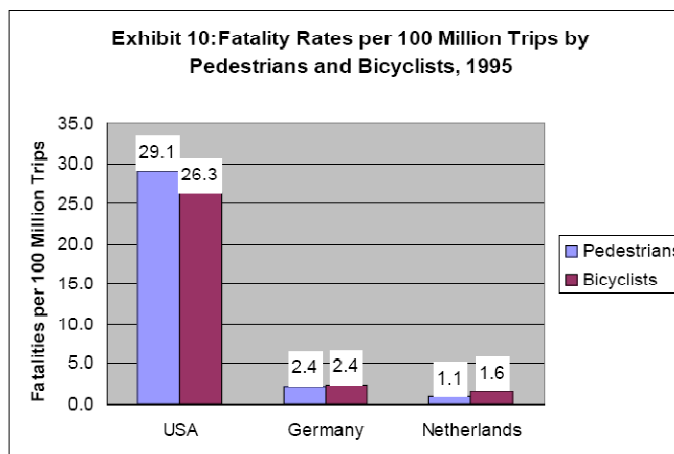
Increase in bicycle presence on roads, whether precipitated by bike-sharing or other means, has been shown to greatly increase cyclist safety. This is visible both through simple comparison of cyclist injury/fatality rates and percent modal bike share as well as through specific studies comparing the rates of injury/fatalities and bike usage as a function of time or other factors. Exhibit 1[1] shows a comparison of cycling and walking rates in several European countries as well as the USA and Canada. It is clear that these European countries have a much greater percentage of transportation via bicycle and walking than do their North American counterparts. Exhibit 10[1] shows the striking difference in fatality rates between the USA and a few of these countries, Germany and the Netherlands. Simple comparisons such as these would suggest that there is indeed a correlation between the number of bicyclists on the road and the level of safety afforded these cyclists.

This correlation is important, but is not vigorous enough in itself to make the assertion that a higher cycling rate lowers fatality rates. However, a multitude of studies have confirmed that this indeed is the case, taking into account many of the variables that could skew results (like different traffic regulations or cyclist accommodations). Comparisons of percent modal bike share and fatality/injury rates over time in Germany and the Netherlands show a decreasing fatality rate with increasing distances covered via bike. Additionally, comparisons of 68 cities in California in 2000 (Fig. 1) indicate a sharply decreasing risk rate with increased modal bike share [2]. Several other studies done all around the world indicate similar results: increased levels of bike travel decrease the fatalities and injuries



Source: Ministries of transport and departments of transportation in various countries.

Note: Modal split distributions for different countries are not fully comparable due to differences in trip definitions, survey methodologies, and urban area boundaries. The distributions here are intended to show the approximate differences among countries and should not be used for exact comparisons.



Source: U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts*; and USDOT, Federal Highway Administration, *Nationwide Personal Transportation Study and Highway Statistics*; German Institute of Road Traffic, German Ministry of Transport, and German Federal Statistical Office; Central Bureau for Statistics of The Netherlands



associated with cycling. This “safety in numbers” theory has not been attributed to changes in the behavior of the bicyclists, but instead to behavior changes on the part of the motorists. More cyclists on the road cause motorists to become more aware of their presence and thus drive more cautiously [2] [3].

The “safety in numbers” theory has held true in large public bicycle sharing programs in European cities. There have been serious injuries and fatalities on public bicycles, as there are in every mode of transportation. Overall, however, injury rates have declined. In Paris, for example, the first year of operation for the Vélib’ bike-sharing program saw a 20% reduction in the overall accident rate. This coincided with a 70% increase in bike traffic[6]. The “safety in numbers” theory has also held true in Minneapolis. Although there have been tragic accidents and more must be done to improve cyclists safety in Minneapolis, increasing ridership has been met with a small decrease in the injury rate and a slightly larger decrease in the crash rate.

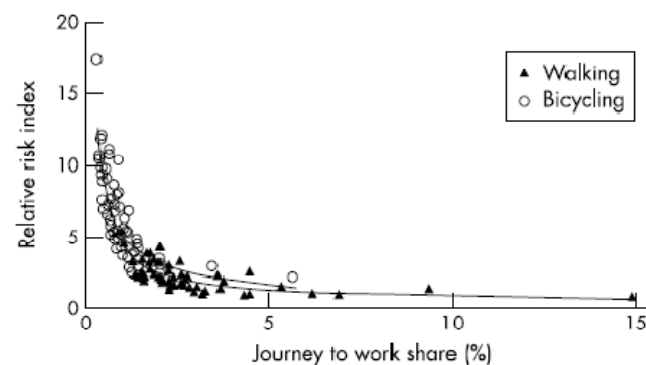


Figure 1 Walking and bicycling in 68 California cities in 2000.

