

EXPLORING BICYCLE OPTIONS FOR FEDERAL LANDS: BIKE SHARING, RENTALS AND EMPLOYEE FLEETS



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16. Abstract Federal land management agencies are exploring how bicycle programs can provide employees and visitors with more travel choices, while working toward their environmental, public health and sustainability goals. This report explores three options for making bicycles more readily available in Federal lands: public bicycle sharing programs, bicycle rental operations and employee bicycle fleets. Bicycle sharing programs are a form of public transportation, supplying bikes for short-term use through a network of automated bike parking stations. Bike rental programs are typically for-profit businesses that rent bikes for recreational use for a few hours up to several days. Employee fleets make bikes available to individuals associated with an organization to use for work, errands and/or recreation, usually at no cost. This report builds on previous work from The Guide to Promoting Bicycling on Federal Lands (FHWA, 2008a), which sought to raise awareness of the environmental, public health and resource management benefits of bicycling. This report presents various methods to make bikes more available in Federal lands through bike sharing programs, rentals and employee fleets. This report explores how elements of successful bike programs may be adapted for Federal lands settings.			
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ABBREVIATIONS AND ACRONYMS

BLM	Bureau of Land Management
CDC	Centers for Disease Control
CUA	Commerical Use Authorization
DDOT	District of Columbia Department of Transportation
DOT	Department of Transportation
EPA	United States Environmental Protection Act
FHWA	Federal Highway Administraion
FLMA	Federal Land Management Agencies
FWS	United States Fish and Wildlife Service
FS	Forest Service
GhG	Greenhouse Gas Emissions
GPS	Global Positioning System
HAVO	Hawaii Volcanoes NP
HHS	United States Department of Health and Human Services
HUD	Housing and Urban Development
IGERT	Integrative Graduate Education and Research Traineeship
IT	Information Technology
LAB	League of American Bicyclists
MNRRRA	Mississippi National River and Recreation Area
MOU	Memorandum of Understanding
NPF	National Park Foundation
NPS	National Park Service
NWR	National Wildlife Refuge
OSAF	Office of Student Activities and Facilities
PUBs	Public Use Bicycles
PBS	Public Bicycle Sharing
RFID	Radio Frequency Identification
RTCA	River, Trails and Conservation Assistance Program
VIP	Volunteer in Parks
WHO	World Health Organization

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CONTENTS

NOTICE	2
QUALITY ASSURANCE STATEMENT	2
ACKNOWLEDGEMENTS	3
ADVISORY COMMITTEE MEMBERS	3
ABBREVIATIONS AND ACRONYMS	4
EXECUTIVE SUMMARY	7
PUBLIC BICYCLE SHARING SYSTEMS	7
1. INTRODUCTION	13
1.1. Project Background	14
1.2. Project Purpose	14
1.3. Document Organization	14
2. BICYCLING BENEFITS AND INITIATIVES	17
2.1. Bicycling Benefits	17
2.2. Federal Initiatives Supporting Bicycling	18
3. THE EVOLUTION OF PUBLIC BICYCLE SHARING	20
3.1. Four Generations of Bicycle Sharing	20
3.2. Public Bicycle Share versus Bicycle Rental Programs	21
3.3. Smart Bike Sharing Technologies	22
4. PUBLIC BICYCLE SHARING PROGRAMS AND RENTAL PROGRAMS	25
4.1. Public Bicycle Sharing Case Studies	25
4.2. Bicycle Rental Program Case Studies	39
4.3. Public Bicycle Sharing and rental program Capital and Operating Costs	43
4.4. Public Bicycle Sharing Business Models, Funding and Financial Sustainability	44
4.5. Public Bicycle Sharing Programs: Safety and Legal Liability	46
4.6. Elements of Successful Public Bicycle Sharing Systems & Rentals	48
4.7. Public Bicycle Sharing Common Challenges	52
4.8. Integrating Elements of Bicycle Sharing and Rental Programs in Federal Lands	52
5. EMPLOYEE BICYCLE FLEETS	55
5.1. Case Studies: Employee Bicycle Fleets	55
5.2. Employee Bicycle Fleet Capital and Operating Costs	69
5.3. Employee Bicycle Fleet Business Models and Funding	69
5.4. Employee Bicycle Fleet: Safety and Legal Liability	70
5.5. Elements of Successful Employee Bicycle Fleets	70

5.6.	Employee Bike Fleet Common Challenges	72
5.7.	Integrating Employee Bicycle Systems for Federal Lands	72
5.8.	Employee Bike Fleets: Ten Key Questions	73
6.	RECOMMENDATIONS	74
6.1.	Public Bicycle Sharing Programs- Federal lands with urban characteristics	74
6.2.	Public Bicycle Sharing Programs and Bicycle Rentals: Federal lands in rural settings	74
6.3.	Employee Bicycle Fleets	75
7.	REFERENCES	77
	APPENDIX A: BICYCLE SHARING RESOURCES	81
	APPENDIX B: ARLINGTON VENDOR CONTRACT FOR CAPITAL BIKESHARE START UP/ OPERATING COSTS	85
	APPENDIX C: TWIN CITIES BIKE SHARE REPLACEMENT COSTS AND CASH FLOW ANALYSIS	86
	APPENDIX D: PUBLIC BICYCLE SHARE USER AGREEMENTS	88
	APPENDIX E -GRAND CANYON BICYCLE RENTAL COMMERCIAL USE AUTHORIZATION	93

EXECUTIVE SUMMARY

Many Federal land management agencies (FLMAs) are exploring how bicycle programs can give employees and visitors more travel choices, while working toward their environmental, public health and sustainability goals.

The Federal Highway Administration's (FHWA) Federal Lands Highways Program (FLHP) and the U.S. Fish and Wildlife Service (FWS) have commissioned this report to share information about key features of bike sharing systems, bike rental programs and employee bike fleets. The goals of this report are as follows:

1. Raise awareness among public land managers of the environmental, public health and resource management benefits of public bike sharing programs, bicycle rental operations and employee bicycle fleets.
2. Identify business models and funding sources to make more bicycles available in Federal lands, which are appropriate to the setting. Many public bicycle sharing programs rely heavily on advertising revenues, which may not be appropriate in Federal lands.
3. Understand how existing bike share programs address liability, safety, helmet use and other elements required for success.
4. Explore how elements of successful bike sharing programs may be adapted for Federal lands settings.
5. Identify characteristics of National Park Service (NPS), Fish and Wildlife Service (FWS), and other Federal land units that may be well suited for bicycle sharing pilot programs.

This report explores three options for making bicycles more readily available in Federal lands; public bicycle sharing systems, bicycle rental programs, and employee bicycle fleets. All of these are in existence currently, some operating on Federal Lands to varying degrees of success. The information provided below can be used by staff and contractor to determine which of the three options below or modifications/combinations of them best suits the needs of the public land units, their partners and stakeholders.

PUBLIC BICYCLE SHARING SYSTEMS

Public bike sharing is a form of public transportation, located primarily in urban areas around the world. These programs can take various forms, but essentially provide bicycles for short-term use through a network of convenient locations. Technologies such as credit card or smart cards deter theft by confirming the identity of riders. The public can check out a bike from one automated parking station and return it to another, allowing for one way trips. The number of public bicycle sharing systems worldwide has grown from approximately 17 systems in early 2007 to over 238 by the end of 2010 (DeMaio, 2010a).

Public bike sharing is relatively new in America. The first large scale systems launched in 2010 in the District of Columbia, Denver and Minneapolis. These systems launched with between 500 and 1100 bikes and used bicycles, automated stations and associated technology from two different vendors as shown in the following table.

The three systems described on the next page require customers to purchase a membership and then pay trip fees if a bike is out for longer than a half hour. Annual, monthly and daily memberships range from \$5 for a day to \$75 for a year. Members ride free for the first half hour of each trip, with increasing fees for longer time periods. This fee structure encourages short trips, leaving bikes available to more riders throughout the day. Riders may check out a bike multiple times per day without paying any trip fees, as long as each trip is less than 30 minutes.



BIKE SHARE PROGRAM	NICE RIDE MINNESOTA MINNEAPOLIS	CAPITAL BIKESHARE DISTRICT OF COLUMBIA/ ARLINGTON, VIRGINIA	DENVER B-CYCLE COLORADO
# OF BIKES/ STATIONS	700/65	1,100/114	500/50
VENDOR	Public Bicycle System Company	Public Bicycle System Company	B-Cycle
OPERATOR	Nice Ride (non-profit)	Alta Bicycle Share (private company)	Denver Bike Sharing (non-profit)
CITY/ METRO POPULATION	337,392/ 3.1 million	580,000 in DC/ 5.3 million	557,636/ 2.8 million

Authors present case studies of the three large scale bike sharing systems mentioned above and two others as shown below.

This report examines five case studies of U.S. bike sharing systems:

1. Nice Ride – Minneapolis, Minnesota – Launched in 2010 with 700 bikes and 65 automated stations.
2. Capital Bikeshare – Washington, D.C and Arlington County, Virginia – Launched in 2010 with 1,110 bikes and 114 automated stations.
3. Freewheel!n Pilot Bike Share, Denver, Colorado – This temporary program operated during the 2008 Democratic Convention with 1,000 bikes at six staffed “corrals”.
4. Denver B-cycle, Colorado – Launched in 2010 with 500 bikes and 50 stations.
5. Tulsa Townies, Oklahoma – Launched in 2007 with 75 bikes and four automated stations along a river trail system, aimed at recreational use.

Key findings from these five public bicycle sharing case studies follow.

BIKE SHARING BUSINESS MODELS/FUNDING

Many public bicycle sharing programs around the world rely heavily on advertising revenues, which may not be appropriate in Federal lands. In North America, programs rely on many partners. Funding sources include federal grants, health care and other large companies, local sponsors, private foundations and user memberships. At the time this document was published, the cost to implement automated bike sharing systems in U.S cities ranged from an average of \$4,200 to \$5,400 per bicycle with all system components, staff and support. Operating costs ranged from an average of \$150 to \$200 monthly per bike.

BIKE SHARING SAFETY/ LIABILITY

Places where people feel safe bicycling must exist before launching a public bike sharing system. The three cities profiled in this document earned bicycle friendly status from the League of American Bicyclists (LAB) prior to system launch. Guidelines from the LAB along with resources from the FHWA and others can help leaders create robust biking networks.

Almost all large public bicycle sharing programs encourage helmet use through incentives such as free or discounted helmets, but they do not require helmets. Mandating helmet use is difficult to enforce and can limit use of public bicycle sharing programs.

A common approach that agencies use to limit legal liability is to partner with a third party that operates the bike sharing system. The five systems profiled in this document each had non-profit or private organization operators, who were required to carry appropriate insurance. In addition, riders are required to sign a user agreement, which defines appropriate bike use, places responsibility on the rider, and waives liability for the operator and agency. None of the five public bike sharing systems profiled in this document had reported any serious accidents or liability claims as of late 2010.



ELEMENTS OF SUCCESSFUL AUTOMATED BIKE SHARE SYSTEMS

A strong commitment from stakeholders, political leaders and local champions is needed to create a successful bike sharing system. These systems have been shown to work well in bike friendly urban settings, which are characterized by high population densities, short distances between destinations and connections to public transit systems. Bike friendly refers to areas with well-connected biking networks where biking is perceived as a safe activity. To serve these areas, systems require a relatively large number of bikes and stations to ensure they are a convenient form of public transportation.

Bike sharing systems use heavy duty bikes designed for low maintenance and high turnover. These heavy bikes, typically with only three gears may be uncomfortable for longer rides or on hilly terrain. These systems may not be well suited for many Federal lands where distances between attractions are long (over three to five miles) or those with steeper terrain. Public bike systems do not yet have provisions to transport children such as trailers or child seat carriers.

There is no one best bicycle sharing system. Each system must be designed to meet the needs of a specific locale. A feasibility study should be completed for any place considering bike sharing to identify project goals and understand existing bicycle use, demographics, travel habits and attitudes.

Based on the experiences of urban bike sharing systems, automated bike share systems may work well in Federal lands that are:

- Located in densely populated urban areas, especially ones that have existing bike sharing systems, or
- Located in settings with high visitation rates, well used public transit, and bicycle friendly infrastructure that connect many destination/attractions in close proximity (up to 3 - 5 miles apart).

For places with the above characteristics, bike sharing can serve as a form of public transportation that can help address traffic congestion and parking shortages. These programs may also help improve air quality. In comparison to typical transportation investments, public bike systems are a relatively low cost solution.

The following ten questions can help land managers determine whether a public bicycle share program should be considered in their land unit.

PUBLIC BIKE SHARING PROGRAMS/BIKE RENTALS: TEN KEY QUESTIONS

1. Are there bikeways where most people would feel comfortable riding a bike? (See the League of American Bicyclists 'bicycle friendly' program information at <http://www.bikeleague.org/programs/bicyclefriendlyamerica>)
2. Is the land unit located in an urban area that has an established public bike sharing program or is planning one? (if yes, contact the system operator to discuss the feasibility of system expansion)
3. Is the land unit located in a rural setting that has high visitation rates, bicycle friendly infrastructure and many destination/attractions in close proximity? (if yes, continue to Q 4, if no, skip to Q 9)
4. Is there a leader within the organization who is a champion for a multimodal transportation network that integrates a public bicycle system?
5. Is there commitment from stakeholders, political leaders and local champions to support and fund a public bicycle sharing program over time?
6. What benefits will a public bicycle sharing program provide for this area?
7. Is this area accessible by other public transportation systems (i.e. bus or train)?
8. What are the visitor demographics? What is their interest in riding shared bicycles?
9. Is there a bicycle rental operation in or near the land unit?
10. Are there opportunities to adapt a bicycle rental operation to include multiple locations, lower cost of bikes for customers or otherwise make bikes more convenient to more visitors?



For Federal lands located in rural settings, which may have long distances between attractions and lower visitation, other types of bicycle programs may be more appropriate. There are many variations of bike sharing and rental concepts that could work well in non-urban settings, such as flexible bike sharing systems (bikes can be left within a service area and located via cell phone) or non-automated systems. To address these concerns, this document also examines the characteristics and advantages of bicycle rental programs and employee bike fleets.

BICYCLE RENTAL PROGRAMS

Bicycle rental programs are still the most common method to make bicycles available to the public in Federal lands. Authors present two case studies of bike rental systems in two different national parks:

- Bright Angel Bicycle Rentals, Grand Canyon National Park, Arizona – This bike rental facility opened in May 2010 with 85 bikes. It is the first bike rental facility within the boundaries of this national park.
- Yosemite NP Bike Rental, California – A concessioner has provided bicycle rentals to visitors since 1993 with about 200 bikes available at two locations for day-use in the park.

These programs are operated by private businesses that rent bicycles for recreational use for several hours up to several days. Bikes are checked out from and returned to a single, staffed location (not allowing for one-way use). As with public bike sharing programs, bike friendly networks must be present and agencies limit their legal liability by using a third party operator who works through a concessions or commercial use contract. These rental bike programs offer children's bicycles and/or trailers and different bicycle styles to accommodate people with disabilities. In contrast, bicycle sharing systems profiled here do not yet have provisions for children under 16 or people with disabilities.

Rental programs can offer light weight bicycles, more gears and various styles to accommodate longer rides. Commercially available bikes used for rentals are less expensive than smart bike systems used for bike sharing programs. Bicycle rentals were a new visitor service at the Grand Canyon in 2010 that have been well received by visitors and NPS managers. Park managers plan to create a 10-year long concession contract to make bike rentals a more permanent feature.

EMPLOYEE BICYCLE FLEETS

Employee bicycle fleets make bicycles available to individuals associated with an organization to use for work, errands and/or recreation, usually at no cost. These fleets can help reduce wear and tear on vehicles, fuel use, and greenhouse gas emissions, especially in units with relatively short distances between office, maintenance facilities, and housing. This document presents seven employee bike fleet case studies:

1. Glacier National Park Red Bikes, Montana –27 bicycles are available to park employees.
2. Midwest Region NPS Omaha, Nebraska –employees procured 10 bikes for use on personal time, often for a scenic ride on the nearby Missouri River Bicycle Trail.
3. Yosemite National Park, California –20 bicycles will be available for employees in the summer of 2011 through a unique partnership.
4. National Capital Region NPS B-cycle –The automated system of 30 bikes and three stations are for employee use for work duties in the Washington, DC area.
5. Hawaii Volcanoes National Park –Employees can use bicycles for an extended period of time within the park boundaries.
6. Duke University –The University has 130 bicycles free to students to check out for up to a week at a time.
7. University of California at Irvine ZotWheels – This automated system of 30 smart bikes located at four stations is used by students, faculty and staff of UC Irvine.

Standard, commercially available bicycles (versus smart bikes with automated stations) work well for employee bike fleets. New or slightly used bicycles are a good investment because they require less



maintenance than older bikes and can be purchased for \$330 to \$600 (and up) each with accessories such as fenders and baskets.

While free bikes that have been abandoned or donated may be attractive, they typically come with high maintenance costs and are not as appealing to ride as new bikes. Employee bike fleet managers should plan to replace bicycles every five to seven years. Replacement needs will vary depending on use, weather and how well bikes are maintained.

Maintenance and repair costs are not well documented for small employee bike fleets and will vary widely depending on the level of use, exposure to weather and type and quality of bicycle. Funding may come from within an organization, public lands support/advocacy groups and/or various grants. Employers can minimize legal liability by requiring safety training and helmet use, and by specifying how and where bikes can be used. These provisions can be in user agreements.

Employee bicycles are well liked by office staff working in urban settings (NPS regional headquarters in Omaha, Nebraska); in remote parks for short trips within campgrounds or campus areas (Glacier NP, MT); and in university campus settings (Duke Bikes in Durham, NC). Employee bicycles could benefit virtually any Federal land and should be pursued as a low cost, low impact option to replace short driving trips.

The following ten questions (adapted from Bicycle Federation of Australia 2007) will help program leaders consider how best to develop an employee bicycle fleet that meets their needs.

EMPLOYEE BIKE FLEETS: TEN KEY QUESTIONS

1. Is there support from leaders in the organization and staff for shared bicycles?
2. Why do employees need bicycles?
 - Bicycles can perform work more efficiently than other modes
 - The organization may benefit financially by implementing a fleet
 - Staff will appreciate and value bicycles.
 - To promote environmentally friendly transport
3. What will be the likely trip purpose with bikes given the travel needs of the employees?
 - work duties
 - commutes between home and work
 - errands (off work hours)
 - recreational trips during work breaks or off work hours
4. Who will use the bikes?
 - employees
 - employee family members
 - volunteers
 - others
5. Where will users ride?
 - Within Federal land boundaries, Outside of Federal land boundaries
 - On pavement or dirt trails/roads, steep or mild slopes, etc. (this information helps choose bike style appropriate for the area).
6. How will liability and risk be managed?
7. Who will be responsible for managing and maintaining the bikes?
8. How will the organization benefit directly and indirectly from a bike fleet?
9. What are the funding sources for bikes and bike maintenance?
10. Program details:
 - How many bikes are needed?
 - What type of bikes do employees want or need?



- Are end-of-trip facilities needed? (showers, lockers, and bike storage)
- Where will the bikes be stored?

COMBINING BIKE SHARING AND RENTAL PROGRAMS

As stated above, bike sharing systems may not be well suited for all Federal lands. Long distances between attractions and lower visitation typical of rural areas can inhibit success of public bicycle systems, which use heavy bikes designed for short trips on pavement. However, many areas have features that support more traditional bicycle rental businesses, such as long stretches of scenic roads and paths. Land managers in rural areas should consider how they can combine components of public bicycle sharing and bicycle rental programs to establish a system that meets the needs of their visitors and local communities. The following ideas combine concepts from both public bike sharing programs and bike rental programs that already exist in Federal lands.

1. Become a bicycle friendly place. The League of American Bicyclists has many resources at: <http://www.bikeleague.org/programs/bicyclefriendlyamerica/> Other resources include: <http://www.completestreets.org/> and www.bicyclinginfo.org/ the *Guide to Promoting Bicycling on Federal Lands* (2008) contains a list of many other resources.
2. Explore partnerships with public lands friends groups, gateway communities, public health organizations and others that may sponsor bike rental programs. Their support may reduce the cost for users, making bikes an attractive option to more people.
3. Consider pricing schemes that can make bicycling more attractive to visitors than driving.
4. Establish multiple bike rental facilities in two or more convenient locations to encourage one-way trips, where the customer may bike one-way and hike, drive, or shuttle back.
5. Create a strong brand/logo and integrate it into all rental bicycles. Uniform appearance and strong branding can make visitors feel they are taking part in something larger and more important that relates to an agency's mission and the greater good.
6. Use online and social marketing techniques to increase public awareness and interest in bike use. Integrate agency initiatives into messaging campaigns, such as connecting children to nature, improving public health, reducing dependence on foreign oil, saving money on fuel, and encouraging visitors to bicycle.
7. Work with a third party non-profit or private organization to operate the bike rental facilities to minimize FLMA liability.
8. Expand bicycling options for children and people with disabilities by providing children's bicycles, trailers, adult tricycles and/or hand cycles. Bicycle sharing systems in the U.S. require riders to be at least 16 years of age and do not have provisions for children or people with disabilities.
9. Offer light weight bicycles and/or bicycles with more gears and various styles to appeal to Federal lands visitors. Heavy bicycles with few gears designed for high turnover urban use may not be attractive for longer distance recreational riders.
10. Consider how bicycle could be shared with other land units. Buses used in some northern National Parks during the peak summer season are used at ski resorts during their peak winter season. Similarly, with portable or flexible bicycle systems, rather than storing bikes during the winter, bikes could be moved to warmer areas that receive their peak visitation in the winter.

In summary, combining traditional bike rentals with bike sharing concepts could make bicycling cost effective, convenient, and attractive to more people visiting Federal lands. Increasing the availability of bicycles in Federal lands can reduce impacts on the environment and help balance transportation networks. This document complements the 2008 *Guide to Promoting Bicycling on Federal Lands*, which sought to raise awareness of the benefits of bicycling and the many resources already available for bike planning and design.

Federal land managers are encouraged to combine concepts from bike sharing systems, bike rental programs and employee fleets to provide more travel choices to visitors and employees while helping achieve agency missions.

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bicycle Sharing

Public Bike Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



1. INTRODUCTION

Many Federal land management agencies (FLMAs) are exploring how bicycle programs can provide employees and visitors with more travel choices, while working toward their environmental, public health and sustainability goals. This report explores three options for making bikes more readily available in Federal lands: public bicycle sharing systems, employee bicycle fleets and bicycle rental operations.

Public bicycle sharing programs can take a number of different forms, but essentially provide bicycles for short-term use through a network of convenient locations. Bicycles can be checked out from one place and returned to another, allowing for one way trips. Modern systems have automated parking stations and bicycles equipped with technology that can confirm the identity of users (thus deterring theft). These smart bike systems can track mileage, which can be used to calculate calories burned, gas saved and emissions reduced compared to trips by motor vehicle. Public bicycle sharing programs are becoming an important part of transportation networks in urban areas worldwide. The Vélib' public bicycle share system in Paris caught the world's attention in 2007 by placing over 20,600 bicycles in service throughout the city.



Figure 2: NPS Employee Bicycles in Omaha, Nebraska (Photo: NPS)

In May 2007, just before Vélib' launched in Paris, there were about 17 public bike-sharing services worldwide.

By the end of 2007, there were about 60 third-generation bicycle sharing programs globally a(DeMaio, 2007).

As of December 2010, about 238 third-generation bicycle sharing programs had been launched globally (MetroBike, 2010).



Figure 1: Denver B-cycle Automated Public Bicycle Share System: These durable bikes are well-suited for short trips, but are not ideal for long distances, trails or steeper terrain. (Photo: A. Duvall)

Bicycle sharing systems in a more limited format may be a sustainable way to supplement transportation networks and connect urban areas with U.S. Federal lands .

Bicycle rental operations are aimed at recreational riders. They differ from public bicycle sharing systems in several ways. Bikes are typically rented for longer trips ranging from a few hours up to a few days. Bikes are checked out and returned from a single location (not allowing for one way trips). Bike rental shops typically offer different styles of bikes such as road, mountain, cruiser or children's bikes to accommodate a wide range of riders and terrain. Rental bike operations do not use smart bike technology, which is a critical and higher cost component of public bike sharing systems. Bicycle rentals are currently the most common method to make bikes available to Federal lands visitors.

Employee bicycle fleets are typically operated by an organization or university campus and are available only to certain individuals such as employees, volunteers, students or hotel guests. The employee programs highlighted in this document are typically small (10 to 30 bicycles) and consist of standard, commercially available bikes. Employee bikes may be part of wellness programs, initiatives to reduce transportation impacts or for a specific work purpose. Interpretive rangers can use employee bikes to guide bike tours, and campground hosts may use bikes for their daily rounds. A number of employee bicycle fleets already operate on Federal lands. They are typically small, low cost and relatively simple to start and operate.



1.1. PROJECT BACKGROUND

FLMAs are considering how to make bicycles more readily available to encourage employees and visitors to drive less, and thereby reduce fuel costs and vehicle emissions and improve public health. Bicycle sharing on Federal lands was the focus of a February 2009 conference call with participants from Grand Canyon National Park; Yosemite National Park; the National Mall and Memorial Parks in Washington, DC; FHWA Central Federal Lands; and experts on public bicycle sharing programs. Participants identified numerous challenges to the progress of bike sharing programs on Federal lands, including safety and legal liability issues, questions about operations and maintenance, business models and funding mechanisms. Based on these discussions, the Central Federal Lands Division of the FHWA secured funding from the Fish and Wildlife Service Refuge Road Program to develop this report. Fifteen professionals from land management agencies as well as health and transportation sectors have advised the authors to ensure a broad range of perspectives.

1.2. PROJECT PURPOSE

1. Raise awareness among public land managers of the environmental, public health and resource management benefits of public bike sharing programs, bicycle rental operations and employee bicycle fleets.
2. Identify business models and funding sources to make more bicycles available in Federal lands. Many public bicycle sharing programs rely heavily on advertising revenues, which may not be appropriate in Federal lands.
3. Understand how existing bike share programs address liability, safety and helmet use and other elements required for success.
4. Explore how elements of successful bike sharing programs may be adapted for Federal lands settings.
5. Identify characteristics of National Park Service (NPS), Fish and Wildlife Service (FWS), and other Federal lands that may be well suited for bicycle sharing pilot programs.

1.3. DOCUMENT ORGANIZATION

Chapter 2 – Bicycling Benefits and Government Initiatives: Describes benefits of bicycle sharing programs and initiatives that support integrating bicycles into existing transportation networks.

Chapter 3 – The Evolution of Public Bicycle Sharing: Provides background on the four generations of public bicycle sharing programs. It compares bike sharing and traditional bike rental concepts and introduces smart bike technology.

Chapter 4 – Public Bicycle Sharing and Bicycle Rental Program Case Studies: Explores nine case studies of public bicycle sharing and bicycle rental programs. This includes five case studies of U.S. public bicycle sharing programs:

1. Nice Ride Minneapolis, Minnesota – Launched in 2010, this automated system of 700 bikes and 65 stations allows for one-way trips in the Minneapolis metropolitan area. Nice Ride and the NPS are partnering with others to expand access to NPS sites along the Mississippi River. Using public bicycles to link existing public and private transportation and recreation networks (airport, light rail, bus, train, canoe/kayak rentals) will provide more travel choices. These choices can begin to address issues such as traffic congestion while improving air quality, public health and visitor experience.
2. Capital Bikeshare, Washington, D.C and Arlington County, Virginia. – This automated bike share evolved from a small program with an advertising-based business model to a large multi-jurisdictional program funded through many partners. This system is operated by a private firm specializing in bike sharing. The 10 station, 100 bike pilot system started in 2007 has evolved into 114 stations and 1000 bikes in 2010. An innovative rider attached to the operator's contract supports nearby jurisdictions to expand the system using the same operator and bicycle sharing equipment.
3. Freewheelin Pilot Bike Share, Denver, Colorado – Organizers lent 1,000 bikes to the public for the three day Democratic Convention in Denver in 2008. This short term pilot and a similar one

This document presents a snapshot of public bike sharing systems in 2011. Online resources such as those in Appendix A and online sources such as www.bike-sharing.blogspot.com

will help practitioners stay apprised of this rapidly evolving field.



for the Republican National Convention in Minneapolis raised awareness of the bike sharing concept and led to large scale public bike sharing systems in both Denver and Minneapolis.

4. Denver B-cycle, Colorado – Building on the Freewheelin pilot, a non-profit organization leveraged funds from multiple partners to create a large scale automated bike share program with 500 bikes and 50 stations. Leadership from city officials, local bicycling groups and others are transforming Denver's transportation system into a multi-modal network of bicycle, pedestrian, bus, light rail and car travel to provide residents and visitors with more travel choices.
5. Tulsa Townies, Oklahoma – This automated bike sharing system is aimed at longer recreational rides rather than short trips. It consists of 75 bikes and four automated stations located along a river trail system. The bicycle share is free to users and is funded by a local healthcare organization in Tulsa. This system serves recreational riders and is not designed specifically as part of a public transportation network.

Two international bike sharing examples are described briefly:

1. White Bikes in the Netherlands National Park De Hoge – This unique program has made bikes available to visitors at no cost since 1975. In 2010, the park reported it had 1700 White Bikes available for visitors. These bikes are designed for recreation and do not incorporate smart bike technology. A low tech-system such as this may work well in a park setting with controlled entrance and exit points, where bikes are less likely to be stolen.
2. Bikla Bike Share, Guadalajara, Mexico – This creative grassroots program introduced public bicycles despite political opposition and lack of public funding. A small group of advocates worked with local businesses to use their existing internet connections to operate the system and funded it in part by designing and selling their own bike racks. (number of bikes in system is not available).

Chapter 4 continues with two case studies on bicycle rental programs.

1. Bright Angel Bicycle Rentals, Grand Canyon National Park, Arizona – This bike rental facility opened in May 2010 and is the first bike rental facility within the boundaries of this national park.
2. Yosemite National Park Bike Rental, California – A concessioner has provided bicycle rentals to visitors since 1993 with about 200 bikes available at two locations for day-use in the park.

Following the case studies is a discussion of system start up and operating costs, safety and legal liability, successful program elements and common challenges. The chapter concludes with a discussion about how to begin integrating elements of public bike sharing and rental programs in Federal lands.

Chapter 5 – Employee Bicycle Fleet Case Studies: Presents case studies of five Federal lands and two universities that have employee bike fleets: Following the case studies is a discussion of system costs, liability considerations, successful program elements and common challenges for employee bike fleets in Federal lands.

1. Glacier National Park Red Bikes, Montana – This fleet of 27 bicycles is available for use by employees within the park. Bicycles are located in areas where employees frequently travel between facilities, and provide them an alternative to driving a vehicle for short trips.
2. Midwest Region NPS Omaha, Nebraska – Employees recognized that their close proximity to the Missouri River Bicycle Trail made their facility well suited to a bicycle program; they initiated a grass roots employee bike fleet for use on personal time.
3. Yosemite National Park, California – Partnering with the National Parks and Conservation Association (NPCA) for funding and a local non-profit to manage a bicycle lending program, Yosemite NP anticipates 20 bicycles will be available for employees in the summer of 2011.
4. National Capital Region NPS B-cycle – This pilot project is the first (and currently only) smart bicycle employee fleet within the NPS. It is intended to help the NPS assess how bicycles can reduce environmental impacts to parks and help develop a healthier workforce. The automated system of 30 bikes and three stations are for employee use for work duties in the Washington, DC area.
5. Hawaii Volcanoes National Park – This is a small scale bicycle loan program. Employees generally check the bicycles out for an extended period of time for use within the park boundaries.
6. Duke University – This bike-loan program offers students no-cost opportunities for exercise and car-free commuting. The University's recreational outpost houses 130 bicycles



free to students to check out for up to a week at a time, offering cruiser, hybrid and mountain bike styles to accommodate students' various activities.

- 7. University of California at Irvine ZotWheels – This automated system of 30 smart bikes located at four stations is used by students, faculty and staff of UC Irvine. Bicycles are available for periods of up to three hours.

Chapter 5 continues with an analysis of employee bicycle fleets. It describes startup costs, funding sources and methods used to limit liability, followed by a discussion of good practices and common challenges to operating an employee bike fleet. This chapter concludes with ten questions managers should ask when planning for employee bicycle fleets.

Chapter 6 – Recommendations: Provides information on how to make bicycles more available and convenient for travel in Federal lands based on the case studies and literature review presented throughout this report.

Appendix A provides a brief literature review of bike sharing programs and lists resources to assist with planning and implementing public bicycle sharing systems.

Appendix B gives pricing details for an automated bicycle share system (Capital BikeShare) from a contract between Arlington County, Virginia and the bike share program operator. Equipment in this contract consists of the turnkey Bixi style bike sharing system developed by the Public Sharing Bicycle Company.

Appendix C contains a replacement costs and cash flow analysis for the Twin Cities, Minnesota Nice Ride Public Bike Share Program.

Appendix D shows sections of public bicycle share user agreements that relate to limiting liability.

Appendix E provides sections of the Grand Canyon National Park's Commercial Use Authorization for bicycle rental facilities.

Appendix F provides examples of employee bicycle program user agreements and other forms that may serve as templates.



2. BICYCLING BENEFITS AND INITIATIVES

This section describes how increased bicycling can assist Federal land managers with their goals and responsibilities, and how public bicycle sharing programs in urban areas have already demonstrated tangible benefits. Urban bicycle sharing programs are highlighted because public bicycle sharing programs have yet to be implemented on a large scale in Federal lands. However, providing increased opportunities for visitors and employees to travel by bicycle rather than private motor vehicle is likely to produce similar types of benefits in a public lands setting as in an urban setting. The second part of this chapter describes initiatives that support integration of bicycles into transportation networks.

2.1. BICYCLING BENEFITS

The *Guide to Promoting Bicycling on Federal Lands* (FHWA, 2008a) sought to raise awareness of the environmental, public health and resource management benefits of bicycling within a multi-modal public lands transportation system. Some of the ways that increased bicycle use can assist Federal land managers include:

- Reducing transportation-related pollution and impacts on the environment;
- Providing better access to remote/sensitive areas;
- Enhancing the quality of visitor experiences;
- Dispersing visitors away from heavily used developed areas;
- Reducing automobile-related congestion and parking shortages;
- Promoting good health and increased physical activity among the participants; and
- Creating a more balanced transportation and recreation network to preserve the landscape for future generations.



Figure 3: Bicycling along the Mississippi River Trail in the Twin Cities, Minnesota (Photo: NPS)

Additional benefits have also been identified in a study of bicycle share systems in Europe, showing that bicycle sharing programs can help to increase the public's acceptance of bicycles as a mode of transportation, provide a lower-cost travel option compared to motorized systems, contribute to a positive image for the locale, and attract tourists (NICHES, 2007; IDAE, 2007). Each of these benefits could also be realized in the context of public land units, especially in partnership with nearby gateway communities.

Increase in bicycle facilities & mode share

The city of Montreal constructed 87 miles (140 kilometers) of new bicycle paths within two years of introducing its Bixi (bicycle taxi) bicycle sharing system, bringing the total to 342 miles (552 kilometers) in the city (Johnston, 2010). This suggests that investments in bike sharing programs can stimulate investments in bicycling infrastructure. FLMA support for bike sharing programs could stimulate partnerships with nearby communities to increase bicycle transportation investments.

Safety in numbers

A growing body of research suggests that increasing the number of bicyclists results in safer conditions for bicycling. Data from Portland, Oregon, indicates as ridership goes up, the number of crashes has not increased (Portland Bicycle Count Report, 2009). A related study shows that increased bicycle use results in a reduced probability of bicycle-vehicle collisions (Jacobsen 2003). These studies suggest there is safety in numbers; as more people bicycle, drivers become more aware of bicyclists and slow down, leading to safer roadways for all users. While these studies are based in urban settings, it is also likely that a critical mass of bicyclists traveling in Federal lands would lead to an overall increased awareness and thus safer roadways.



2.2. FEDERAL INITIATIVES SUPPORTING BICYCLING

The Federal government has supported bicycling programs through a variety of programs and initiatives. The following initiatives illustrate the increased interest in bicycle programs among various federal agencies. These examples can be persuasive points to help convince leaders of the importance of a multi-modal transportation network, and how bicycle sharing can help develop those networks.

Multi-modal Transportation

In March 2010, Transportation Secretary Ray LaHood announced a “sea change” in transportation policy: that all new federally-funded road projects must consider and address the needs of pedestrians and bicycles. The Secretary’s policy statement on bicycle and pedestrian accommodation has had significant implications for transportation policy and funding. According to Secretary LaHood:

“We are integrating the needs of bicyclists in federally-funded road projects. We are discouraging transportation investments that negatively affect cyclists and pedestrians. And we are encouraging investments that go beyond the minimum requirements and provide facilities for bicyclists and pedestrians of all ages and abilities.”

This policy, combined with recent funding through the American Recovery and Reinvestment Act, has brought government funding for bicycle and pedestrian projects to its highest level in the nation’s history (FHWA 2010a).

Transportation spending on bicycling and walking more than doubled from less than \$600 million in 2008 to \$1.2 billion in 2009. (FHWA, 2010).

Moving people out of motor vehicles and onto bicycles can help FLMA’s advance public health and sustainability goals.

By encouraging bicycling, Federal land managers can play a significant role in positively impacting the environment and public health, not just inside their boundaries.