	1990	2000	2005	2006	2007
Minneapolis residents who bike to work ^[4]	3,010	3,860	4,589	4,835	7,200
HCMC bike-crash-related admissions ^[8]	56	81	79	84	115
HCMC bike-crash-related admissions per bike-commuting resident	1.9%	2.1%	1.7%	1.7%	1.6%
Survey-to-survey change in bike-crash-related admission rates	n/a	0.2%	-0.4%	0.0%	-0.1%

	2000	2005	2006	2007
Minneapolis residents who bike to work ^[4]	3,860	4,589	4,835	7,200
Minneapolis bike crashes reported to police ^[9]	296	253	248	326
Minneapolis bike crashes per bike-commuting resident	7.7%	5.5%	5.1%	4.5%
Survey-to-survey change in crash rates	n/a	-2.2%	-0.4%	-0.6%



On a statewide level, taking a long-term view, although bicycle usage has increased substantially over the last decades [4], bicycle-car crash, injury, and fatality levels have not increased [5]:

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Bicycle Crashes	1,363	1,106	1,137	1,016	909	NA	985	965	944	1,020
Bicyclists Killed	9	8	14	7	7	6	10	7	8	4
Bicyclists Injured	1,310	1,060	1,080	960	860	NA	937	952	908	979

We should do more to make bicycling safer. Increased funding for infrastructure and education is needed. A public bicycle sharing program can be an integral part of that effort. Through a web-based subscription program (including safety webinars at sign-up) and public promotions, a public bicycle sharing program is a powerful tool to raise safety awareness, among both cyclists and drivers.

A large body of data suggests that increased bike transportation leads to decreased cyclist injury rates. With every additional cyclist on the roads, the roads become a little safer for all cyclists.

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7. Kifer, K. Is Cycling Dangerous?—The Risk of Bicycle Use—Accidents, Fatalities, Injuries, and Benefits. 2002. 3 Oct. 2008. <http://www.kenkifer.com/bikepages/health/risks.htm>

Helmet Usage

Public bicycle sharing systems do not provide public helmets to users at the kiosk. Neither the sanitary condition or physical integrity of a public helmet could be assured. At registration, users will receive education about the value of helmets to reduce injury and they will sign a user agreement indicating that helmet use is their choice and responsibility. Web-page registrants will also receive the option to purchase a helmet at a low cost. The non-profit may also be able to provide some helmets at no charge. Downtown workers will be encouraged to have two helmets, one at home and one at the office. We will also use marketing materials, including subscriber e-newsletters to encourage helmet use.



IMPACT ON TRANSPORTATION MODE AND ENVIRONMENTAL BENEFITS

A primary goal of the non-profit corporation will be to increase the number of trips taken by bicycle and to decrease the number of trips taken by car to gain the health benefits of exercise and reduce the environmental and economic harm caused by burning gasoline and dependence on foreign oil. A bike trip that replaces a walking trip is not beneficial by these standards. A bike trip that replaces a bus trip is beneficial for health, but has little environmental benefit. Conversely, an intermodal bus /bike trip that was made possible by the public bike and replaced a long car trip has environmental benefits beyond the short bike trip. Similarly, if having access to a bike, in addition to transit and car share, induces people not to own cars, the environmental benefits are far reaching.

On the question of mode shift, data from European cities is of limited value, because car ownership rates are far lower and transit usage is higher than in Minneapolis. In Paris, there are 2.6 motor vehicles for every 10 residents.² In Minneapolis, there are 9.4 motor vehicles for every 10 residents.³ Nonetheless, online survey data from European cities does provide a point of reference:

Type of Trip Replaced By Bike Sharing Trip ⁴	Paris Vélib'	Barcelona Bicing
Bus or subway	65%	51%
Car or motorcycle	8%	10%
Taxi	5%	Na
Walk	20%	26%

For purposes of a conservative estimate, we assume that 20% of trips on public bikes in Minneapolis will replace a car trip.

It is likely that the largest mode share shift resulting from introduction of public bike sharing will occur on personal bicycles. In Paris and Lyon, we have seen that public bicycle sharing acts as a powerful “door opener” to the use of personal bicycles, resulting in up to 50% increase in cycling on privately-owned bikes.⁵ In Minneapolis, the presence of public bicycles downtown will give more people the confidence needed to commute downtown and encourage people to use their bicycles to take short trips to the store or school in surrounding communities.