In 1994, the FHWA and the National Highway Traffic Safety Administration set goals to double the percentage of total trips made by bicycling and walking in the United States from 7.9 to 15.8 percent and reduce the number of bicyclists and pedestrians killed or injured in traffic crashes by 10 percent (FHWA 1994). By 2009, walking and biking trips accounted for 11.9 percent of all trips reported (FHWA 2010b); thus the goals have not yet been met. Federal lands offer important opportunities to encourage a shift in travel modes for visitors who would enjoy a leisurely bicycle ride to see the sights.

As a part of recent livable community initiatives, the Environmental Protection Administration, the Department of Transportation and the Department of Housing and Urban Development have committed to pursue policies that “provide more transportation choices to reduce household transportation costs, reduce dependence on foreign oil, improve air quality, reduce greenhouse gas emissions and promote public health (U.S.DOT, 2009).” This goal is the first of six livability principles created by the Interagency Partnership for Sustainable Communities among these three agencies (U.S. DOT, 2009). The concept of livability acknowledges that social, economic, environmental, health and transportation challenges are interrelated. Improving transportation options on public lands is consistent with livability initiatives and is one way federal land agencies can contribute to a shift towards active and efficient transportation.



Health

Physical inactivity is a well-documented risk factor for many of the most common health problems facing Americans, including obesity, heart disease, stroke, some cancers, diabetes and depression (US HHS, 1996). It is estimated that 67 percent of U.S. adults age 20 years and over are overweight or obese (CDC, 2006). Bicycling can be a good way to engage in regular physical activity.

The Physical Activity Guidelines for Americans notes that ten minute sessions of moderate intensity aerobic activity are beneficial to health (HHS, 2008). According to the World Health Organization and the Centers for Disease Control and Prevention, routine physical activity:

- Reduces the risk of developing type II diabetes, heart disease, colon and breast cancer, lower back pain, depression, anxiety, stress, and overall risk of premature death.
- Helps to build and maintain healthy muscles, joints, and bones.
- Promotes a sense of well-being and a healthy psychological state.
- Promotes a healthy weight.
- Increases productivity in the workplace, decreases absenteeism, decreases turnover, and may improve children's performance in school.

Federal lands have opportunities to encourage visitors and employees of all ages to discover or re-discover bicycling as an enjoyable way to get around, which they may carry over into their everyday lives. Encouraging the use of bicycles on Federal lands can thus lead to increased lifelong physical activity and an improved quality of life. A few initiatives that support physical activity such as bicycling include:

- The U.S. National Physical Activity Plan: This Plan promotes a vision that all Americans will be physically active, and they will live, work and play in environments that facilitate regular physical activity (National PA Plan, 2010).
- Several federal agencies, including FLMAs and FHWA, have a Memorandum of Understanding (MOU) to promote the appropriate recreational use of public lands to combat health issues such as obesity, cardiovascular disease, high blood pressure and diabetes (FHWA, 2008b).
- America's Great Outdoors: A Presidential Memorandum was issued in April 2010 to reconnect Americans, especially children, to landscapes of national significance, forests, and parks (White House, 2010).
- Within the National Park Service, NPS Director Order Number 57 relates to potential employee bicycle systems and states that the NPS "will continue to invest in the health and physical well-being of all its employees and will support employee health and fitness goals" (NPS 1999).



3. THE EVOLUTION OF PUBLIC BICYCLE SHARING

Public shared bicycle programs are receiving significant attention as an important part of daily transportation needs, primarily in urban areas around the world. Large scale public bike sharing programs have the potential to reduce traffic congestion and vehicle emissions, conserve energy, increase physical activity, reduce transportation costs and improve mobility options. Demand for cleaner air, reduced congestion and more transportation choices has led to significant advances in the technology and administration of bicycle sharing programs in the past five years. Public bicycle sharing systems are often described by their level of development, from simple first-generation systems up to high-tech, fourth-generation systems, which are still evolving.

3.1. FOUR GENERATIONS OF BICYCLE SHARING

First-generation bicycle sharing

One of the earliest documented bicycle sharing efforts was “White Bicycles,” a community sharing program that began in Amsterdam in the 1960s. Traditional bicycles were painted white and distributed throughout the city, free for anyone to use (DeMaio and Gifford, 2004). The system was unregulated, thus there was no tracking of bicycles after their initial distribution, and no program administration. First generation programs were characterized by low start-up and operation costs as bicycles were often donated, volunteers performed maintenance, and there were no administrative costs. Most public first-generation programs were short-lived, as bicycles were stolen or damaged.

Second-generation bicycle sharing with locking mechanisms

Most second generation systems were similar to those developed in the early 1990s in the small Danish cities of Farsø, Grenå and Nakskov (DeMaio, 2010). These systems were characterized by locking mechanisms, coin deposits and non-traditional bicycles that had unique parts requiring special tools. Specialized bicycles and locks were intended to reduce theft and vandalism. In 1995, the capital city of Copenhagen launched the first large-scale second-generation public bicycle system, called Bycyklen, or City Bicycles (IDAE, 2007). The City Bicycles program offered 1,100 specially designed bicycles at designated racks throughout downtown Copenhagen (The New Mobility Agenda, 2008). It currently has about 2,000 bicycles and 110 stations. Despite the locking mechanisms and special parts, theft is a continuing problem due to anonymity of the user and the small deposits required to check out bicycles.

Third-generation information-technology-based systems, or “smart” bicycles

Third-generation systems emerged in the late 1990s. Advances in information technology (IT) allowed for fully automated, self-service public bicycle systems. Users check out bicycles with a credit card or by registering for a key or smart card. A kiosk located near the bikes provides user interface technology to allow credit card or smart card check out. Most systems feature advanced tracking and proprietary locking mechanisms. Radio Frequency Identification (RFID) and/or Global Positioning Systems (GPS) may be used to track mileage, maintenance needs and bicycle location. Third-generation programs may use telecommunication systems, smartcards and fobs, mobile phone access, or on-board computers (DeMaio 2010).

The expansion of the Vélo’v bicycle sharing program in Lyon, France, to 1,500 bicycles in 2005 represented a major turning point for bicycle sharing. In 2005, Vélo’v had 15,000 members using bicycles an average of 6.5 times per day (Henley, 2005). In 2007 Paris took notice and launched its own program, Vélib’, with about 7,000 bicycles and has since expanded to 23,600 bicycles (DeMaio, 2010). Most modern public bicycle sharing programs consist of a network of smart bicycles and automated stations in urban areas.



Fourth generation – the future of bicycle sharing

Bicycle sharing experts are beginning to discuss the emergence of a fourth generation system. Innovations include modular and portable bicycle stations that use solar and battery power; thus stations do not require trenching or underground wiring. These stations can be moved for special events or to better meet demand. Other innovations include improved distribution methods to reduce the time and expense of moving bicycles and to help balance demands (DeMaio, 2010). Few fourth generation systems have yet been tested in public. One system that includes many fourth generation elements is Washington, DC’s Capital Bikeshare.

In terms of nomenclature, shared bicycles have been called White, Yellow or Community Bicycles, Free Bicycles, Public Bicycles, PBS (Public Bicycle Systems), Smart Bicycles, and Public-Use Bicycles (PUBs). There are hundreds of different public bicycle projects and variations (New Mobility Agenda, 2008). Table 1 provides a summary of key components of the four generations of bicycle sharing systems (Shaheen et al., 2009).

TABLE 1: KEY COMPONENTS OF BICYCLE SHARE SYSTEMS

Bicycle Share Generations Key Components	1st	2nd	3rd	4th
Bicycles with uniform appearance (often painted one color using many different styles of bikes)	X	X	X	X
Docking stations in designated locations [1]		X	X	X
Locking mechanisms		X	X	X
Kiosks with user-interface technology			X	X
Portable stations/improved bicycle re-distribution				X

[1] A few 3rd generation systems allow for locking at non-designated locations such as Next Bike and Call-a-Bike.

In contrast to automated bicycle sharing systems, community bicycle lending or bicycle libraries are systems that lend bicycles to individual users for weeks or months at a time. A few of the employee bike fleet case studies fall within a bike lending or library context, where bicycles are available to employees for long periods of time.

3.2. PUBLIC BICYCLE SHARE VERSUS BICYCLE RENTAL PROGRAMS

Public bicycle sharing programs are a form of short-term rental, but they differ from traditional bicycle rental businesses in several other ways. Rental programs are typically for-profit private businesses that lend bicycles for longer periods than bicycle share and do not allow for one-way use. Bicycle rentals are generally checked out from and returned to a single, staffed location. Table 2 lists key differences between bicycle sharing and traditional bicycle rental concepts.

TABLE 2: DIFFERENCES BETWEEN BICYCLE SHARING AND BICYCLE RENTAL CONCEPTS

Public Bicycle Sharing	Traditional Bicycle Rentals
Shorter term encouraged by pricing strategy	Longer term recreation use is typical
Dispersed network of unattended stations for bicycle pick up and drop off, enabling one-way use of bicycles	Single location that is staffed for bicycle pick up and drop off
Targets bicycle use for public transportation; typically encourages short trips	Targets bicycle use for recreation
Subsidized by various sponsors, similar to other public transportation	Traditional for-profit business model
Technology used to track bike location and use	Traditional bicycles do not incorporate tracking capabilities.
Designed for adults (Europe and Canada typically allow riders 14 years and older while U.S. typically allow 16 years and older)	May accommodate families by providing children’s bicycles and/or trailers. Also may accommodate people with disabilities with specialty bikes (3-wheels, hand cycles, etc.)



OV Fiets (<http://www.ov-fiets.nl/>) is a longer term bike rental system started in 2002 as a publicly subsidized pilot project in the Netherlands, aimed at making the bicycle a part of the public transport system (OV = Public transport, fiets = bicycle). Users can check out bicycles from attended or staffed stations at over 100 rail stations. Bicycles can be parked and locked during the day and returned to rail stations at the end of the day. OV Fiets is unique because it offers low cost bike rentals at major transit stops, which gives riders flexibility to lock a bike at other locations (NICHES, 2007). Most public bicycle sharing programs use smart bike technologies, which are described in the next section.

3.3. SMART BIKE SHARING TECHNOLOGIES

Common terms used in smart bicycle sharing systems are described below. The first six terms are adapted from the Arlington County, Virginia Bike sharing program contract (Arlington, 2010).

Backend Software and Computer Hardware – an electronic interface that allows stations, bicycles, customer service, cellular service, member keys, website and call center to function. The term backend refers to components for the operator, which the customer cannot see

Station – a designated area containing one or more of the following: bicycles, docks, terminal, technical platform, map frame.

Customer Key – a fare card for bicycle rentals.

Dock – a parking/locking mechanism on a station to receive a bicycle for locked storage.

Terminal – a kiosk with a user interface containing bicycle rental instructions and payment equipment for credit or debit cards.

Technical Platform – a base resting on the ground that supports docks, terminal, and other equipment.

Three main types of parking and locking technologies are currently available that are commonly used in public bicycle sharing programs: fixed, portable and flexible systems.

Fixed systems consist of bicycles that must be locked into specially designed stations “fixed” at a location. Currently, most fixed stations are installed permanently. Fixed stations typically require significant construction efforts, including trenching, to install and connect to electricity and network cables. Once installed, they are difficult to move. Bicycles lock to racks with a special locking mechanism and must

be regularly redistributed to ensure bicycles and empty slots are available. A central IT system monitors bicycles to manage redistribution crews. Most fixed stations have many more locking locations at the stations than bicycles to allow customers space to return bikes. Fixed stations should be located close enough together to allow riders to go to the next station to check out a bicycle (if a station is empty) or to return a bicycle (if a station is full) (Transport Canada, 2009).

Portable systems are a recent innovation that feature battery and solar-operated stations that don’t require excavation for installation or hardwiring to an electricity source. The portable stations are relatively simple to move because they are not connected to underground cables and electricity. Managers can move stations quickly if the location is not well used or for special events or snow removal. Montreal’s Bixi, the Twin Cities’ Nice Ride Minnesota system, and the District of Columbia’s

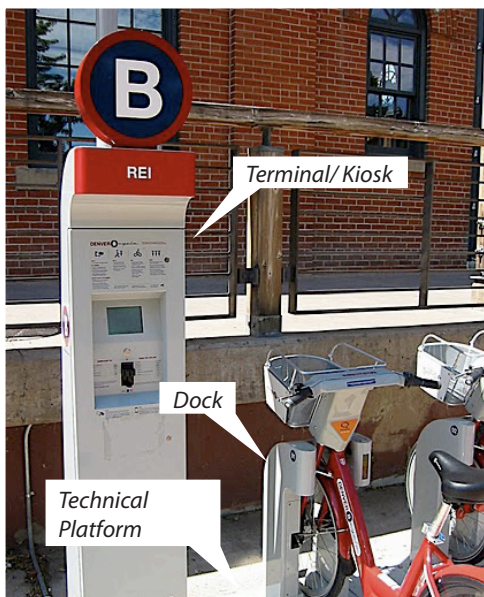


Figure 4: Denver B-Cycle Station
(Photo: A. Duvall).



Capital BikeShare all feature portable systems from the Public Bicycle System Co. Denver B-cycle uses a combination of fixed and portable stations.

Flexible systems have bicycles with built-in cable locks that enable them to lock to any fixed object. Flexible systems allow users to lock the bicycle where they need within a specific service area; they don't have to return bikes to a specific station. Riders typically have to leave bicycles in a defined service area (within the city limits for example) and in highly visible locations such as near major street intersections. Riders call a central phone number to receive a code for the lock on a bike that they identify using a unique number on the bike. Flexible systems are less expensive than fixed systems, because the system operator does not have to purchase or install special stations. Flexible systems may require some bicycle redistribution, but typically not as much as fixed systems.

Flexible systems can be frustrating for both users and system managers due to their dispersed locations. Users may not be able to rely on a bike when needed at a pre-determined location and managers may take more time retrieving bikes for maintenance or redistribution. A tracking device such as a GPS can allow riders and the operator to locate bicycles (this can be expensive); otherwise users must report the bicycle location when they are done riding (Transport Canada, 2009). Flexible systems may work well if the service area is confined to a smaller area, perhaps in a Federal land setting between certain campgrounds and attractions for example. The following are a few examples of flexible systems:

- **Call a Bike** (www.callabike.de) was developed by the German passenger rail operator Deutsche Bahn to connect rail commuters to their final destinations by bike. The original Call a Bike system in Munich has some fixed stations (mostly at railway stations), but does not require bicycles to be returned to these stations. Users can return bicycles at most major street intersections within a designated service area by locking them to a bicycle rack or traffic sign. Bicycles have a combination lock that is wirelessly controlled. A green light on the bicycle's electronic lock shows it is available, while a red light means it is in use. Registered users send a text message with the bicycle serial number or call a 24-hour hotline to obtain the lock combination. Serial numbers are displayed on the bikes (Transport Canada, 2009).
- **Nextbike** (<http://Nextbike.net/>) is a German off-the-shelf, flexible bike share system operated by local private companies. It offers public bicycle sharing in more than 20 cities in Germany, Austria and New Zealand. Bicycles have cable locks and can be rented around the clock at official rental locations. Registration, rent and return is possible by phone or online (Nextbike, 2010).
- **The Social Bicycle System (SoBi)** (<http://socialbicycles.com/>) is a developing public bicycle share system that uses GPS, mobile communications, and a lock that can attach to most commercially available bicycles and lock to any regular bicycle rack. System developers report SoBi is affordable and can be deployed in a wide range of settings such as small cities, universities and corporate campuses. SoBi will allow customers to find and unlock bicycles using a mobile phone.



Automated Station Check-out/Return Procedures



Figure 5: Capital Bikeshare station map
(Photo: P. DeMaio)

All three of the systems described—fixed, portable and flexible—have automated systems allowing bicycle check-out and return without the need to staff bicycle stations. These systems permit riders to register and give collateral such as a credit card. Important considerations for station design and user interface for check-out include:

- Simple to understand interface with clear directions on check-in and out procedures
- Cost and pricing information
- Contact information to report damaged or stolen equipment
- Maps of the station network and bicycle routes
- Various membership options (e.g., 24-hour or annual)
- Payment options that allow credit card use
- Website interface to display bicycle availability

Fixed, portable and flexible systems typically require riders to register before checking out a bicycle, which is a major theft deterrent. Case studies in Chapter 4 provide more details on check-out/return protocols.

Common Features of Successful Public Bicycle Sharing Programs:

- Smart bicycles that communicate with an administrative system
- Registration and collateral is required for system users (theft deterrent)
- Sufficient density of stations to ensure convenient supply of bicycles
- Frequent monitoring and maintenance of bicycles
- Provision to redistribute bicycles among stations (Duvall, 2009)
- Portable and modular bicycle stations (don't require trenching or hard wiring to an electricity source)



4. PUBLIC BICYCLE SHARING PROGRAMS AND RENTAL PROGRAMS

Public bicycle sharing systems are spreading quickly in urban areas across the globe. This chapter presents case studies of two models for providing bicycles to the public – bicycle sharing and bicycle rental programs. Both models provide bicycles to the public and fill different niches.

Automated bicycle sharing systems have worked well in bike friendly urban settings with high population densities, short distances between destinations and connections to public transit. Automated systems should be considered in Federal lands that are located in densely populated urban areas, especially ones that have existing bike sharing systems. Automated systems may also work well in rural settings that have high visitation rates, good bicycling facilities and many destination/attractions in close proximity.

Many Federal lands are located in more rural settings where long distances between attractions and lower visitation can inhibit success of automated bicycle systems, which use heavy bikes designed for short trips. In these areas, bicycle rental models may be a better method to make bikes available to visitors.

Section 4.1 contains case studies of both small and large scale automated bicycle sharing systems, followed by two short descriptions of international public bike programs. These programs vary in size and scope, with fleets ranging from 75 to over 1,000 bicycles, and start-up costs ranging from approximately \$87,500 to over \$6 million.

Section 4.2 contains bicycle rental case studies. The subsequent sections provide an analysis of system costs, business models, funding options and methods to improve rider safety and limit legal liability. A discussion of elements of successful programs gives insight into good practices for planning, operating and maintaining a public bicycle system.

Chapter 4 concludes with ideas about how bike sharing and rental models could be adapted to make bicycles a more convenient travel option in Federal lands.

4.1. PUBLIC BICYCLE SHARING CASE STUDIES

The case studies presented here are all located in US urban areas and are all relatively large scale (with the exception of Tulsa Townies). Table 3 summarizes major bike sharing programs in North America as of December 2010. As of early 2011, B-cycle and the Public Bicycle Company had emerged as the two largest automated bicycle sharing equipment vendors in North America (smaller vendors are listed in Appendix A). Montreal’s well known Bixi system is not described as a case study in this report because it is discussed in other reports listed in Appendix A.

TABLE 3: PUBLIC BICYCLE PROGRAMS IN NORTH AMERICA

Program/Location	Launch Date	Bicycles/ Stations	Vendor/ Equipment	Operator
Bixi Montreal, Canada	June 2009	2,400/300	Public Bicycle Systems Co.	Stationnement de Montreal (parking authority)
Nice Ride Minneapolis, Minnesota	June 2010	700/ 65	Public Bicycle System Co.	Nice Ride, Minnesota (Non-Profit)
Capital Bikeshare Washington, DC, and Arlington, VA	Sept. 2010	1,100/ 114	Public Bicycle System Co.	Alta Bike Sharing, Inc (private for profit)
Freewheel!n Temporary Pilot Denver, CO	Aug. 2008 (4 day event)	1,000/ 6 staffed locations	Variety of vendors (non automated bike checkout)	City of Denver, Humana and bike advocacy groups
Denver B-cycle Colorado	April 2010	500/ 50	B-cycle LLC	Denver Bike Sharing (Non-Profit)
Tula Townies, Oklahoma	August 2007	75/ 4	Qi Systems (no longer a vendor)	Saint Francis Health System



4.1.1. NICE RIDE MINNESOTA AND THE NATIONAL PARK SERVICE IN THE TWIN CITIES

NICE RIDE MINNESOTA ESTABLISHED JUNE 2010	
City population & density	337,392 in Minneapolis 3.1 million in Metro area City Density: 6,721 people/ square mile
Vendor/ Equipment	Public Bicycle System (Bixi) http://www.bixisystem.com/home
Operator	Nice Ride Minnesota non-profit organization www.niceridemn.org
Stations	65 portable stations
Number of Bikes	700
Capital/Start-up Costs	\$3 million[1] (average \$4286 per bike)
Annual Operating Costs	\$1.5 million[2]

[1] Draft Report Phase 2 Planning-Nice Ride Minnesota, December 2010
 [2] City of Minneapolis Non-Profit Business Plan for Twin Cities Bike Share System, 2008.



Figure 6: NPS Ranger with a Nice Ride Bicycle, Mississippi River Trail (Photo: NPS)

Nice Ride Minnesota launched in 2010 with 700 bicycles /65 stations designed to improve public transportation options in Minneapolis, MN. The new system provides opportunities to link existing public and private transportation networks (airport, light rail, bus, train, public bikes, canoe and kayak rentals) using public bicycles to expand travel choice in this urban setting.

In 2011, NPS completed the first phase of a plan to create a robust multi-modal network that includes bicycle facilities, canoe and kayak rental facilities, and public bus and light rail systems throughout the metro area and the Mississippi National River and Recreation Area (MNRRA). Based in part on this plan, NPS and Nice Ride MN are partnering to improve access to the River’s cultural, historic and natural resources to enable visitors and residents to get to and along the river without the use of car. This will help minimize congestion and impacts to park resources while achieving the park’s goals for recreational use and visitor access to the river. In its own words, MNRRA is seeking to:

“Create a well-defined and seamless network of multimodal opportunities in this urban river corridor that is recognized by all visitors as the means to navigate the Mississippi National River and Recreation Area corridor in its entirety” (Overson, 2011). NPS is focusing on the river corridor and is seeking funds for 16 Nice Ride stations along the riverway. A system of wayfinding signs and stations will improve access to the river without the need for a car. Clear NPS branding on maps, riverway bicycle stations and signs will help MNRRA define who they are as a National Park and help protect the diverse resources in this urban setting.

How it Works

Customers purchase a membership that allows them to pick up a bicycle from one location and return it to another, allowing for one-way trips. Memberships cost \$60 annually, \$30 for 30 days or \$5 for 24-hours. Members ride free for the first half hour of each trip, with increasing fees for longer time periods. This fee structure encourages short trips and makes bicycles available to more riders throughout the day. Riders may check out a bike multiple times per day for free, as long as each trip is less than 30 minutes. Bicycles



are available 24 hours a day, 7 days a week from April to November. Stations are removed from the streets during the snowy winter months (Nice Ride, 2010).

Funding/ Business Models

Nice Ride’s business model relies on public and private funds. The \$3 million in initial capital costs were funded through three primary sources:

\$1.75 million from the FHWA’s Non-motorized Transportation Pilot Project (administered locally through Bike/Walk Twin Cities and Transit for Livable Communities)

\$1 million from Blue Cross and Blue Shield of Minnesota Center for Prevention (funded through the historic tobacco litigation settlement).

\$250,000 from the City of Minneapolis Convention Center Fund

Nice Ride also works with many local businesses and organizations to sponsor stations. The system recognizes sponsors, but does not sell advertising. The NPS plans to sponsor Nice Ride stations to make connections to the MNRRA trails and attractions along the Mississippi River.

Annual operations costs were estimated at \$1.5 million in the business plan (Dossett et al, 2008). The business plan calls for 80 percent of the annual operating costs to be covered through rider memberships with the other 20 percent covered through private sponsors. See Appendix C for the Twin Cities financial analysis and lifecycle costs of the Nice Ride public bike share program.

Safety and Legal Liability

The Minneapolis area has made significant efforts to create a bicycle friendly city over the past twenty years. The Non-Motorized Transportation Pilot Program has infused \$21.5 million into bicycling and pedestrian activity since 2005 and the City has a “Silver Status” Bicycle Friendly Community designation (City of Minneapolis, 2010). Nice Ride’s website has an entire page dedicated to safety with links to local bicycle education classes and many other resources (<https://www.niceridemn.org/safety/>). Nice Ride reported minimal issues with injuries and theft in 2010. During the first year, managers reported one bike lost, one crash and no accidents with injuries (Dossett, 2011).

User agreement/liability waiver

Nice Ride’s user agreement places responsibility on the rider. For example, the rider acknowledges they are a competent bicycle operator, sufficiently physically fit to ride and have medical clearances for physical activity. The agreement has a waiver to indemnify Nice Ride from claims. The user agreement is available online at: <https://secure.niceridemn.org/subscription/>

Insurance

The Request for Proposals for the Minneapolis Public Bicycle share called for the bike share operator to carry Workers Compensation, Commercial General Liability, Commercial Automobile Liability insurance and Professional Liability Insurance or Errors & Omissions insurance (City of Minneapolis, 2007).

Partnerships

Nice Ride Minnesota was formed through the cooperation of many local professionals. Legal, design, marketing, accounting, public relations and web development firms donated hundreds of hours of staff time (Nice Ride, 2010).



Figure 7: Canoeists in the Mississippi River-Twin Cities (Photo: NPS)



Successes

In 2010, Nice Ride had 1,302 annual members and 29,000 shorter term members and reported 100,817 bicycle trips (Dossett, 2011). The system is well known for its strong brand; which is fun, smart and has a sense of local pride. Major sponsors have recognized the connection between health and active transportation, as demonstrated by the large contribution by Blue Cross of Minnesota.

According to a 2010 survey, about 20% of the system’s members would have otherwise driven a car for their most recent trip if these public bikes had not been available (Community Design Group, 2010).

Challenges

Communicating the concept of shared bikes for short term trips has proven challenging for the Nice Ride Minnesota system. People frequently do not understand the pricing structure, and are interested in using the bicycles for longer periods of time than the system encourages. Although Nice Ride lets customers know longer term rentals will be expensive, this has caused problems for some users. NiceRide has attempted to make it known that a long ride will be expensive. For example, their website points out a ride will cost \$34.50 for a 3.5 to 4 hour ride and \$64.50 for a 6 to 6.5 hour ride. In addition, NiceRide has used its website to direct people to nearby bike rental shops if they want to rent a bike for an extended period of time.

4.1.2. CAPITAL BIKESHARE – ARLINGTON, VIRGINIA & WASHINGTON, D.C.

CAPITAL BIKESHARE ESTABLISHED SEPTEMBER 2010	
City population & density	220,000 Arlington, Virginia 580,000 DC / 5.3 million in metro area City density: 9,583/sq. mile (3,700/sq. km)
Vendor/ Equipment	Public Bicycle System (Bixi) http://www.bixisystem.com/home
Operator	Alta Bicycle Share, Inc. http://www.altabicycleshare.com/
Stations	114 portable stations (14 in Arlington and 100 in D.C.) www.capitalbikeshare.com/
Number of Bikes	1,110 (110 in Arlington and 1,000 in D.C.)
Capital/Start-up Costs	Estimated at \$6 Million (average \$5405 per bike) [1]
Annual Operating Costs	Approximately \$2 Million (average \$1,860 per bike annually) [1]

[1] Arlington, 2010.

Capital Bikeshare evolved from a small program based on advertising revenues to a large multi-jurisdictional program funded through many partners. The 10 station, 100 bike Smartbike pilot system started in 2007 has evolved into 114 stations and 1000 bikes in 2010. The pilot program raised awareness of bike sharing as a viable public transportation mode. Arlington County, Virginia and the District Department of Transportation (DDOT) collaborated and launched Capital Bikeshare in September 2010. An innovative rider attached to Arlington County’s operations contract supports nearby jurisdictions to expand the system using the same operator and bicycle sharing equipment.



Figure 8: Capital Bikeshare in January 2011 (Photo: P. DeMaio)

Capital Bikeshare uses the Bixi system with bikes designed for high-use and low maintenance featuring 3 speeds, internal hub gears, fenders, chain guard, lights, and a front rack. Wireless technology and solar power eliminates connections to the power grid and wired communication links, thus stations can be quickly moved to meet demands and changing conditions.



How it Works

Capital Bikeshare requires a membership and user fees for rides over one half hour. Annual (\$75) and monthly (\$25) memberships may be purchased online or at a station by residents and visitors. Daily (\$5) or 5-day (\$15) memberships may be purchased at the bike stations (not online). Individual customers must be 18 years of age or older; although customers who are 16 or 17 years old may ride with their parent and/or legal guardian. With a membership, bikes may be used for up to a half hour for free with increasing fees for longer rentals (Capital Bikeshare, 2010). This fee structure encourages short trips and makes bicycles available to more riders throughout the day. Riders may check out a bike multiple times per day for free, as long as each trip is less than 30 minutes. In addition to the membership, usage fees are: 0-30 minutes (free), 31-60 minutes (+\$1.50), 61-90 minutes (+\$3.00), each additional 30-minute period (+\$6). Riders may be charged \$1,000 if a bike is not returned with 24 hours. Customers check out a bicycle from one location and return it to another regardless of jurisdiction. Capital Bikeshare plans to operate 365 days per year, though the bicycle rental agreement states that users must not ride a bike in extreme weather including snow, hail, and electrical storms (Capital Bikeshare, 2010).

Funding/ Business Models

The original SmartBike pilot program used the outdoor advertising firm Clear Channel to run the bike share system, in return for administering a bus shelter program with advertisements on the bus shelters. Capital BikeShare uses a business model financed as a public transportation service by Arlington County and DDOT, using a variety of funding sources. Arlington committed \$830,000 to the startup and first year of operations with County funds and two corporate sponsors: the Crystal City Business Improvement District and a transportation management association called the Potomac Yard Full Access Solutions in Transportation (FAST). A portion of this system in the District is funded by the FHWA's Congestion, Mitigation and Air Quality (CMAQ) fund (Capital Bikeshare, 2010). Operating revenues and additional government funding will be used to support and expand the service as early as Spring 2011.

This business model gives jurisdictions that have restrictions on advertising a mechanism to fund bike-sharing services. As this service is regional, the operator contract was written with a rider obtained from the Metropolitan Washington Council of Governments, which allows other jurisdictions within the metropolitan planning organization's region to use the same system, operator and pricing developed in Arlington through its public tender process.

Total start-up costs are estimated at \$6 million for 1,110 bikes, 114 stations, and associated equipment, as well as installation. This results in an average expense of \$5,405 per bicycle. The cost of a small station with four bicycles and seven docks was \$26,064 (\$6516 per bicycle). A large station with 13 bicycles and nineteen docks was \$52,276 or \$4,021 per bicycle (Arlington, 2010). The stations include 3-speed bicycles, user kiosk, technical platforms, map frames, customer keys, spare parts, supplies and shipping. This contract is available online (Arlington, 2010) and pricing can be found in Appendix B.

Annual operations costs are approximately \$2 million (based on an average of \$1,860 per bike annually). The system operator, Alta Bicycle Sharing, has a staff of about 15 people, which includes bike mechanics, station technicians, IT support, customer care, and the head of operations. There are three distribution vehicles of varying capacity.

Safety and Legal Liability

The Capital Bikeshare website contains significant information on safety and how the system manages liability and risk. The bikes have built-in safety mechanisms such as front and rear



Figure 9: Capital Bikeshare station in Arlington, VA (Photo: J. West)

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Exploring Bicycle Options for Federal Lands

flashing LED lights, tire reflectors and plastic casing around cables to prevent tampering. The website lists pre-ride safety checks, riding tips and links to safety information such as “Safe Bicycling in the Washington Area.” The website also provides links to free classes for biking safely in an urban environment offered by Arlington and DDOT, bicycling laws, helmet information and bicycling maps.

User agreement/liability waiver

Customers must sign a bicycle rental agreement, liability waiver and release form before they ride. This form contains 26 sections with provisions that cover issues such as general assumption of risk by the user and prohibited acts such as using handheld devices, operating the bike under the influence of alcohol or drugs or carrying a second person on a bike. The users acknowledge they are competent bicycle riders and agree to conduct a safety inspection of the bike. The agreement describes proper helmet type, sizing, and use and recommends that all users wear a helmet. In summary, this agreement provides a comprehensive form regarding liability and risk management for Capital Bikeshare and is available online (Capital Bikeshare, 2010).

Insurance

Both Arlington and DDOT jurisdictions required the operator provide various insurances, including:

1. Workers Compensation - Virginia Statutory Workers Compensation (W/C) coverage including Virginia benefits and employer’s liability with limits of \$100,000/100,000/500,000.
2. Commercial General Liability - \$1,000,000 combined single limit coverage with \$1,000,000 general aggregate covering all premises and operations and including Personal Injury, Completed Operations, Contractual Liability, Independent Contractors, and Products Liability.
3. Business Automobile Liability - \$500,000 Combined Single Limit (Owned, non-owned and hired). The Contractor shall carry Errors and Omissions Liability insurance that will pay for injuries arising out of errors or omissions in the rendering, or failure to render services or perform Work under the contract, in the amount of \$1,000,000 (Arlington, 2010).

Further details on insurance requirements may be found on pages 12 and 13 of the Arlington Bikeshare contract agreement 15-09 (Arlington, 2010).

Partnerships

Many partners contributed to planning and starting Capital Bikeshare. Two firms assisted Arlington County and the DDOT in the planning and operation of Capital Bikeshare. MetroBike, a bike sharing consulting firm advised on planning and operations. The system is operated by Alta Bicycle Share, Inc. Funders included the Federal Highway Administration, the Crystal City Business Improvement District, the Virginia Department of Rail and Public Transportation, and Full Access Solutions in Transportation (FAST). More information on partners is available online (Capital Bikeshare, 2010).



Figure 10: Capital Bikeshare January 2011
(Photo: R. Gleason)

Successes

DDOT has documented an increase in bicycling that coincides with Capital Bikeshare. Annual counts indicate rush hour bicycle trips increased by 82 percent between 2007 and 2010 at 20 locations throughout the District (DDOT 2010). A naming competition engaged more locals and the public in the process to create the Capital Bikeshare system. Large employers located nearby are supporting the system through corporate memberships. For example, the Office of Personnel Management purchased 300 corporate memberships, which are available free of charge to employees (Long, 2010). The Department of the Interior is offering free memberships to



employees, and universities will soon be offering free or discounted memberships to students and staff (DeMaio, 2010a). A unique rider in the Arlington contract provides for ease in expanding the system to nearby jurisdictions

Challenges

The original 120 bicycle/10 station system was too small to serve public transportation needs.

Integrating stations into NPS lands has raised concern about how the high-tech system fits in with historic areas, iconic views and monuments. There was debate about whether Capital Bikeshare is a transit service or a recreational use service that would require a competitive bid process with other bicycle rental vendors operating in area NPS managed attractions.

Capital Bikeshare had over 100,000 trips within the first 82 days of service, averaging two trips per bike per day in winter months.

The system has attracted over 5,000 annual members during this period (DeMaio, 2010a).

A Capital Bikeshare station has been placed inside the White House gate.

4.1.3. TEMPORARY FREEWHEELIN BIKE SHARING PILOT DENVER, COLORADO

OPERATED AUGUST 24-28, 2008 FOR THE DEMOCRATIC NATIONAL CONVENTION (DNC)	
City population & density	557,636/ 2.8 million in metro area City density: 3,617/sq. mile DNC drew an estimated 50,000-85,000 people each day.
Vendor/ Equipment	Over a dozen bicycle manufacturers loaned or donated bicycles
Operator	Collaboration: City of Denver, Humana and bike advocacy groups
Stations	Six staffed 'corrals' of bicycles near Denver Pepsi Center & INVESCO field
Number of Bikes	1,000 bicycles; locks were initially not included but then made available because of demand; helmets provided if needed at checkout.
Capital/Start-up Costs	Estimated \$3 million for entire life of program; including staff labor, equipment and bicycles
Annual Operating Costs	Not applicable for this temporary event (capital costs included above)



Figure 11: Freewheelin real-time tracking (Flickr 2010b)

In 2007, the health care company Humana introduced the Freewheelin bike sharing program to 10,000 employees at its Louisville, Kentucky, headquarters. In 2008, Freewheelin was tested for the public with 1,000 bikes each at the political conventions held in Denver and Minneapolis. The following sections describe how Humana’s employee bike sharing system evolved into a large-scale public bike sharing system for the Democratic National Convention (and later Denver B-cycle, section 4.1.4).

In 2007, the Democratic National Convention Host Planning Committee brainstormed on how to create a green event, resulting in a partnership between the City of Denver, Humana, and Bikes Belong (Denver B-cycle 2010a). Freewheelin took a year

of planning and coordination to place 1,000 bicycles at seven stations throughout downtown Denver between August 24 and 28, 2008. Technology allowed organizers to track bicycle use over the four-day demonstration resulting in 5,552 rides over 26,582 miles for an estimated 818,899 calories burned and 9.2 metric tons of carbon offset (Freewheelin, 2010).



How it Works

Bikes were available at six locations around Denver staffed by volunteers between 7am and 7pm. Anyone 18 or older could register, and then check out a bicycle for no charge. Registration required contact information, identification, a credit card for collateral, and a signed liability waiver. Participants could register in advance via the FreewheelIn web site www.freewheelinwaytogo.com, or at one of the stations. Bicycles could be returned to any station, allowing the convenience of one way rides. Riders could be charged \$600 for a bicycle not returned within 24 hours. Volunteers assisted in redistributing the bicycles among the stations.

Social networking raised awareness and participation. Humana identified bike groups in each city using Meetup.com and arranged group rides leading up to the conventions as word-of-mouth initiatives. At the rides, participants received business-card-sized information sheets about FreewheelIn and where to go online to share their bicycling experience. Riders were encouraged to upload images or videos at stations when they returned their bikes. During the conventions, riders were given a branded memory card reader so they could continue to upload their FreewheelIn experiences. Online communications included a Facebook page, blog, and Twitter streams.