For purposes of a conservative estimate, we assume that Minneapolis will experience a 15% increase in personal bicycle use caused by the “door-opener” effect of introduction of public bicycles. Because much of this increase will likely involve commutes from home to work, we assume a higher car trip replacement rate, 30%.

² www.urbanaudit.org

³ <http://www.fhwa.dot.gov/ohim/onh00/onh2p11.htm>

⁴ TransLink Public Bike Study; Environmental Scan, p. 23 (March 2008).

⁵ TransLink Public Bike Study; Environmental Scan, p. 21 (March 2008).



Estimate Of Car Trips Replaced and Carbon Emission Reduction Attributable to Bicycle Sharing Introduction

Trips on Public Bikes

	Public bicycles	Trips per bike per day	Days April-November	Trips per year	Percentage replacing a car trip	Annual car trips replaced by public bike trips
Good weather	1000	11	164	1,804,000		
Bad weather	1000	4	80	320,000		
Total				2,124,000	20%	424,800

Trips on Personal Bikes

Minneapolis residents	Average trips per day per resident ⁶	Total trips per year by Minneapolis residents	Bicycle trips as percentage of all trips ⁷	Bike trips per year by Minneapolis residents	Percent increase in annual bike trips attributable to bike share introduction	Percentage replacing a car trip	Annual car trips replaced by personal bike trips
382,618	4.5	628,450,065	3.8%	23,881,102	15%	20%	716,433

Trips on Public and Personal Bikes

Total annual car trips replaced	Average trip distance for bike only trip (miles) ⁸	Average trip distance for transit/bike intermodal trips (miles) ⁹	Car miles replaced (assuming 5% of trips are transit/bike intermodal trips)	Carbon emissions per mile (pounds)	Annual carbon emission reduction (pounds)
1,141,233	2.3	7.7	2,932,969	1.2	3,519,563

⁶ Metropolitan Council Transit Behavior Inventory (2000), p. 32 (this data is for weekday trips)

⁷ Bike Walk Twin Cities, 2010 Campaign for Active Transportation Case Statement (2008), p.2.

⁸ Metropolitan Council Transit Behavior Inventory (2000), p. 74.

⁹ This assumption is based on the average distance of all single-occupant motor vehicle trips. Metropolitan Council Transit Behavior Inventory (2000), p. 32.



Budget Projections

In the following series of tables, the start-up costs, operating revenue, operating costs, and 10-year pro forma cash flow are projected. Key assumptions are discussed following the tables.

START-UP COSTS AND SOURCES OF FUNDS

Initial Bicycle/Kiosk Purchase Order

	Units	Price Per Unit	Total Price
Bicycles	1,000		
Kiosk pillars, solar	50		
Kiosk pillars, A/C	25		
Kiosk docks	1,500		
Kiosk technical platform	394		
Shipping			
System Cards (1 yr supply)	15,950		
Total equipment price			\$3,200,475
Minnesota Sales Tax (6.5%)			\$0 (non-profit will apply for exemption)
Additional City/County Sales Tax (1%)			\$0 (non-profit will apply for exemption)
Installation, training, technical support			\$0 (\$ moved to yr 1-3 operating expense)
Total Initial Bicycle/Kiosk Expense			\$3,200,475



Other Start-Up Costs

Downpayment on vehicle and equipment loan	\$8,975
Prelaunch promotional expenses	\$50,000
Development of system map and map racks	\$17,500
Kiosk location study	\$15,000
Traffic barriers	\$15,000
Pre-launch office and administrative expense	\$15,000
Total	\$121,475

Pre-Launch Employee Expense (includes development of web site, maintenance program, kiosk location, and sponsorship)

	Monthly total employee expense	Months of prelaunch compensation	Total
Executive Director	\$7,830	4	\$31,318
Operations Director	\$5,985	2	\$11,971
I.T. Specialist	\$5,016	4	\$20,065
Clerical	\$1,610	1	\$1,610
Total			\$64,963

Total Start-Up Costs	\$3,386,913
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Sources of Funds