Funding/Business model

This program was largely the result of collaboration, donations, and volunteer efforts. This temporary pilot program is estimated to have cost \$3 million including staff time, equipment and \$750,000 in donated bikes from more than a dozen manufacturers. After the event, some bikes were returned to the manufacturers and some were donated to cities for bike sharing programs. There was no cost to the bike users, though registration required a credit card as collateral.

Safety and Legal Liability

Work by local bicycling advocacy groups contributed greatly to on-street safety. For example, sharrows were installed to create safer city streets. Bicyclists were required to sign a liability waiver during registration. Bike helmets were required and were issued to riders during bike check out. The city paid \$15,000 for insurance with a company that insures temporary events, providing \$2 million for injury coverage. Injuries and incidents could be reported to the city's 311 line or the Denver Police Department, though none were reported.

Partnerships

The City of Denver collaborated with Bikes Belong and Humana Health. Local sustainability groups including BikeDenver, Bicycle Colorado and the City's 25 member volunteer Bicycle Advisory Committee provided volunteers. Bikes Belong and Humana worked together to acquire 1,000 new bicycles and contributed significant time over a year to develop this program. Humana developed the FreewheelIn bike share concept and donated significant resources to test it during both political conventions. City agencies such as the mayor's office, Public Works and Parks and Recreation worked with partners to locate the bike stations and conduct other activities such as installing sharrows (arrows indicating shared use of roads by motor vehicles and bikes) on main travel corridors.

Successes

Successes and challenges are based on observations from a member of the Denver Mayor's Bicycle Advisory Committee and other stakeholders (Duvall, 2009; Duvall and Oberman, 2009). Stations located close to mass transit received high rates of use. Sharrow markings provided a sense of security



Figure 12: FreewheelIn bikes in Denver
(Photo: flickr, 2008)



and legitimacy to bicyclists on city streets. The city has since expanded sharrow markings to an additional eleven miles of roadway. This temporary event introduced the value of bike sharing to the public, media and policy makers.

Freewheel!n created successful communications strategies that included strong branding, logo, website, and blog. Creative marketing engaged the young internet savvy crowd. Online data posting and real time tracking encouraged bike use. Challenging friends to log more miles and tracking statistics over time appealed to many participants. These metrics and the web interface are a good (non-monetary) strategy to keep people engaged.

This event created momentum, cultivating bicycle supportive projects throughout the city. City leadership and agencies have heightened consideration of bicycle supportive infrastructure, while zoning codes and city ordinances have been reviewed to improve support of bicycling.

Challenges

Coordinating with the city, multiple agencies and organizations was difficult. Additional challenges included accessing power supplies, permits from landowners and city agencies, and right of way issues.

Bicyclists commonly rode in illegal zones such as sidewalks and pedestrian only zones, despite warnings at bike checkout. This highlights the need for increased bicyclist education and safety precautions for mixed bike/traffic zones. Bike use was limited from 7 am to 7 pm due to insurance coverage. Many riders wanted longer hours.

Selecting suitable station locations was difficult due to the large station size and competition for limited space. Some stations were not well used, indicating the need to adjust locations after initial set-up. Riders' destinations were limited by a lack of locks on bikes and the limited number of stations. Bicycles were commonly locked to trees, fences, and railings, underscoring a need for more bicycle parking in the Denver central business district. Bicycle redistribution was problematic at times due to high traffic volumes.

Helmets were new for the first user, but sanitation was problematic for subsequent users and helmet sizing proved difficult. Mandatory helmet use was not enforceable for this large scale event.

A fundamental challenge was developing an effective way to convey the concept of public bicycle sharing to potential participants.

4.1.4. DENVER B-CYCLE PUBLIC BIKE SHARING

DENVER B-CYCLE ESTABLISHED APRIL 2010	
City population & density	557,636/ 2.8 million in metro area City density: 3,617/sq. mile
Vendor/ Equipment	B-cycle http://www.bcycle.com/
Operator	Denver Bike Sharing (non-profit) http://www.denverbikesharing.org/
Stations	50 combination of fixed permanent and solar powered stations
Number of Bikes	500
Capital/Start-up Costs	\$2.1 million (average \$4200 per bike) [1]
Annual Operating Costs	Approximately \$980,000 (average \$1960 per bike annually) [1]

[1] Tongco, 2011 Personal Communication

Freewheel!n's success at the Democratic and Republican National Conventions spurred the creation of B-cycle, a consortium of three companies (Trek Bicycles, Humana Health, and Crispin Porter & Bogusky advertising) that design public bike sharing systems. On Earth Day, April 22, 2010, Denver Bike Sharing



launched Denver B-cycle. This system offers public transportation that supports the city's Greenprint Climate Action Plan, the Strategic Transportation Plan and the Living Streets Initiative Climate Action Plan (<http://www.denvergov.org/>). It is integrated into the larger multi-modal transportation system that includes buses, light rail, carpools, shared cars and over 358 miles of bike routes/trails (Denver B-cycle, 2010a). Bike sharing in Denver is one part of the city's effort to increase the percentage of bicycling commuters from 1.6 percent to 10 percent by August 2018.

How it Works

Riders 18 years of age and up can use a credit card to register online or at a station for a 24-hour (\$5), 7-day (\$20), 30-day (\$30), or annual membership (\$65). In addition to the membership, users pay transaction fees. The first half hour has no charge, the next 31–60 minutes are \$1.10, 61–90 minutes \$3.30, 91–120 minutes \$6.60 and every 30 minutes thereafter an additional \$4.40 with a daily maximum of \$65. This price structure promotes short trips. Bikes not returned within 72 hours are considered stolen, and users may be charged \$1000. The system operates seven days a week, 5 am to 11 pm from March 1st through November 30th, weather permitting. Bicycles are stored indoors during winter, and stations are winterized to protect them from the elements. B-cycle bikes have RFID chips and computers to track mileage. Riders can monitor their personal fitness, contributions to the City's green efforts and connect with others online at <http://denver.bcycle.com>.

Funding/Business Model

The Denver B-cycle business plan relies on integration with local businesses. Denver B-cycle is owned and operated by Denver Bike Sharing, a non-profit organization that works closely with the City, business sponsors and volunteer groups.

Capital and start-up costs for the 2009 preparation and 2010 launch of 50 stations and 500 bikes were \$2.1 million and came from two primary sources. Kaiser Permanente Colorado awarded a three-year \$450,000 sponsorship and the host Committee of the Democratic National Convention donated \$1,000,000.



Figure 13: B-Cycle bike with sponsor logo
(Photo: A. Duvall)

Numerous others contribute to the program. Denver Bike Sharing was awarded \$210,000 in 2009 from the federal Energy Efficiency and Conservation Block Grant program (for cities with populations of 35,000 or more this funding is available through 2012: <http://www1.eere.energy.gov/wip/eeecbg.html>) No city tax dollars currently support Denver Bike Sharing. Capital and start-up costs average \$4,200 per bike. This includes not only the bike, but also shipping costs, planning and coordination of stations, internet enabled and solar powered kiosk, station, and back end software.

Operating costs are funded through user memberships, transaction fees, and sponsorships (Tongco, 2011). Currently, operating costs are estimated at \$980,000, an average of \$1,960 per bike annually. Denver B-cycle currently has five to six administrative staff who provide technical support, redistribute bikes and promote the program. There are additional full and part-time bicycle technicians on staff, with approximately two to three technicians working at any given time. There are three re-distribution vehicles: two trucks and one human-powered bike trailer.

At the end of the first year, the program reported 1,785 annual and 32,922 short-term memberships. Assuming a low estimate (all short-term memberships at \$5), the year one memberships would cover about 29 percent of operating costs. It is anticipated membership will increase and cover a significant



portion of operating costs as more people become aware of the system. Revenues from user transaction fees are anticipated to be minimal. Sponsorships help pay operations costs. Corporations that donate \$30,000 for a year or \$20,000 per year for three years receive the following:

- Sponsored bike station at desired available location.
- Prominent logo placement on a station kiosk.
- 10 branded bikes with company logo placed on baskets circulating throughout the system.
- Listing and links on Denver.Bcycle.com
- Placement and links in member e-newsletters. (Denver Bike Sharing, 2010).

Partnerships

In addition to Kaiser Permanente, other key funding partners include the Denver 2008 Convention Host Committee, the Walton Family Foundation, the Anschutz Foundation, Gates Family Foundation, the University of Colorado Housing Authority, and the Gary Williams Company. Numerous other public and private organizations and individuals support the system through sponsorships, in-kind donations and community support as shown on the Denver B-cycle website. The City of Denver supports B-cycle through the work of people in various departments including public works and marketing. The state's Bicycle and Pedestrian Coordinator offers technical assistance with regard to biking safety, education and enforcement programs.

Safety and Legal Liability

Bicycling infrastructure improvements have been ongoing in Denver to create safer city streets for bicyclists. Helmets are not required by law in Colorado, yet Denver B-cycle strongly recommends helmets and reminds riders regularly of the benefits. For example, in August 2010 new members received \$10 off an annual membership and a free helmet. An annual membership normally comes with a \$20 discount on a helmet. (Denver B-cycle 2010a). Stickers on each bike encourage rider safety.

User agreement/liability waiver

The user agreement (June 2010) covers general rental and use of bike, placing responsibility on the rider. For example, the riders must acknowledge they are competent bike operators and physically fit to ride a bike, and must agree not to carry people or animals on the bike. The agreement contains the waiver of liability. It is included in Appendix D and is available online. As of September 13, 2010, one accident had been reported involving a B-cycle and one B-cycle had disappeared, but no serious injuries had been reported.

Successes

Denver B-cycle raised public awareness of bicycles as a viable component of public transportation and reported the following statistics for their 2010 season closing December 6, 2010:

- 32,922 short-term memberships purchased (24-hour kiosk, 24-hour online, 7-day, 30-day)
- 1,784 Annual Memberships purchased
- 102,981 rides taken
- 211,111 miles ridden (average ride length: 2.05 miles)
- Health benefits are estimated at 6,333,332 calories burned and 1,810 lbs. lost (Denver B-cycle 2010b) Denver B-cycle is the focus of an ongoing study into population-wide health interventions aimed at increasing physical activity (Duvall, 2010).



Figure 14: Safety information on Denver B-cycle (Photo: A. Duvall)



Challenges

Finding space for stations and installing them required significantly more effort than expected. Testing the system before launch was important to work out technology and other issues. Some people who registered online were unable to check out a bike due to a technical glitch with how their name was stored by the credit card company. Conveying the concept of shared bikes to the public has been difficult. B-cycle is revising its kiosk decals to use fewer words and more pictures to convey how the membership and user fees work. B-cycle's experience points to the importance of developing an effective public education program for shared bicycle systems.

4.1.5. TULSA TOWNIES PUBLIC BIKE SHARE, TULSA OKLAHOMA

TULSA TOWNIES ESTABLISHED 2007	
City population & density	389,625 (in 2009); 2,132 people per square mile
Vendor/ Equipment	QI Systems supplied locking stations and software in 2007. Workman of NYC provided bicycles. SandVault Group upgraded system in July 2011.
Operator	Saint Francis Health System in Tulsa, Oklahoma; http://www.tulsa-townies.com/
Stations	Four fixed stations
Number of Bikes	75
Capital/Start-up Costs	\$87,500 [1] (average of \$1167 per bike)
Annual Operating Costs	Unknown

[1] Actual costs were not available. Station were estimated at \$50,000, based on QI System's website (\$600 per slot x 75 full and 8 empty slots). Bicycles were estimated at \$500 each.



Figure 15: Tulsa Townie station (Photo: QI Systems)

The Tulsa Townies bicycle share was launched in August 2007 by Saint Francis Health System, in cooperation with the Tulsa River Parks Authority, to promote an active and healthy lifestyle in the community. The program was initiated by a philanthropic organization, the Warren Medical Research Foundation. The program has four stations/kiosks located along the Tulsa River Park Trail System and in Sand Springs River City Park. Stations are located on a 12-mile trail system along both sides of the Arkansas River, which flows through the center of Tulsa. Bicyclists have access to recreational opportunities along the trail, as well as nearby commercial areas. Bicycles are available during the warmer months, generally April to October. The program has reported almost 30,000 users since inception (Saint Francis Health System, 2011).

How it Works

Anyone 18 or older with a credit card can check out and ride a bike for up to 24 hours. Bikes can be returned to any of the four stations. If not returned within 24 hours, the rider will be charged \$100. Riders provide their own helmets and locks if needed. Check out and return procedures are explained at the kiosks and on the program's website, which also provide a phone number for technical assistance. To check out a bike the rider swipes a credit card and must agree to the terms of a waiver. The rider then selects a bike, enters the bike number (found on the side of the bike or the rear bike fender) and enjoys a ride (Tulsa Townies, 2010).

Tulsa Townies originally used QI CycleStation™ kiosks and bicycle racks with solar-powered kiosks, which interface with a central server managed remotely. In a press release dated Sept. 19, 2008, QI Systems announced it had ceased operations, though it would continue product support. QI System's bike share



system has evolved into a new system (SandVault, 2011). Tulsa Townies upgraded to this newer system in July 2011. The newer system has also been installed in Miami Beach, Florida's Decobike program (www.Decobike.com).

Funding/ Business Model

Tulsa Townies is funded by Saint Francis Health System via the Warren Medical Research Foundation based in Tulsa, Oklahoma. The Saint Francis Health System is responsible for operating the Tulsa Townies bike share program and maintaining the bicycles, which receive routine check-ups and maintenance every one to two weeks.

Partnerships

The Saint Francis Health System partnered with the Tulsa River Parks Authority to launch this program. Health organizations are increasingly partnering with municipalities and transportation planners to encourage alternative transportation as a way to increase physical activity and improve public health.

Safety and Legal Liability

Tulsa has quadrupled its multi-use trail system to more than 100 miles over the past 10 years, creating safer places to ride in the city (Bikes Belong, 2010). Riders agree to a liability waiver when they check out a bike. The Tulsa Townies website provides safety tips and strongly encourages helmet use.

Successes

The Tulsa Townies launch in conjunction with the trail system expansion demonstrates widespread community support for bicycling. Tulsa Townies has received significant press and contributed to the city receiving a Bronze Bicycle Friendly Community Award from the League of American Bicyclists in 2009 (www.bikeleague.org/programs/bicyclefriendlyamerica/communities/bfc_tulsa.php). The City of Tulsa continues to support programs that encourage bicycling and plans for more bicycling infrastructure.

Challenges

This program received a lot of attention when it launched. It is unclear how it is being operated and maintained over time. Program operators did not respond to inquiries about the system, thus researchers collected information online and interviewed a local contact familiar with the system (Wagner, J. 2011). River Park officials report vandalism has been a minor problem, usually entailing air being released from tires and bicycles being removed from the racks. Nearby residents report bicycles are occasionally left in their yards (Lassek, P. J., 2009).

4.1.6. INTERNATIONAL PUBLIC BICYCLE SHARING EXAMPLES

Examples of large scale international public bicycle share programs are mentioned throughout this document (Paris Velib, for example). However, case studies of these programs were not included for two reasons: 1) significant information is available from other sources (see Appendix A), and 2) public bicycle share programs abroad are often not subject to the level of risk management that U.S. programs have. However, two unique examples are mentioned below; the first one is of interest because it is in a national park setting; the second because of its unique business model.

White Bikes-National Park De Hoge, Netherlands

The National Park De Hoge is 13,600-acres, has 26 miles (42 kilometers) of bicycle and walking paths, and is famous for its white bicycles, available to visitors at no cost. In 1975, 50 bicycles were purchased for use by Park visitors; the Park now has 1,700 bicycles designed for recreation and low maintenance. They don't have lights, bells or gears. The bicycle program relies on honest users and does not require registration. The park has three controlled gates where all visitors enter and exit. Bikes cannot be reserved and it is



against the rules to lock them. Once a White Bike is placed in a designated storage rack, any other visitor can use it. For a guaranteed bicycle, rentals are available in the park or nearby bicycle shops (De Hoge Veluwa, 2010). A flexible bicycle share system like this one may be attractive in a Federal lands settings because it is relatively inexpensive and allows one-way use of bicycles; making them a convenient and attractive travel choice. This type of system may work well in a Federal land setting where there is control over the entrance and exit points, because bikes are less likely to be stolen.

Guadalajara, Mexico Bikla Bike Share

In Guadalajara, there was little political support for a public bike share system and no funding. Advocates funded their own system by selling bike racks called “Cycle Ports” to local businesses. This system, called Bikla, relies on members and existing businesses. Businesses must have internet access and Cycle Port style bike racks. These businesses include cafes, restaurants, and bookstores. Individuals purchase a membership for around \$15 USD a year and receive a Bikla ID card. When a Bikla member arrives at a business, staff logs onto the Bikla website and enters the member’s ID number. The member is assigned a bike and receives the corresponding key. Members can return bikes to any of the participating businesses. The staff logs the bike return and deducts time from the user’s card. The entire bike sharing infrastructure consists of bikes, keyed locks, bike racks, and businesses with internet access. The Bikla bike share system employs one mobile mechanic. Bikla bike share was launched in 2008 and in 2010 had over 2,600 members. Organizers believe that their system is 30% less expensive and easier to implement than other modern bike share systems funded by advertising (Hashagen 2010).

4.1.7. FUTURE PUBLIC BIKE SHARES IN NORTH AMERICA

Many U.S. cities including New York, San Francisco, Boston, Philadelphia, Chicago, San Antonio and Portland have expressed interest or are actively planning large-scale bicycle sharing systems. Miami Beach launched DecoBike in 2011, a bike share aimed at beachgoers. Smaller cities are also exploring public bicycle share programs including Chattanooga, Tennessee and Jackson, Wyoming.

The Santa Clara Valley Transportation Authority Bike Share Plan, California

One initiative of interest is in Santa Clara County, California, which has a large population, but lacks dense urban cores, thus it is unlike most cities that support bicycle share programs. The County and partners are pursuing a bike share program with stations at major transit centers and downtown urban centers of varying sizes and population densities. This pilot program is intended to demonstrate bike sharing’s potential to reduce motor vehicle traffic and improve local air quality by offering a first- and last-mile transportation alternative to single occupancy vehicles (Bay Area Air Quality Management District, 2010).

The Santa Clara Valley Transportation Authority (VTA) was awarded a \$500,000 Safe Routes to Transit grant from the Metropolitan Transportation Commission in December 2009 to fund a pilot bicycle share program. Cognizant that poor design, under use and lack of maintenance are common issues that hinder public bicycle sharing success, VTA reviewed smart bicycle technologies, conducted market research, completed a business/finance plan and identified barriers to bicycle share programs for its area (Santa Clara Valley Transportation Authority, 2010).