Local government sources

City of Minneapolis	\$250,000	(in Mayor's proposed budget)
City of Minneapolis	\$100,000	(in CPED proposed budget; in addition to \$47,000 current investment)
Metro Transit	\$0	(2009 cash contribution currently unlikely; in kind contributions are likely)
University of Minnesota	\$0	(2009 cash contribution currently unlikely; in kind contributions are likely)
Bike/Walk Twin Cities Federal Funding	\$1,750,000	(proposed contribution)
Corporate sponsor(s) contribution to start-up	\$1,000,000	(proposed contribution)
Augsburg College	\$25,000	(verbal commitment)
Total Contributions	\$3,125,000	
10-Year Loan	\$261,913	Annual debt service: \$34,003
Total Funds	\$3,386,913	

In-Kind Start-Up Contributions (Not Included In Above)

Legal	\$100,000
Branding	\$50,000
Marketing & Promotions	\$50,000
Television ad	\$150,000
Radio ad	\$200,000
Print ad	\$80,000
Accounting	\$50,000
Total leveraged contributions	\$680,000



OPERATING REVENUE ANALYSIS

Twin Cities Bike Share Revenue Analysis

Proposed Phase 1 Service Area	Population Estimate	Annual Subscription Rate	Number of Subscribers	Subscription Price	Revenue
Residents	100,000	5.0%	5,000	\$50	\$250,000
Workers	200,000	3.0%	6,000	\$50	\$300,000
Students	50,000	7.0%	3,500	\$40	\$140,000
Total annual subscribers	350,000		14,500		\$690,000
One-day subscribers			50,000	\$5	\$250,000
Seven-day subscribers			2,000	\$15	\$30,000
Total Subscription Revenue					\$970,000
Rides Exceeding 1/2 Hour	Rides Per Subscription	Total Annual Rides	Rides Exceeding 1/2 Hour	Average Charge	Total
Annual Subscribers	50	725,000	15%	\$1.75	\$190,313
One-day subscribers	1.5	75,000	25%	\$2.00	\$37,500
Seven-day subscribers	6	12,000	15%	\$1.75	\$3,150
Total		812,000			\$230,963
	Bikes lost to theft	Deposit recoverable	Deposit per bike		Total
Collection of deposits for lost bikes	50	50%	\$250		\$6,250
Total Revenue from Subscriptions and Other User Fees					\$1,207,213
Annual Revenue from Cash Sponsors (in-kind sponsorship reflected as expense reduction)					\$200,000
Total Annual Revenue					\$1,407,213



The most important assumption in the above operating cost projection is the annual subscription rate. We believe that the rates incorporated in this model (residents 5%, workers 3%, and students 7%) are conservative for several reasons:

- Although comparison to other systems is difficult to due price and transit infrastructure differences, Paris, Barcelona, and Lyon have each experienced demand significantly higher than our projections (see chart below).
- The projected subscription rates do not include any sales to the thousands of people who do not live, office, or go to school downtown, but go downtown for work and/or recreation several times per month. These people, who generally pay to park and do not want to move their parked car, are also potential annual subscribers.
- We are working with several major downtown employers, including Target Corporation, Xcel Energy, U.S. Bank, the City of Minneapolis, the University of Minnesota, and Hennepin County, to develop incentives to encourage their employees to become annual subscribers.

Although these assumptions are conservative, the “upside” potential is also limited. As discussed above, if the ratio of subscribers to bikes becomes too high, the reliability of the system will be reduced (i.e., the likelihood of finding a bicycle where I want it). If sales exceed projections, we anticipate that we will cap sales of annual subscriptions at approximately 18,750 until the system is expanded.

A second critical assumption is the rate of daily subscriptions. Comparisons to other cities are difficult. In Lyon and Barcelona, because demand from annual users exceeds the system capacity, the system is not open to tourists. In Paris, the system was specifically designed and priced to encourage tourist use, resulting in over 3.6 million one-day subscriptions in the first year of operations. We expect to target tourist usage, and the proposed kiosk is designed to facilitate walk-up use. We believe the projected rate of 50,000 one-day subscriptions per year is conservative:

- This projection equates to 8.3 one-day subscriptions per year per hotel room in service area.
- This projection equates to 0.5 one-day subscriptions per residential population. Paris experienced 1.7 one-day subscriptions per residential population in its first year of operation.
- Over 2.8 million people live in the Twin Cities metro area who do not also live, work, or go to school downtown. If only 1% of these people buy one daily subscription each year, they will account for 28,000 daily subscriptions, over half of the projected total.