The Bay Area Air Quality Management District (Air District) approved a \$4.29 million grant by the Metropolitan Transportation Commission to collaborate with VTA’s bike sharing efforts and other local agencies interested in developing a similar program. The resulting project is a partnership between the Air District, San Francisco Municipal Transportation Agency, Sam-Trans, the County of San Mateo, the City of Redwood City and the VTA to develop a regional bicycle sharing program. Project leaders anticipate 1,000 bicycles will be available at up to 100 stations in up to five cities including San Francisco, Redwood City, Mountain View, Palo Alto and San Jose. The MTC approved this project through its Climate Initiatives Competitive Grant Program (Bay Area Air Quality Management District, 2010). The project cost



is approximately \$7 million with \$1.4 million provided by the Air District and \$1.3 million in funding from the other partners matching MTC's \$4.29 million investment. The Regional Bike Sharing Pilot Program is expected to launch in Spring 2012.

4.2. BICYCLE RENTAL PROGRAM CASE STUDIES

Traditional bicycle rental operations are still the most common method to provide the public with bicycles in Federal lands. Rental programs are typically for-profit private businesses that lend bicycles for longer periods than bicycle share and do not allow for one-way use. Bicycle rentals are generally checked out from and returned to a single, staffed location. The following sections contain two bike rental case studies located in Federal lands.

In the Grand Canyon National Park, a private company began renting bikes to the public in May 2010 under the park's commercial use authorization (CUA) system. Concessioners operating under a CUA typically pay the park a fee or a percentage of revenue to operate inside the park.

In Yosemite National Park, a concessioner has operated a rental bike program since 1993 as one part of a large lodging concessions contract.

PROGRAM/LOCATION	YEAR ESTABLISHED	NO. OF BICYCLES	TYPE OF BICYCLES	OPERATOR
Grand Canyon's Bright Angels Bicycle Rental	May 2010	85	Various bikes to accommodate children and people with disabilities	Private bicycle shop
Yosemite NP Rentals	1993	200 bikes at 2 rental locations	Various bikes to accommodate children and people with disabilities	Delaware North Companies Parks & Resorts at Yosemite, Inc.

At the Grand Canyon, a private company runs the bicycle rental in the park as its main business rather than Yosemite's model, where bicycle rentals are just one part of a larger lodging concessions contract. Both of these rental programs make bikes available to children and people with disabilities through bike trailers, kids bikes and 3 wheel bikes.

4.2.1. GRAND CANYON NATIONAL PARK'S BRIGHT ANGELS BICYCLE RENTALS

Annual visitation	Approximately 4.4 million
Equipment	Haro cruiser and KHS bikes with 7-speeds in five different sizes, some step-thru frames and child sizes. Bike rental includes helmet, safety vest, bike lock, and leg strap. Children's trailers available.
Operator	Bright Angel Bicycles Company http://bikegrandcanyon.com/index.htm
Rental Facility	One central location at GC south rim Visitors Center parking lot
Number of Bikes	85
Capital/Start-up Costs	\$60,000 (average \$706 per bike) [1]
Annual Operating Costs	2010: \$140,000 (average \$1647 per bike) [1]

[1] Kyle George, personal communication 9/27/11

Grand Canyon National Park comprises 1.2 million acres in the northwest corner of Arizona, close to the borders of Utah and Nevada. This park experiences traffic congestion, parking shortages and degraded air quality due to high volumes of motor vehicles. Most visitors arrive by motor-vehicle and do not bring their own bicycles.





Figure 16: Biking Grand Canyon's south rim
(Photo: D. Weiss, 2011)

A bike rental operation was envisioned by the park's 1995 General Management Plan and was included in the 2008 South Rim Transportation Plan. The NPS authorized a temporary Commercial Use Authorization (CUA) for bicycle rental services and Bright Angels Bicycle (BAB) opened for business in May 2010. BAB formed from a sister company, a commercial tour operation already leading bicycle tours in the park.

The Park's goals for this bicycle rental are to provide visitors access to park sites without needing a personal vehicle and to improve visitor experience (NPS, 2010). Visitors can bike on all paved roads and on 5-miles of the multi-use greenway

trail as well as park roads open only to shuttle bus traffic and bikes, which include the scenic Hermit Road and Yaki Point Road.

How It Works

BAB operates from Parking Lot 4 on the South Rim Grand Canyon Visitor Center. From May - September the rental facility is open from approximately 8 am to 6 pm. Hours are 10am to 4pm in March, April, October, and November if weather permits. Bikes are available on a first-come first-serve basis, but can be reserved in advance for large groups.

Visitors can bike on self - guided tours or use the park's shuttle bus system at no cost, which holds up to three bikes per bus. BAB also offers guided bike tours and a shuttle service. BAB estimates 30% of customers renting bikes opt to buy the guided bicycle tour. BAB's shuttle transports bicyclists to one of three points along Hermit's Rest Road allowing cyclists to bypass the congested Grand Canyon Village Area and a steep hill. The shuttle runs hourly between 9am and 5pm. Table 5 shows rental rates for the Bright Angel Bicycles for fall 2011.

Funding/Business Model

Bright Angel Bicycles (BAB) is a private for profit organization that operated under the Park's temporary CUA in 2010 and 2011. Start-up/ capital costs included 85 bikes, a shuttle van and associated gear such as helmets, locks and safety vests. Operating costs include wages for 6 employees who run the daily operations and 3 bike mechanics. BAB is responsible for all start up and operating costs. In 2010 and 2011 the only Park authorized services were bicycle rentals, and the supporting bicycle tours and shuttles. This meant BAB could not sell any gear or provide other services to supplement the business. The Park's current CUA requirements for bicycle rentals are listed online at http://www.nps.gov/grca/parkmgmt/cua-bicycle_rental.htm Appendix E contains select portions of the CUA that could help other land managers who are interested in initiating bicycle rental services.

A new 10-year concessions contract in the park is proposed that would permit not only bicycle rentals, but also retail sales and food concessions. The proposed concession contract is intended to increase the bike rental service provider's ability to be successful.

Safety and Legal Liability

Various organizations have been working with the Park for the past 15 years to create a 70 mile long multi-use path greenway system for pedestrian and bicycle travel. As of summer 2011, five miles of the greenway were open to bicycles. Closing some roads to all vehicles except shuttle buses and bikes is another way the park has created safer places to bicycle.



The Park limits legal liability by using a third party to operate the bike rental service. The Park requires the bike rental operator to create an operating plan that addresses safety and to carry appropriate insurance (General Liability, Workers Compensation and Land Transportation). Materials in Appendix E contain more details on what the Park requires of the bike rental operator.

Before riding, visitors sign a liability waiver. BAB gives a brief orientation to using the bicycle and informs visitors about where they can ride. BAB's orientation also includes Grand Canyon bike rules, etiquette and other safety information, which is available online at <http://bikegrandcanyon.com/map/grandcanyonbikemap.pdf>. BAB staff conducts pre-ride safety inspections on all their bicycles. BAB employs three mechanics to regularly maintain and repair rental bikes.

Successes

This bike rental system encourages a wide variety of people to bike by offering children's bikes, trailers and bikes for people with disabilities. The 7-speed bikes are relatively light weight and comfortable for longer distance riding. Grand Canyon's first in-park bike rental service has been extremely popular amongst all age groups. Aside from self-guided hikes, BAB touts its bike rentals as the least expensive activity for a family of four visiting the park.

Providing information such as ride duration, conditions and recommendations such as the "Red Bike Ride" shown here helps visitors choose a ride they will enjoy.

Combining bike rentals with shuttle buses allows riders to tailor bike trips to meet their needs. For example, people can take a shuttle up and bike downhill, or catch a shuttle at various points to shorten the length of their ride.

Bicycle rentals were a new visitor service at the Grand Canyon in 2010 that have been well received by visitors and NPS managers. Park managers will use data collected during the first two years to determine how future bicycle rentals will be managed (NPS, 2010). The Park plans to create a 10-year long concession contract that combines bike rentals with food service and provides a permanent building with supporting utilities from which to operate the services. (Schroer, 2011).

Challenges

The bicycle rental company had to use two 40-foot long bus parking spaces for their operations in 2010 and 2011 as there were no buildings available. The temporary structures had no utilities, thus BAB used cell phones and wireless credit card machines to handle transactions. Cell service in the Park is not consistent, so at times there were delays in processing rental transactions. A permanent structure is under construction that will house future bike rental facilities. Employee housing posed another challenge. Employees must commute 160 miles each day due to a lack of housing in the park.

TABLE 5: BRIGHT ANGELS BICYCLES RENTAL RATES (2011)

	Adult	Children (17 and under)	Trailer
1 Hour	\$10	\$7	\$6
½ Day (4 hours)	\$25	\$15	\$10
Full Day (8 hours)	\$35	\$25	\$12
Multi-Day	\$30	\$20	\$15
24-hours	\$45	\$35	\$15

Red Bike Ride

TIME DURATION: 1.5-2 hours

ONE WAY: 5.5 miles / 8.6km

ROUND TRIP: 11 miles / 17.6km

ELEVATION GAIN / LOSS:

- Hopi Pt to Hermit Rest + or - 420ft / 132m

CONDITIONS: Paved Greenway, Road Closed to public vehicles / shuttle and bike access only

NPS SHUTTLE ACCESS: 5 stops

RECOMMENDED FOR:

- Families with young children
- Riders short on time
- Riders wanting less vehicle traffic
- Riders wanting an easy ride with 95% downhill or flat surfaces

Figure 17: Grand Canyon Suggested Bike Ride (Bright Angel Bicycles, 2011)

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Exploring Bicycle Options for Federal Lands

4.2.2. YOSEMITE NATIONAL PARK BICYCLE RENTALS

YOSEMITE NATIONAL PARK BIKE RENTALS ESTABLISHED 1993	
Annual Visitation	Approximately 3.5 million
Equipment	Delaware North Companies Parks & Resorts at Yosemite, Inc. purchased all bicycles and equipment necessary for the rental operation from a variety of vendors.
Operator	Delaware North Companies Parks & Resorts at Yosemite, Inc. http://www.yosemitepark.com/Activities_Biking_BikeRentals.aspx
Facility	2 rental desks/kiosk locations at Yosemite Lodge and Curry Village Recreation Center; bicycles stored in sheds.
Number of Bikes	200 regular sized cruisers; a few children's bikes, tandem bikes, and hand crank bikes for the physically impaired; 25 trailers for children (attach to cruisers)



Figure 18: Yosemite bicycle rental
(Photo: Yosemite Resource Guide)

Yosemite National Park is located in east central California on the western slope of the Sierra Nevada Mountains. The park is over 1,200 square miles and contains 12 miles of paved bicycle paths. Bicycles give visitors the freedom to travel around Yosemite Valley at their own pace without worrying about holding up traffic, or finding a place to park. The paved paths and primary visitor roads are relatively flat.

The NPS uses a concessioner to operate lodges and restaurants inside the park. The concessions contract currently authorizes a bicycle rental service. Since 1993 the Delaware North Companies Parks & Resorts

at Yosemite, Inc. (DNC) has been the park's lodge, restaurant, and activities concessioner, which includes bicycle rentals.

How it Works

DNC operates two bicycle rental facilities within the park: Yosemite Lodge at the Falls and the Curry Village Recreation Center. Bicycles may be rented during the warmer months (typically Spring through Fall), from approximately 9am to 6pm each day. Rental hours vary slightly by season. Bicycles must be checked out from DNC staff and returned the same day (no overnight rentals). Bicycles can only be ridden inside the park on bike paths and park roadways.

DNC has about 200 adult cruisers, some tandem bicycles, some small bicycles for kids, some hand powered bicycles and kid trailers that can attach to the cruisers. During the summer, both locations typically rent all bicycles out on weekends and weekdays. DNC maintains all bicycles, employing one mechanic in early spring and fall, and two during the summer/peak. Visitors are asked to report problems with the bicycles upon return. Mechanics conduct routine checks and tune-ups.

Yosemite bicycle rentals are promoted through lodging and NPS websites. DNC also operates a shuttle system inside the park. The online bicycle rental page encourages visitors to park in a day-use lot and take one of the free shuttles to a bicycle rental location. Visitors who want a completely car-free visit can find Greyhound and Amtrak routes to towns near Yosemite and transfer to the Yosemite Area Regional Transportation System to get into the park, and then on to the free park shuttles.

Funding/Business Model

Delaware North Companies (DNC), the current operator of Yosemite concessions, is a private for profit organization. All capital and operational costs are covered by DNC. If the bicycle rentals in and of themselves



are not financially viable, operations are supplemented from other DNC services. A concessions contract solely for bicycles rentals may not be a financially viable business option depending on various factors. Therefore in many NPS units, bicycle rentals are usually listed as an authorized service (if the NPS unit thinks it is appropriate for that park) in a larger concessions contract.

- 2011 rental rates for bicycles were: \$10.00 per hour or \$28.00 per day
- 2011 rental rates for bicycles with an attached trailer were: \$16.50 by the hour or \$54.00 per day

It is unknown if the bicycle rental fees completely cover the operational costs of the rental program at Yosemite.

Safety and Legal Liability

This bicycle rental is operated by a third party (DNC) under a concessions contract, which indemnifies the NPS from legal liability if a bicyclist is injured. The contract between NPS and DNC states that bicycles and riders must adhere to any California State laws. For example, bicycles must have reflectors, and riders under 18 must wear a helmet. The NPS Concessions Manager, or other appointed personnel, inspects the rental facilities, bicycles, and the staff to ensure adherence to the rules in the contract and California State law. Visitors sign a liability waiver at the time of rental, and receive a brief orientation to using the bicycle, where they can ride, and basic rules of the road. Safety information provided to the visitor includes:

- National Park Regulations prohibit bicycles on dirt trails and in meadows.
- Riders under the age of 18 are required to wear a helmet and all others are encouraged to wear one (helmets are provided to all riders and included in the cost of a rental).
- Obey all traffic laws and park signs, alert pedestrians when passing.
- Rental bikes are prohibited on Mirror Lake Hill and Lower Yosemite Falls Trail.
- Ride single-file on the right hand side of the road or path
- One rider only per bike. Carry no passengers (including baby backpacks).
- Rental bicycles must remain in Yosemite Valley on flat, paved surfaces.
- Rental bikes have coaster brakes (pedal backwards to stop).

Successes

This traditional bike rental system allows a wide variety of people to access bicycles in Yosemite, because it includes provisions for children and people with disabilities. In contrast, automated public bicycle sharing programs typically provide one style of bicycle and do not have provisions for children or people with disabilities. Yosemite's rental system has bicycle options for visitors of all ages and abilities.

Challenges

While this bike rental business provides a valuable service, it may be cost prohibitive for some visitors. When viewed as a recreational amenity in a park setting, this is a valuable service to many people. When viewed as a form of public transportation, a traditional for profit bike rental program such as this may be seen as inconvenient and cost prohibitive.

4.3 PUBLIC BICYCLE SHARING AND RENTAL PROGRAM CAPITAL AND OPERATING COSTS

Start-up costs for fixed and portable bicycle sharing systems averaged from \$4200 to \$5405 per bicycle for the three large scale systems in the U.S. These costs include bicycles, stations, communications and back-end software, computer hardware and technical support. Appendix B shows cost details from the Arlington contract with the bike share operator for the Capital Bikeshare system (Arlington, 2010).

Start-up costs were found for one flexible bike share program. System developers report that start-up capital costs for the Social Bicycle System (SoBi) are approximately \$1,000 per bicycle including mobile communications, GPS and locking system. SoBi is a U.S. company that was in the process of testing their flexible system in New York in late 2010.



Operating costs vary depending on site specific characteristics such as rates of use, maintenance needs, theft and vandalism. Fixed and portable system operating costs typically consist of bicycle and station maintenance, distribution of bikes between stations, staff, insurance, office space, storage during winter months (if needed), website hosting/maintenance and electricity. NYC Department of City Planning's 2009 review of several systems' operating costs showed an average of \$1600 per bicycle annually. The May 2010 Arlington contract operating costs were \$1860 annually per bicycle. Denver B-cycle estimates \$1960 per bike annually (Tongco, 2011). Researchers did not find data on the operating costs for flexible bicycle share systems.

Start-up costs for the Grand Canyon's bike rental program totaled \$60,000, an average of \$706 per bike. Operating costs were \$140,000 in 2010, an average of \$1647 per bike annually (Kyle George, personal communication 9/27/11). Start up and capital cost information was not available for Yosemite NP's bike rental system.

4.4. PUBLIC BICYCLE SHARING BUSINESS MODELS, FUNDING AND FINANCIAL SUSTAINABILITY

This section discusses bicycle sharing business models in terms of who operates them and how they are funded. Few public bicycle share programs are financially self-sustaining. Montreal's Bixi reports it is cost neutral, in large part due to its high annual membership cost and its sponsorship from the aluminum company Rio Tinto Alcan, which provides funding and aluminum for the bicycles. The business model for most established public bicycle sharing programs (those in European cities) is based primarily on advertising. Under this model, a municipality provides advertising space on billboards, bus shelters and city street furniture to a private advertising company. In return, the advertising company operates a bike sharing program for the municipality. Currently two large international advertising firms offer turnkey public bicycle systems: JCDecaux operates Cyclocity in France, Austria, Spain, Belgium and Ireland. Clear Channel Outdoor operates SmartBike in France, Norway, Sweden, and Spain (Transport Canada, 2009). Although this model is prevalent in urban environments, business models that rely primarily on advertising are not feasible in Federal land settings. Federal guidance states:

"Commercial notices or advertisements shall not be displayed, posted, or distributed on federally owned or controlled lands within a park area unless prior written permission has been given by the Superintendent. Such permission may be granted only if the notice or advertisement is of goods, services, or facilities available within the park area and such notices and advertisements are found by the Superintendent to be desirable and necessary for the convenience and guidance of the public (Code of Federal Regulations 36 CFR 5.1)."

Fortunately, public bicycle sharing programs in North America are developing alternatives to the advertising model. For example, Montreal's Bixi is operated by the City's parking authority and is funded by members and sponsors. Washington DC's Capital BikeShare is operated by a private firm specializing in bike sharing and is funded with federal grants, corporate sponsorships, direct funding from Arlington County and user memberships.

Denver B-cycle and Nice Ride Minnesota are operated by non-profit organizations created specifically for bike sharing management. Both of these systems are sponsored by major health care companies, federal grants, corporate sponsors, local sponsors, private foundations and user memberships

Each of these business models relies on many partners who bring key components such as funding, promotion, volunteers, and technical support to create a successful system. Nice Ride's business plan is available to the public and presents a well-thought out plan that others can use as a model (City of Minneapolis, 2008).