City	Residents within Service Area	Number of Annual Subscribers	Annual Subscription Rate	Annual Subscription Price	Number of Daily Subscribers	Daily Subscribers Per Residential Population	Daily Subscription Price
Paris	2,166,200	166,000	8%	\$37.70	3,683,714	1.70	\$1.30
Lyon	466,400	52,000	11%	\$6.50			
Barcelona	1,000,000	100,000	10%	\$31.20			



OPERATING COST ANALYSIS

Twin Cities Bike Share Annual Operating Expense Analysis

Employee Expense										
Position	Number of Full Time Employees	Seasonal Employees (5-month)	Hourly Wage	Salary Expense	Soc. Sec./FICA	Unemployment Tax	Medicare	Worker's Comp	Benefits	Total Employee Expense
Director	1		\$40	\$80,000	\$4,960	\$434	\$1,160	\$2,400	\$5,000	\$93,954
Operations manager	1		\$30	\$60,000	\$3,720	\$434	\$870	\$1,800	\$5,000	\$71,824
Community programs director	0.5		\$15	\$15,000	\$930	\$217	\$218	\$450	\$2,500	\$19,315
I.T. Specialist	0.5		\$35	\$35,000	\$2,170	\$217	\$508	\$1,050	\$2,500	\$41,445
Clerical	0.5		\$15	\$15,000	\$930	\$217	\$218	\$450	\$2,500	\$19,315
Intern-bicycle mechanic		2	\$10	\$16,000	\$992	\$868	\$232	\$1,120	\$0	\$19,212
Total	3.5	0								\$265,064

Maintenance Vehicle and Equipment Loan						
	Number of Units	Purchase Price	Sponsored Portion	Cost	Downpayment	Annual Payments on Equipment Loan
Maintenance vehicle (electric van)	3	\$13,000	25%	\$29,250		
Vehicle wrapping	3	\$2,500	0%	\$7,500		
Maintenance trailer	3	\$2,000	0%	\$6,000		
Rebalancing vehicle (electric flat bed)	1	\$18,000	25%	\$13,500		
Rebalancing trailer	1	\$6,000	0%	\$6,000		
Maintenance tools	1	\$4,000	0%	\$4,000		
Storage racks	1	\$23,500	0%	\$23,500		
Total				\$89,750	\$8,975	\$22,764



<u>Maintenance Contractor Expense</u>	Year 1	Full Year Cost
Spring system set-up (not incurred in year 1)	0	\$15,372
Fall system take down	\$10,248	\$10,248
Three full-time level 1 bike mechanics	65,771	\$112,750
One half-time electronics technician	21,525	\$36,900
Facility rental (off-season storage plus full-time repair facility; includes utilities)	28,000	\$48,000
Contractor overhead	14,785	\$25,346
Total	\$140,329	\$248,616

<u>Other Maintenance Expense (Excluding Replacement Due to Vandalism)</u>									
	Units	Unit Price	Replace- ment cycle	Annual Cost	Excluded from 5-year warranty	Sponsored portion	Price per month	Total expense	
Bicycle parts				\$70,000	25%			\$15,750	see replacement schedule
Kiosk batteries	50	\$165	every 5 years					\$0	see replacement schedule
Kiosk paper	75	\$16	twice annually					\$2,400	
Other kiosk parts				\$22,500	0%			\$0	see replacement schedule
Major repairs by bike shops								\$6,000	
Communications (cellular)							\$250	\$3,000	
Vehicle maintenance								\$4,000	
Total								\$31,150	



<u>Administrative Expense</u>						
	Price per month	Annual price	Sponsored portion	Cost per package	Subscribers	Annual Expense
Internet and phone service	\$150	\$1,800	0%			\$1,800
Office furniture		\$3,000	75%			\$750
Office lease	\$1,200	\$14,400	50%			\$7,200
Postage and printing for new subscriber packages and annual mailings				\$1.50	14,500	\$21,750
Misc. supplies and expenses		\$10,000	0%			\$10,000
Total						\$41,500

Operating Contract Expense

	Price per month per kiosk	Fee per transaction	Fee based on amount Charged	Number of transactions	Revenue from subscriptions and fees	Cost per card	25% of annual subscribers	Total Expense
Software license and back end operation	\$54							\$48,600
Customer service help desk								\$40,000
Credit card processing fees		\$0.09		195,800				\$17,622
Credit card processing fees			2.90%		\$1,207,213			\$35,009
Wireless communication between kiosks (GPRS)	\$18							\$16,200
Hosting services	\$13							\$11,700
System operating cards						\$0.50	3,625	\$1,813
Total								\$170,944

Promotional Expenses

On-going promotions annual budget	\$25,000
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Replacements Due to Theft and Major Vandalism (Requiring Replacement)

	Annual replacement rate	Units in system	Annual units replaced	Cost per unit	Total Expense	Salvage Percentage	Salvage Value	Net Expense
Bicycle theft replacements	5%	1,000	50.0	\$995	\$49,750	0%	\$0	
Bicycle vandalism replacements	5%	1,000	50.0	\$995	\$49,750	30%	\$14,925	
Kiosk pillar replacements	5%	75	3.8	\$9,342	\$35,031	50%	\$17,516	
Dock replacements	5%	1,500	75.0	\$600	\$45,000	30%	\$13,500	
Technical base replacements	1%	394	3.9	\$1,300	\$5,119	0%	\$0	
Total					\$184,650		\$45,941	\$138,709

Community Program Expense

Program expenses not paid by grant funds **\$25,000**

Insurance

Insurance premiums **\$60,000**

Total Annual Expense Excluding Contingency and Debt Service **\$1,028,746**

Average Annual Expense Including Contingency **\$1,574,453** (from cash flow analysis)

The most important variables affecting operating costs will be the staffing plan and actual theft and vandalism rates. The staffing plan incorporated here is based on a division of responsibility between the non-profit corporation and a local maintenance contractor. In this plan, the maintenance contractor is assumed to be Dero Bicycle Rack Company, which has submitted a list of proposed services and pricing. The division of responsibility is as follows:



Non-Profit Supplies:

- One full-time operations manager. This person will be responsible for overseeing the maintenance contract, coordinating daily maintenance assignments using reports generated by the system, and having strong knowledge of all aspects of the equipment.
- Two seasonal interns working 40 hours per week May-September (or 4 interns working 20 hrs/wk). These interns will probably be young people without training from disadvantaged backgrounds. They would work with a bicycle mechanic on repair runs and do rebalancing.
- Non-profit will obtain (through donations or purchase) electric vehicles and trailers, bicycle maintenance tools, and bicycle storage racking.

Dero Supplies:

- Three full-time bike mechanics. These people would be responsible for the bulk of maintenance activities, including daily repairs in-season, spring set-up and fall take-down, and off-season overhauls.
- One half-time electronics technician. This person would be responsible for maintenance of the electronic components in the kiosks.
- Additional staffing and equipment as needed for spring set-up, fall take-down, and system moves.
- Maintenance and storage facilities, including utilities.

This approach has been taken to provide a conservative assessment of actual costs. If the bike sharing proposal is funded, the non-profit will undertake further evaluation to compare the prices and service offered by Dero to other potential local partners.

We have estimated that the non-profit will be required to replace 100 bikes per year (10% of the system total) due to theft and vandalism (this does not include replacement of vandalized parts, accounted for separately). We again believe that this assumption is conservative. It should be pointed out that the early theft rates for the Paris Vélib' system were substantially higher—3,000 bicycles were stolen in the first year of operations, a 15% theft rate. In Lyon, by comparison, 153 bikes were stolen in the first year, a five percent theft rate. We believe that the rate of theft in Minneapolis will be significantly lower than in the initial year Paris experience for several reasons:

- The Montreal Public Bike System dock locking method is superior. The Vélib' locking mechanism connects to side of the bicycle frame on the down tube. A common method of theft has been to break this mechanism with a crowbar. The Montreal Public Bike System utilizes a bolt lock, which passes through an integrated headset component. Stealing the bicycle from the locked dock would require industrial cutting equipment and would render the bike unrideable.



- Due to high unemployment in its inner-ring suburbs, Paris has experienced very theft and petty crime rates in recent years.¹⁰ Overall crime rate in Paris (147 per 1000 people per year¹¹) are substantially higher than in Minneapolis (71 per 1000 people per year¹²).

Attached as Appendix L is a sensitivity analysis illustrating the impact of higher theft and vandalism replacement assumptions on cash flow projections. Please note the following:

- For the sensitivity analysis, the contingency reserve is deleted and the rates of theft and vandalism are varied. All other assumptions remain constant.
- We assume a small recovery of security deposits on stolen (but not vandalized) bicycles. That number appears in "subscription and fees."
- We assume a salvage value for vandalized bicycles.
- The "other maintenance expense" includes parts replacements, which are based on average age of fleet. With higher bicycle replacement rates, parts replacement costs go down slightly.

¹⁰ "Paris Takes Aim At Its Crime Rate," New York Times, Nov. 20, 2008.