Funding sources

North American cities are forming creative partnerships and casting a broad net to fund public bike sharing systems. Government grants that could support public bike sharing systems include:



- FHWA/FTA – The Congestion, Mitigation and Air Quality (CMAQ) program provides funding to areas that have trouble attaining or maintaining the National Ambient Air Quality standards. The funding is distributed to States via a formula based on population and air quality classification as designated by the EPA. CMAQ funds may be used to establish new or expanded transportation projects or programs that reduce emissions, including capital investments in transportation infrastructure, congestion relief efforts, or other capital projects. CMAQ grants have funded bicycle facilities including storage, bicycle promotional materials, maps, and events. Projects cannot be purely for recreational use. Since 2008, match requirements for these federal funds are at the discretion of the states.
- FTA/DOI/USFS – The Paul S. Sarbanes Transit in Parks Program was established to address the challenge of increasing vehicle congestion in and around national parks and other federal lands. It provides planning and capital funding for alternative transportation systems, such as shuttle buses, rail connections and bicycle/pedestrian facilities. The program seeks to conserve natural, historical, and cultural resources; reduce congestion and pollution; improve visitor mobility and accessibility; enhance visitor experience; and ensure access to all, including persons with disabilities. Eligible entities include any Federal Land Management (FMLA) units (not just National Parks) or a state, tribal, or local government entity partnering with an FLMA. No match is required for these federal funds.

Other funding sources include:

- Private foundations, corporate sponsors and local businesses. Nice Ride and Capital Bikeshare programs recognize sponsors in a similar format to how public television and radio broadcasters recognize sponsors. They do not sell advertising.
- Health organizations such as Humana Health, Kaiser Permanente Colorado, Blue Cross-Blue Shield, and Saint Francis Health System and others.
- Memberships and user transaction fees are another source of funds as described in the following section.

Financial/ Operational Sustainability

The Twin Cities bike sharing business plan contains an analysis of bike share replacement costs and cash flow. These life cycle costs for replacing bikes, stations and other system components over time can serve as an example for others. See Appendix C for the Twin Cities financial analysis that guides the Nice Ride public bike share program.

4.4.1. MEMBERSHIP AND USER FEES: BIKE SHARING AND BIKE RENTALS

Memberships and user transaction fees are another source of funds. Nice Ride’s business plan estimated 80 percent of operating costs would be covered by memberships and user fees with 20 percent covered by sponsorships (City of Minneapolis, 2008). Public bicycles, like public transportation, must be priced such that they are an attractive alternative to other transportation modes. Most public bicycle share systems require both a subscription (membership) and user fees. Longer term biking is discouraged by user fees that rise exponentially over time. This strategy ensures bicycles are available for use by more people throughout the day. Table 6 shows 2010 membership costs for the three large scale public bicycling share systems in the United States.

After members buy a subscription, they also must pay for each bicycle ride, unless it is a half hour or less as shown in Table 7.

TABLE 6: U.S. PUBLIC BICYCLE SHARE SUBSCRIPTION COSTS

Subscription length	Denver B-Cycle Subscription	Capital BikeShare Subscription	Nice Ride Minnesota Subscription
24 hour	\$5	\$5	\$5
5 or 7-day	\$20 (7 day)	\$15 (5 day)	NA
30 day	\$30	\$25	\$30
One year	\$60	\$75	\$60



Table 8 compares bicycle sharing customer costs from Denver B-Cycle and Capital Bikeshare with bicycle rental rates at the Grand Canyon's Bright Angels bike rental shop. It assumes a one day bike share

Trip time	Denver B-Cycle User Fees	Capital BikeShare User Fees	Nice Ride User Fees
0-30 minute	Free	Free	Free
31-60 minutes	\$1.10	\$1.50	\$1.50
61 – 90 minutes	\$3.30	+ \$3.00	+ \$3.00
91-120 minutes	\$6.60	+ \$6.00	+ \$6.00
Each additional half hr.	+\$4.40	+ \$6.00	+ \$6.00
Maximum Daily rate	\$65	\$70.50	\$65.00

subscription and one adult rental bike. At current pricing levels:

- Bicycle sharing is less expensive than rentals for trips up to 3 to 3.5 hours.
- Bicycle sharing is more expensive than rentals for trips over about 3.5 hours.

Ride Time (hours)	Denver B-Cycle Total Trip \$	Nice Ride/ Capital BikeShare Total Trip \$	Bright Angels Bicycle Rental Trip \$	Yosemite NP Bike Rental Trip \$
½	\$5	\$5	\$10	\$10
½-1	\$6.10	\$6.50	\$10	\$10
1-1.5	\$8.30	\$9.50	\$25	\$20
1.5-2	\$11.60	\$15.50	\$25	\$20
2-2.5	\$16.00	\$21.50	\$25	\$28
2.5-3	\$20.40	\$27.50	\$25	\$28
3-3.5	\$24.80	\$33.50	\$25	\$28
3.5-4	\$29.20	\$39.50	\$25	\$28
4-4.5	\$33.60	\$45.50	\$35	\$28
4.5-5	\$38.00	\$51.50	\$35	\$28
5-5.5	\$42.40	\$57.50	\$35	\$28
5.5-6	\$46.80	\$63.50	\$35	\$28
6-6.5	\$51.20	\$69.50	\$35	\$28
Max daily	\$70.00	\$75.50	\$35	\$28

4.5 PUBLIC BICYCLE SHARING PROGRAMS: SAFETY AND LEGAL LIABILITY

This section reviews methods for communities to create safer bicycling environments and ways that public bicycle sharing operators can minimize legal liability.

Bicycle Friendly Environments

Bicycling infrastructure and an environment where people feel safe bicycling must exist before launching a public bicycle share system. Traffic calming (slowing down traffic), bicycle networks, secure bicycle parking, information such as way finding signs and maps, marketing and education are important to



- Executive Summary
- Introduction
- Bicycling Benefits and Initiatives
- Evolution of Public Bike Sharing
- Public Bicycle Sharing & Rentals**
- Employee Bicycle Fleets
- Recommendations
- References
- Appendix A
- Appendix B
- Appendix C
- Appendix D
- Appendix E
- Appendix F

create bicycle friendly places (NICHES 2007). DeMaio (2010b) recommends communities work to become “bicycle friendly” as a first step before considering public bicycles. Minneapolis, Denver and Washington DC/Arlington County, Virginia all earned bicycle friendly status prior to launching their public bicycle program. Information on how to become a bicycle friendly community or business is available from the League of American Bicyclists website at: <http://www.bikeleague.org/programs/bicycledfriendlyamerica/communities/> Appendix A describes more resources to create safer places to bike.

Public Bicycle System Helmet Use

Nearly all currently active public bicycle sharing systems require users to be responsible for their own helmet acquisition and use (Duvall, 2009). The three large public bicycle sharing programs in the U.S. encourage helmet use through incentives such as free or discounted helmets, but do not require helmets.

King County Washington (Seattle area) requires all bicyclists to wear a helmet. Seattle’s bicycle share feasibility study (University of Washington, 2010) points out that mandatory helmet use can deter some people from riding public bikes. Carrying a helmet may be viewed as inconvenient. Bicycle helmets are typically rated for only one impact (crash), thus the integrity of used helmets can be unknown and used helmets may be perceived as unsanitary. Mandatory helmet use is difficult to enforce and some people do not like to wear helmets. The Seattle study (University of Washington, 2010) recommends providing bike share members with vouchers for free or discounted helmets from local vendors, finding a low cost producer to saturate the city with helmets for public bike use or exploring helmet vending station options for one-time bike share users.

Public Bicycle System Minimizing Liability–Third Party Operators and User Agreements

As of early 2011, the three large scale public bicycle programs in the U.S. are all operated by a third party entity rather than a government agency. Denver and Minneapolis systems are run by non-profit organizations while Washington’s system is operated by a private company. Non-profit organizations have limited resources, thus are less likely to be sued than a jurisdiction, agency or large for-profit organization, which may reduce legal liability to an agency (DeMaio, 2010).

It is no longer acceptable to plan, design or build roadways that do not fully accommodate use by bicyclists and pedestrians (FHWA 2006).

Bike share operators address legal liability by requiring members to sign a user agreement and by carrying appropriate insurance. User agreements typically define appropriate use of the bicycles and place responsibility on the rider. By signing agreements, riders acknowledge they are competent and physically fit to ride a bike. Agreements list prohibited acts such as using handheld devices, operating the bike under the influence of alcohol or drugs or carrying a second person or animals on a bike. Appendix D contains sections of public bike share agreements relating to liability. Public bike sharing user agreements can serve as templates and are available online at:

- Nice Ride Minnesota <https://secure.niceridemn.org/subscription/>
- Capital Bikeshare <https://www.capitalbikeshare.com/signup>
- Denver B-Cycle <https://denver.bcycle.com/joinnow.aspx>

Public Bicycle System Insurance

Public bicycle share system operators typically provide Workers Compensation, Commercial General Liability, Business or Commercial Automobile Liability and Professional Liability, and Professional Insurance or errors & Omissions Insurance. Insurance requirements are summarized for Nice Ride Minnesota in section 4.1.1 and for Capital BikeShare in section 4.1.2.



4.6. ELEMENTS OF SUCCESSFUL PUBLIC BICYCLE SHARING SYSTEMS & RENTALS

This section presents elements of successful public bicycle sharing systems based on 40 years of experience with public bicycles in European cities (NICHEs, 2007) and recent experience from the case studies in the previous sections.

4.6.1. PLANNING

Bicycle friendly environment – Bicycling infrastructure and an environment where people feel safe bicycling must exist before launching a public bicycle share system. The League of American Bicyclists provides information on how to become a bicycle friendly community or business at: <http://www.bikeleague.org/programs/bicyclefriendlyamerica/communities/>

Broad public support – A strong commitment from stakeholders, political leaders and local champions is needed to initiate, fund and support a public bicycle system over time.

Population density – Most public bicycle sharing systems are located in urban centers with high employment and/or residential densities and concentrated commercial, retail and public amenities. A city population of at least 200,000 is recommended for automated public bike sharing (NICHEs 2007) though automated systems have been implemented in cities as small as Drammen, Norway; population 60,000 (Transport Canada, 2009). Nice Ride's Phase 2 Planning Report (Community Design Group, 2010) contains a series of maps for planning bicycle sharing systems including employment density and household density. Similar maps showing densities at residential, lodging and key attractions in public lands can be useful tools for planning a public bicycle system. Manually operated systems, bicycle rentals or flexible systems may be more cost effective than automated systems and work well in smaller cities or more rural Federal lands with lower visitation.

Integration with public transit – Public bikes extend the effective area served by bus stops and transit stations. Urban experience shows bicycle stations located at transit stops receive high use. Figure 19 shows how the Nice Ride existing and planned station locations integrate with the existing public transit system in the Twin Cities (Community Design Group, 2010). A 2010 report identified National Wildlife Refuges that are connected to transit systems and trails (Volpe, 2010), which may have opportunities to integrate bicycling programs.

Station/kiosk locations - Stations should be placed in highly visible locations close to sources and destination of users as discussed in the previous two points. In Federal land settings, stations may be placed near existing transit services, lodging (campgrounds, hotels, etc), visitor centers, trailheads and other attractions with a high density of people.

System size – To serve as public transportation, a minimum number of bicycles must be available both where and when customers need them to establish reliability and consistency of the service (City of Minneapolis, 2008). Transport for London (2008) calls this the network effect and a primary reason why small pilot projects fail to predict demand for larger scale public bicycle systems. DeMaio (2010b) compares a bike-sharing service's usefulness to bus service. A bus service with one bus or just a couple of stops will be accessible only by people who live, work or play near those stops. Similarly, a public bike system with a greater number of bikes and wider network of stations will create a more usable service (DeMaio, 2010b).

Available bicycle parking – Fixed stations must have spaces available for parking. Planning for 30 to 40 percent more bicycle parking spaces (or docks) than bicycles is recommended. Capital Bikeshare started with 33 percent more and by spring 2011 adjusted to 50 percent more parking docks than bicycles. The Arlington 2010 contract specifies stations start with approximately 60 to 70 percent of the station full, leaving 30 to 40 percent of the station available for bike parking. In other words, a station that can hold seven bikes comes with only four bikes (thus 3 empty docks). Flexible bicycle sharing programs allow



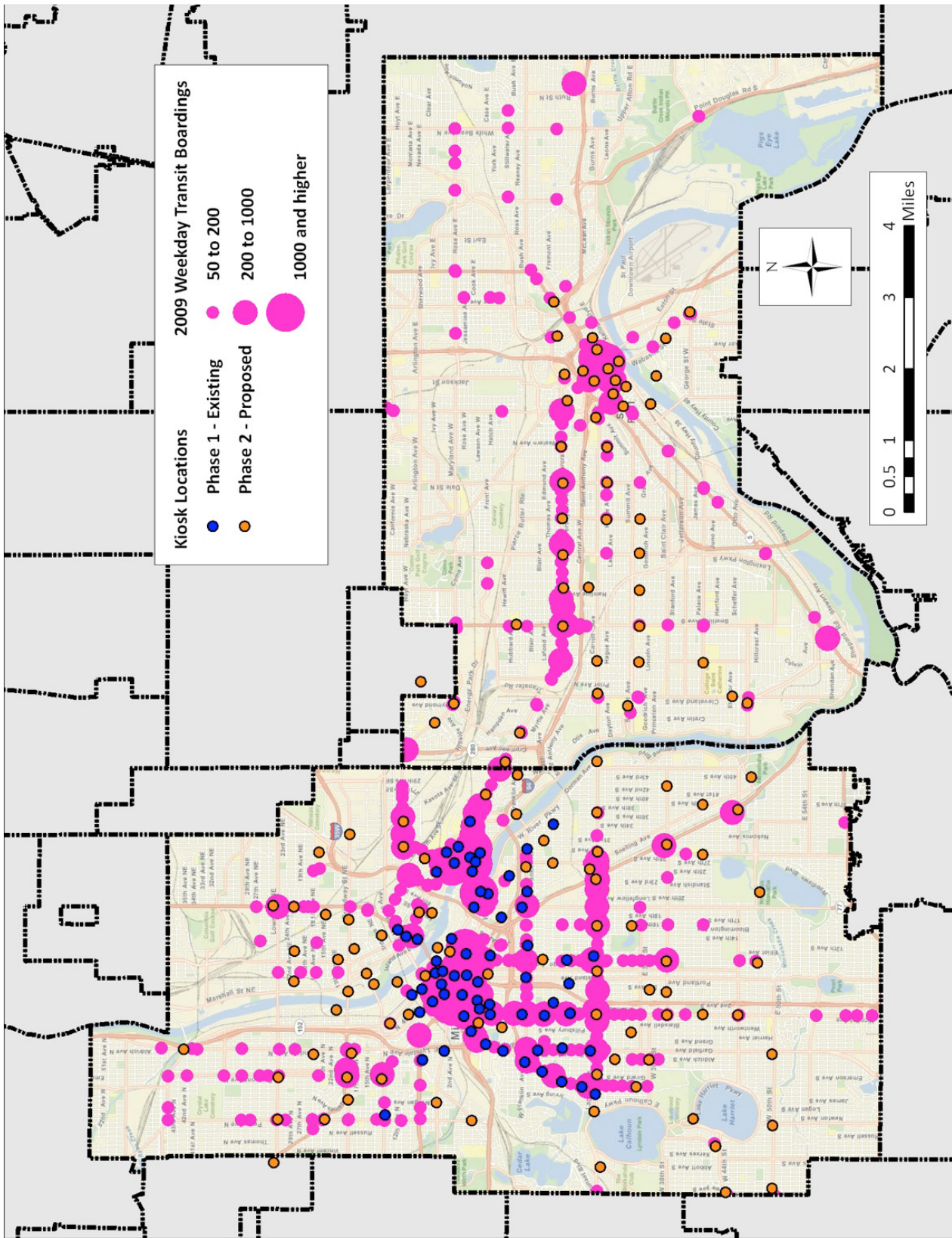


Figure 19: Nice Ride Draft Phase 2 Station Locations and Transit Boarding Volumes (Community Design Group, 2010)



bikes to be locked to regular bike racks. Planning for sufficient quantity of bike parking close to attractions is important to make bicycling a convenient travel option.

Number of Members – A range of 13-20 members per bicycle is recommended based on a review of successful urban bicycle sharing programs (City of Minneapolis, 2008). Thus if a public bike share system has 1000 bicycles, the program’s annual membership should be in the range of 13,000 to 20,000 members.

Topography and Climate – Hilly areas can be a barrier to bicycling. Placing stations strategically, providing incentives such as reduced rates for returning bikes at the top of a hill, balancing bicycles more frequently among stations and/or choosing bicycles with more gears can promote shared bicycle use in hilly regions. Bicycle share programs have proven successful in many different climates. Montreal’s Bixi, Nice Ride Minnesota and Denver B-Cycle systems currently close for the colder winter months. Capital Bikeshare in Arlington, VA and Washington DC is currently open year round.

Target customers – A bicycle share system must meet the needs of the target population. For example, OV-fiets is targeted at rail commuters using bicycles to travel between their transit stop and work. European experience suggests active people between 18 and 34 years old who are frequent transit users are the most likely to use public bicycle sharing systems (NICHES 2007, IDAE 2007, DeMaio and Gifford, 2004).

Timing – Launching a bicycle sharing program in spring/ early summer when the weather is nice or in conjunction with another event such as a cycling festival is a good practice. Denver’s B-Cycle launched on Earth Day April 22, 2010, which went over well despite the tornado warnings.

Feasibility Study – There is no one best “silver bullet” public bike system. A system must be tailored to the needs of a specific area. Each Federal land area is unique and some will be appropriate for public bicycle systems, while others will not. A feasibility study should be completed to identify project goals, understand existing bicycle use, visitor demographics, travel habits and attitudes to identify the target population and their needs. Feasibility studies for London, Minneapolis, New York City, Philadelphia, Seattle and Vancouver are available online at <http://bike-sharing.blogspot.com/>.

4.6.2. SMART BICYCLE SHARING SYSTEM FEATURES

Third and fourth generation bicycle share systems (as described in Chapter 3), often called “smart” systems, have made it possible to deploy large scale public bicycle sharing programs in urban areas. Shared Bicycle commonly desired features include:

- Uniform design, bicycles that are easy to identify and attractive
- Full fenders and a covered chain to protect clothing from grease, water and mud
- A comfortable and simple way to adjust saddle to accommodate different size riders
- Bicycle with an upright, comfortable riding position and low top tube
- A handlebar basket or rack
- Wide tires for stability (some systems have nitrogen filled tires, which decreases the possibility of flats)
- Internal hub gears (rather than external derailleur): less prone to break or drop chain
- Automatic front and rear lights with lights that stay on for 90 seconds after stopping
- Tracking mechanism (RFID tag, GPS unit or other)

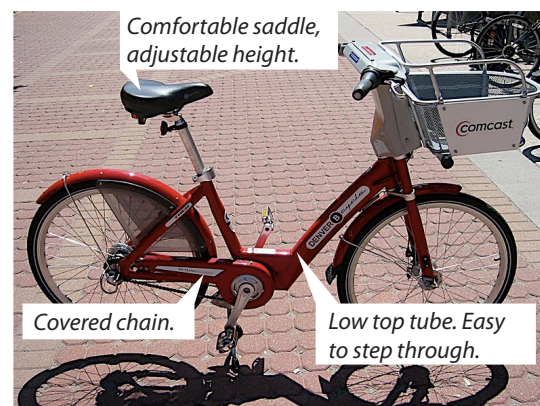


Figure 20: Denver’s B-cycle components
(Photo: A. Duvall)



- Modular, portable stations/kiosks that can be installed, moved, and expanded quickly and inexpensively. Portable stations can be removed during winter, reducing damage caused by weather exposure and conflicts with snow removal

Smart bikes such as the Bixi and B-cycle bikes used in Washington DC, Denver and Minneapolis were specially designed for short trips in urban areas (i.e. on pavement in cities). These heavy bikes would be cumbersome for longer road rides and lack the gears needed to comfortably ride hilly or steep terrain. Therefore they would not be well suited for many Federal lands where distances between attractions are long (about five miles or more) and where there is hilly terrain or dirt roads or trails. In addition, these urban bikes are designed primarily for adults; they do not have provisions to transport children such as trailers or child seat carriers.