¹¹ www.urbanaudit.org (2001 data)

¹² Minneapolis Police Department (2002 data)



Replacement Schedules

	1	2	3	4	5	6	7	8	9	10	11	12
Bicycles in system	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Bicycles replaced due to theft and vandalism	100	100	100	100	100	100	100	100	100	100	100	100
1 year old bicycles	900	90	90	90	90	621	143	143	143	143	457	175
2 year old bicycles	-	810	81	81	81	81	559	129	129	129	129	411
3 year old bicycles	-	-	729	73	73	73	73	503	116	116	116	116
4 year old bicycles	-	-	-	656	66	66	66	66	453	104	104	104
5 year old bicycles	-	-	-	-	590	59	59	59	59	408	94	94
Bicycles replaced due to expiration of useful life	-	-	-	-	590	59	59	59	59	408	94	94
Bicycle Price	\$995	\$1,035	\$1,076	\$1,119	\$1,164	\$1,211	\$1,259	\$1,309	\$1,362	\$1,416	\$1,473	\$1,532
Cost of bicycles replaced due to expiration of useful life	\$0	\$0	\$0	\$0	\$687,336	\$71,483	\$74,342	\$77,316	\$80,409	\$577,422	\$138,325	\$143,858
Salvage value of replaced bicycles	\$0	\$0	\$0	\$0	\$137,467	\$14,297	\$14,868	\$15,463	\$16,082	\$115,484	\$27,665	\$28,772
Net cost of bicycle replacements	\$0	\$0	\$0	\$0	\$549,869	\$57,186	\$59,474	\$61,853	\$64,327	\$461,937	\$110,660	\$115,086
Annual parts replacement per new bicycle (failure and minor vandalism)	\$70	\$73	\$76	\$79	\$82	\$85	\$89	\$92	\$96	\$100	\$104	\$108
Average age of fleet at year end (multiplier reflecting increased parts failure for older bikes)	0.90	1.71	2.44	3.10	3.69	1.56	2.04	2.47	2.86	3.20	1.95	2.23
Parts replacement cost	\$63,000	\$124,488	\$184,662	\$243,710	\$301,813	\$132,844	\$180,521	\$227,395	\$273,605	\$319,289	\$201,996	\$240,511
Parts replacement cost not covered by warranty	\$15,750	\$31,122	\$46,165	\$60,927	\$75,453	\$33,211	\$45,130	\$56,849	\$68,401	\$79,822	\$50,499	\$60,128
Percentage of Kiosks replaced due to expiration of useful life	0%	0%	0%	0%	0%	0%	0%	5%	15%	50%	15%	5%
Cost of Kiosks replaced due to expiration of useful life	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$126,212	\$386,208	\$1,313,108	\$401,811	\$136,616
Salvage value of replaced kiosks	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$31,553	\$96,552	\$328,277	\$100,453	\$34,154
Net cost of kiosk replacements	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$94,659	\$289,656	\$984,831	\$301,358	\$102,462
Kiosk battery replacement	\$0	\$0	\$0	\$0	\$9,651	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Kiosk replacement parts after expiration of kiosk warranty	\$0	\$0	\$0	\$0	\$0	\$28,470	\$29,608	\$30,793	\$32,025	\$14,000	\$4,000	\$0
Bicycle replacement rate due to theft and vandalism (from operating expenses)	10%											
Inflation Factor	4%											
Salvage value of replaced bicycles (frames and recently replaced parts)	20%											
Salvage value of replaced kiosks	25%											



CASH FLOW ANALYSIS

Pro Forma Cash Flow Analysis

Year	Inflation/ interest	1	2	3	4	5	6	7	8	9	10
Revenue											
Subscriptions & fees	4%	\$844,284	\$1,154,621	\$1,305,721	\$1,357,950	\$1,412,268	\$1,468,759	\$1,527,509	\$1,588,609	\$1,652,154	\$1,718,240
Sponsorship revenue	0%	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Total revenue		\$1,044,284	\$1,354,621	\$1,505,721	\$1,557,950	\$1,612,268	\$1,668,759	\$1,727,509	\$1,788,609	\$1,852,154	\$1,918,240
Expenses											
Employee	4%	\$198,798	\$275,666	\$286,693	\$298,160	\$310,087	\$322,490	\$335,390	\$348,805	\$362,758	\$377,268
Maintenance vehicle & equipment loan		\$22,764	\$22,764	\$22,764	\$22,764	\$0	\$16,000	\$16,000	\$16,000	\$16,000	\$0
Maintenance contract	4%	\$140,329	\$258,560	\$268,903	\$279,659	\$290,845	\$302,479	\$314,578	\$327,161	\$340,247	\$353,857
Other maintenance expense	4%	\$23,363	\$47,138	\$62,822	\$78,250	\$103,120	\$80,417	\$94,225	\$107,907	\$121,502	\$115,741
Administrative	4%	\$31,125	\$43,160	\$44,886	\$46,682	\$48,549	\$50,491	\$52,511	\$54,611	\$56,796	\$59,067
Operating contract	4%	\$128,208	\$177,781	\$184,893	\$192,288	\$199,980	\$207,979	\$216,298	\$224,950	\$233,948	\$243,306
Installation, Training & Tech Support		\$87,000	\$87,000	\$87,000							
Promotions	0%	\$18,750	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Replacements due to theft and vandalism	4%	\$104,032	\$144,258	\$150,028	\$156,029	\$162,270	\$168,761	\$175,512	\$182,532	\$189,833	\$197,427
Community program expense	4%	\$25,000	\$26,000	\$27,040	\$28,122	\$29,246	\$30,416	\$31,633	\$32,898	\$34,214	\$35,583
Insurance	4%	\$45,000	\$62,400	\$64,896	\$67,492	\$70,192	\$72,999	\$75,919	\$78,956	\$82,114	\$85,399
Replacements due to expiration of useful life -- Bicycles	4%	\$0	\$0	\$0	\$0	\$549,869	\$57,186	\$59,474	\$61,853	\$64,327	\$461,937
Replacements due to expiration of useful life -- Kiosks	2%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$94,659	\$289,656	\$984,831
Contingency	0%	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
Total expenses		\$874,368	\$1,219,727	\$1,274,924	\$1,244,446	\$1,839,158	\$1,384,219	\$1,446,539	\$1,605,333	\$1,866,396	\$2,989,417
Debt Service		\$34,003	\$34,003	\$34,003	\$34,003	\$34,003	\$34,003	\$34,003	\$34,003	\$34,003	\$34,003
Reserve account balance	2%	\$135,914	\$239,523	\$441,108	\$729,431	\$483,127	\$743,326	\$1,005,159	\$1,174,537	\$1,149,783	\$67,599



CONCLUSION

The above analysis is based on actual vendor bids and conservative assumptions. It demonstrates that, if we capitalize a non-profit corporation with \$3,125,000 needed to purchase equipment and introduce a public bicycle sharing system in Minneapolis, that non-profit corporation will be sustainable for the long term.

The essential components are in place:

- Minneapolis city officials are motivated to advance green, healthy solutions that will improve our streetscapes and showcase Minneapolis as a city where great ideas come to life.
- CPED identified the right business model and came forward with \$47,000 to fund development of this business plan.
- The City has made, and continues to make, great strides to improve infrastructure for safe cycling.
- Private corporations will make cash and in-kind contributions to fund a substantial portion of the cost of the system.
- Public bicycle sharing is a strong candidate for federal funding through the Bike/Walk Twin Cities program. It will have an immediate and dramatic impact on bicycle transportation and will demonstrate how U.S. cities can create sustainable systems.
- Equipment and maintenance vendors are motivated and ready to install a superior system in Minneapolis in 2009 to open the U.S. market.

The time is right for public bike sharing in the Twin Cities.



Public Bicycles offer a range of potential benefits:

- Promoting urban cycling and increasing its modal share. A Public Bicycle scheme can be an effective measure to promote urban cycling as a “normal” daily transport mode when introduced in an integrated strategy and combined with other measures that make cycling safe and convenient. In cities without an existing “bicycle culture”, Public Bicycles have a potential to act as “door opener”. In cities where cycling is already well accepted, the idea can add a further valuable element to the promotion and use of the bicycle.
- Fast, convenient and flexible inner urban transport option that meets the needs of many users and increases mobility choices.
- Encouraging intermodality through the integration of Public Bicycle schemes in the public transport system.
- Wise use of inner urban space, as Public Bicycles are space-efficient. In Lyon, for example, 5 Public Bicycle racks (average: 15 users/day) can substitute 1 car parking lot (average: 6 users/day).
- Proven positive health effects of cycling.
- Increase of sustainable non-polluting mobility choices for inner urban transport.
- Increase of traffic safety for cyclists through critical mass of users on the roads.
- Strengthened local identity, as Public Bicycle schemes may become a well accepted part of the local cityscape and provide a sense of identity.

Niches, New Seamless Mobility Service; Public Bicycles, 2007.