4.6.3. OPERATIONS AND MAINTENANCE

Simplicity – Registration procedures should be kept simple for the user. Nice Ride, Denver B-cycle and Capital BikeShare offer on-site registration at kiosks and online registration prior to use. Once registered, a good practice is to allow riders to use a smart card or key directly at the bike dock, rather than the kiosk. This reduces wait time at the kiosk since registered customers can bypass the kiosk altogether. Smart cards are usually more convenient to use than mobile phone based systems, which may require users to pay for phone calls.

Balancing Bikes and Maintaining System – Balancing bikes between stations is important to ensure every station has bicycles available and empty slots available to return bikes. Using small electric vehicles is a good practice. Accessing stations by bicycle to perform maintenance is used in Washington DC, where there is limited space for parking a maintenance vehicle. A full-time crew is recommended to clean and maintain the bicycles and stations.

Encouragement – This is crucial to promote benefits and encourage use. A combination of media and promotion by local champions, politicians, and celebrities is recommended. Social marketing methods, which tout the health, environmental and cost savings benefits of bike sharing are good practice. Online competitions and tracking items such as gas savings and calories burned keep people engaged.

Education – All roadway users must understand rules to create mutual respect between cyclists, pedestrians and motor vehicle drivers. Capital BikeShare promotes a free confident cycling class on its website: www.capitalbikeshare.com/safety. This website also directs riders toward the bicycling laws for their area and provides links to maps of bicycling networks in the area.

Evaluation – Continue to monitor use, acceptance and quality of a public bicycle system on a permanent basis. Based on customer feedback, Nice Ride learned that their user interface was commonly misunderstood and redesigned the interface. They also learned that customers were having problems with bank overdrafts due to using debit cards. When a debit card is used, a deposit of \$50 remains with the debit card's bank for up to ten days before the funds are released back to the customer. Nice Ride resolved the debit card issue by recommending that customers use a credit card and not a debit/



Figure 21: Capital Bikeshare maintenance Crew (photo: R. Gleason)



check card and making customers aware that their bank will place a \$50 hold on their account for each subscription purchased.

4.7. PUBLIC BICYCLE SHARING COMMON CHALLENGES

Common challenges identified when planning and operating public bicycle share systems are described below.

Understanding public bicycles – The concept of public shared bicycles as a form of transportation is not yet well understood in the United States. Education, media and marketing campaigns and hands-on experience are needed to convey this concept to the public. Nice Ride leaders recommended the following practices in a January 2011 webinar sponsored by the Association of Pedestrian and Bicycle Professionals.

- Test the user interface to make sure customers understand how it works before implementing a public bicycle system.
- Incorporate education on public bicycle sharing concepts and pricing structure into marketing materials.
- Create an educational video to explain how your public bicycle share system works and what it costs.
- Plan for debit card use, which is popular with college students who may not have credit cards. Warn users of potential to overdraw their accounts.
- Create opportunities for the public to ride and experience urban riding (Dossett, 2011).

Time to plan – Allow adequate time to plan a successful system. Public bicycle sharing programs require support from political leaders and many partners. These relationships require time to develop. Nice Ride took 17 months for planning and an additional five months for procurement, contracting, hiring, training, building the website, printing communications, leasing space and vehicles, testing the user interface, assembly, programming and installation. Limiting planning time can lead to poorly placed stations. Other problems with poor planning are under use of the system and lack of bicycle/station maintenance.

Competition with existing concessionaires – Some Federal lands have concessionaires that include bicycle rentals. Public bike sharing can be viewed as a threat to existing bicycle rentals or as a complementary service. In Washington, DC, there was a question of whether public bicycles fall within NPS concessions regulations. It is important to reach out to all stakeholders during the planning process to work through these types of issues. The District DOT, which has been integral to the start-up of Capital BikeShare, is working with local bicycle shops to promote their visitor tours, which the DDOT believes complement the Capital Bikeshare public bike system.

Taking bicycles seriously – Some people feel bicycles take up valuable roadway space. Bicycle shops or rental facilities may feel threatened by bicycle sharing programs. Public bike share proponents should expect resistance and be prepared to discuss the benefits and the many places around the world that are embracing public bicycles as a critical component of a balanced transportation network.

4.8. INTEGRATING ELEMENTS OF BICYCLE SHARING AND RENTAL PROGRAMS IN FEDERAL LANDS

Automated bicycle sharing systems have been shown to work well in bike friendly urban settings characterized by high population densities, short distances between destinations and connections to public transit systems. Successful systems require a minimum number of bikes and stations to serve as a convenient form of public transportation. Given this information, automated bike share systems may work well in Federal lands that are:

- Located in densely populated urban areas, especially ones that have existing bike sharing systems
- Located in settings with high visitation rates, good bicycling facilities, connections to transit and many destination/attractions in close proximity

For the cases above, bicycle sharing have potential to become a part of public transportation that can help address problems such as traffic congestion, parking shortages and poor air quality. In these contexts,



public bike system investments (averaging \$4,200 to \$5,400 per bicycle with all system components) are relatively small when compared to the cost of expanding roads, parking lots or developing transit systems. However, most Federal lands are located in rural settings.

Adapting bike sharing models for Federal lands

Most Federal lands are in rural settings. Long distances between attractions and lower visitation typical of rural areas can inhibit success of public bicycle systems, which use heavy bikes designed for short trips on pavement. If existing urban bicycle sharing models are to become a convenient and attractive form of travel in Federal lands, modifications to consider are:

- Provisions for children and people with disabilities – Most public bicycle systems require riders to be at least 16 years of age and do not have children’s bicycles, trailers, adult tricycles or hand cycles.
- Bicycle design – Heavy bicycles with few gears designed for high turnover urban use may not be attractive for longer distance recreational riders. Offering lighter weight bicycles and/or bicycles with more gears and various styles may be more attractive to visitors in recreational settings.
- Pricing structures for longer rides – Current urban pricing schemes that promote short trips may not attract visitors who would like to bicycle and experience their Federal lands at a more leisurely pace.
- Sharing equipment with other land units – Buses used in some northern National Parks during the peak summer season are used at ski resorts during their peak winter season. Similarly, with portable or flexible bicycle systems, rather than storing bikes during the winter, bikes could be moved to warmer areas that receive their peak visitation in the winter.

Adapting Bicycle Rental Models

There are numerous bicycle rental programs located in Federal lands and nearby communities. Bike rentals are lower cost to start and operate than automated bicycle sharing systems. Urban bike sharing systems have succeeded at making biking an attractive alternative to driving. Ideas on how Federal lands could integrate positive features of both bike rentals and bike sharing concepts follow:

- Develop partnerships with public lands friends groups, gateway communities, public health organizations to provide support and funding for bicycle rental programs. Developing a business model similar to public systems where bicycles are sponsored by many partners has potential to lower the end cost of bike use for the customer, making bikes a more attractive option to more people.
- Set up staffed rental facilities in two or more convenient locations to encourage one-way trips, where the customer may bike one-way and hike, drive, or shuttle back.
- Create a strong brand/logo to create a uniform appearance for all rental bicycles, which can make customers feel they are taking part in something larger and more important that relates to an agency’s mission and the greater good. Agency branding/logos could be used nationwide on bicycle programs at multiple units.
- Promote online and social marketing techniques to increase public awareness and interest in bike use. Developing messaging consistent with agency initiatives to connect children to nature, improve public health, reduce dependence on foreign oil, save money on fuel, or others can encourage visitors to try bicycling instead of driving when visiting Federal lands.

In summary, combining traditional bike rentals with bike sharing concepts could make bicycling more cost effective, convenient, and attractive to more people visiting Federal lands.



4.9. PUBLIC BICYCLE SHARING PROGRAM OR BICYCLE RENTAL: TEN KEY QUESTIONS

These questions will help program leaders determine whether a public bicycle share program should be considered in their area.

1. Are there bikeways where most people would feel comfortable riding a bike?
(See the League of American Bicyclists 'bicycle friendly' program information at <http://www.bikeleague.org/programs/bicyclefriendlyamerica>)
2. Is the land unit located in an urban area that has an established public bike sharing program or is planning one? (if yes, contact them to discuss the feasibility of system expansion)
3. Is the land unit located in a rural setting that has high visitation rates, bicycle friendly infrastructure and many destination/attractions in close proximity? (if yes, continue to Q 4, if no continue to Q9)
4. Is there a leader within the organization who is a champion for a multi-modal transportation network that integrates a public bicycle system?
5. Is there commitment from stakeholders, political leaders and local champions to support and fund a public bicycle sharing program over time?
6. What benefits will a public bicycle sharing program provide for this area?
7. Is this area accessible by other public transportation systems (i.e. bus or train)?
8. What are the visitor demographics? What is their interest in riding shared bicycles?
9. Is there a bicycle rental operation in or near the land unit?
10. Are there opportunities to adapt a bicycle rental operation to include multiple locations, lower cost bikes for customers or otherwise make bikes more convenient to more visitors?



5. EMPLOYEE BICYCLE FLEETS

Employee bicycle fleets are typically operated by a business, university campus or other organization and are available only to certain individuals such as employees, volunteers, or students. They are relatively simple to start and significantly less expensive than public bicycle systems. The case studies in this section demonstrate a variety of ways to design employee bicycle fleets. Based on several employee bike fleet case studies, this section provides estimates of employee bike fleet capital and operating costs, funding sources, elements of successful employee bike fleets and common challenges. This section concludes with considerations of how employee bike fleets can fit into Federal land settings.

5.1. CASE STUDIES: EMPLOYEE BICYCLE FLEETS

The following case studies describe how organizations address helmet use, liability waivers, safety training and other practices to minimize liability related to bicycle fleets. Four case studies were selected because they serve National Park employees and are relevant to Federal lands. Two case studies demonstrate University campus bike fleet programs that have relevant lessons for Federal lands.

TABLE 9: EMPLOYEE BICYCLE FLEET CASE STUDY OVERVIEW

Location	Year started	No. of bikes	Start up cost	Rider Cost	Max time of use	Program Operator
Glacier NP	2003	27	\$9,000	Free	72 hours (3 days)	Glacier NP Green Team
NPS Midwest	2005	10	\$5,000	Free	Not Specified long term loans available	Midwest Region Activities Association
Yosemite NP	2011 (1)	20	\$5,000	Free	Not Specified	Sustainable Action non-profit organization
National Capital NPS B-Cycle	2009	30 (smart system)	gift	Free	Up to 12 hours	NPS Interpretation Division
Hawaii Volcanoes NP (HAVO)	2001	12	\$4,000	Free	Up to 3 months	HAVO Interpretation Division
Duke University	2006	108	\$147,000	Free	1 week	Office of Student Activities and Facilities
UC Irvine ZotWheels	2009	30 (smart system)	\$225,000	\$40 per year	3-hours at a time	UC Irvine Transportation and Parking Services



5.1.1. GLACIER NATIONAL PARK RED BIKE PROGRAM

GLACIER NATIONAL PARK RED BIKES ESTABLISHED 2003	
Population Served	Glacier National Park staff and volunteers
Purpose	Work duties and/or light recreation
Vendor	Worksmen Trading Corporation (supplied bikes) http://www.worksmen.com/
Operator	Glacier National Park Green Team
Stations	Traditional bicycle racks located at park campgrounds, visitor center and headquarters
Bikes/ accessories	Started w/ 20 bicycles, now there are 27; Helmets, master locks and keys, adjustable seat, and front basket accompany the bikes; 1 tricycle for mail delivery or carrying equipment
Capital/Start-up Costs	\$9,000 funded 20 bikes, a tricycle, helmets, locks and bike racks in 2003 (average \$450 per bike and accessories); \$500 annual maintenance fund.

Glacier National Park is a one million acre rural park in northwestern Montana with pristine forests, alpine meadows and lakes, rugged mountains and glaciers. An assessment of greenhouse gas emissions from Glacier revealed that the single greatest contributor to carbon dioxide emissions in the park is transportation (NPS 2006). One initiative to reduce emissions is Glacier’s Red Bike fleet. Initiated by a National Park Foundation Transportation Scholar in 2003, with support from the Climate Friendly Park initiative and the Glacier National Park Fund, Glacier’s Red Bike Program provides 27 bicycles for staff and volunteers to use within park boundaries. The fleet consists of older-style cruiser bikes that complement the historic red “Jammer” buses. In 2007 many Red Bikes were updated with rear saddle baskets and adjustable seats. This program gives employees an alternative to driving a vehicle for short trips, which typically produce higher pollution due to the inefficiency of a cold engine start. Prior to the implementation of this system, vehicles were more frequently used by employees for short trips either to save time compared to walking, or because distances were perceived as too far to walk.



Figure 22: Bike plates match Glacier NP Fund’s State of Montana plate (Photo: NPS)

How it Works

Bikes are stationed at office buildings, visitor centers, campgrounds, and ranger stations. A master key to access the bikes is “checked-out” for the entire season and can be obtained at either the West Lakes Warehouse or Hudson Bay Ranger Station Dorms. Bikes must be ridden within park boundaries and returned to their original location within 72 hours of check-out. Park employees and volunteers are required to sign a user agreement form before receiving a master key. This system is essentially an honor system; once an employee receives a master key, they may take a bike as needed. The bikes are heavy, industrial style, single-speed bikes designed for durability and low maintenance. Another reason heavy, single speed bikes were selected is to deter theft. The bicycles may be used for work or recreation purposes. Users are instructed to make sure there are plenty of bicycles available for work purposes prior to using one for recreation. Staff can frequently be seen riding red bikes across the headquarters compound.

Funding/ Business Model

A \$9,000 grant from the Glacier National Park Fund, the park’s endorsed fund-raising arm, funded the original 20 bikes, a tricycle, helmets, locks and bike racks in 2003. Local bike shops and volunteers help

- Executive Summary
- Introduction
- Bicycling Benefits and Initiatives
- Evolution of Public Bicycle Sharing
- Public Bike Sharing & Rentals
- Employee Bicycle Fleets**
- Recommendations
- References
- Appendix A
- Appendix B
- Appendix C
- Appendix D
- Appendix E
- Appendix F



maintain the bikes. The Glacier National Park Green Team sponsored a bike maintenance workshop for park staff to help maintain the red bikes in 2008. Their goal is to develop a bike care and basic maintenance plan that will incorporate park staff (NPS 2009). The program is managed by staff from the Park’s volunteer coordinator and funded by grants and volunteer efforts.

Partnerships

Key partners include Park leaders, the Glacier National Park Fund, the Glacier Association, Glacier National Park’s Green Team, the Glacier Employee Association, the park’s Crown of the Continent Research Learning Center and local bicycle shops.

Safety and Legal Liability

Riders are given a helmet when checking out a bicycle. Wearing a helmet is strongly encouraged. Users must sign a user agreement form prior to receiving a bike lock key, and riders assume all liability and risk when riding the bicycle outside of their assigned work hours. To date, there have been no known bike-related injuries or accidents reported and no thefts. Bikes have been reported missing on a few occasions, but they generally turn up after having been left at the wrong location for a time period. Specific safety training has not been provided, but there are plans to develop a safety training protocol for new users.



Figure 23: Glacier NP Red Bikes (Photo: NPS)

Successes

Glacier’s Red Bike Program has been running smoothly since 2003. Because some park roadways do not have wide shoulders or designated bike lanes, Glacier NP has focused this program on short trips within specific areas of the park. Most red bike trips are made within campgrounds, the headquarters area, the bike path between headquarters and Apgar, and other compact areas. Focusing on replacing short car trips with short bike trips is beginning to build a culture that is not as dependent on cars for every trip. During the spring plowing season, sections of the Going-to-the-Sun Road are made available only to hikers and bikers before they are made available to motor vehicles. During that season (roughly between April & June), the map link below shows the locations of the hiker/biker sections. <http://www.nps.gov/applications/glac/roadstatus/roadstatus.cfm>

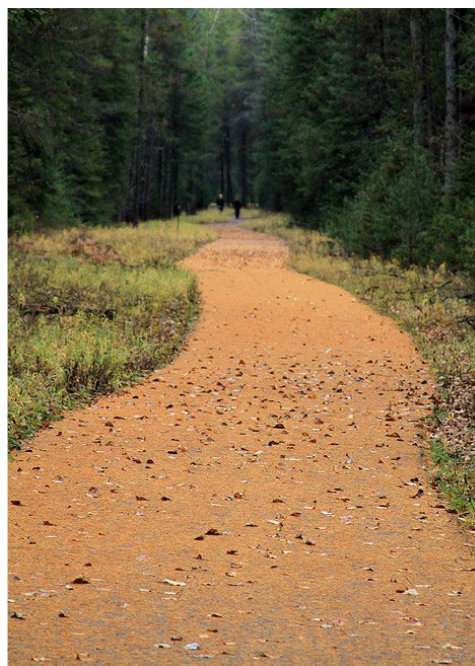


Figure 24: Glacier NP bike path carpeted with larch needles (Photo: NPS)

Convenience is a key factor to the success of the program. In situations where it is quicker and easier to bike for a short trip versus walking or finding a vehicle, the bikes are well used. Designating a coordinator for the program has helped to expedite problem-solving when issues do arise.

Challenges

One minor challenge with the original bikes was damage to the wheels when the front wheel of a heavy bike was parked in a standard bike rack. Kickstands were installed on the bikes to help support the weight.

Additionally, park staff members were surveyed in 2006 to find out what they did and did not like about the bikes, how often they used them, and for what purposes. The survey identified that the bikes that were too small for some users, non-adjusting seats were a deterrent, and users had a preference for rear (instead of front) baskets. Survey results also showed additional locations where bikes were desired and the need to better communicate where to access keys. As a result of the feedback, smaller, lighter baskets and quick release seats were installed on the original bikes to allow quick height adjustments. When additional bikes were purchased in 2008, the park staff ordered larger bikes with these features. If funding becomes available, the park intends to purchase two more bikes for locations that do not yet have bikes.

Maintaining the bikes is an ongoing commitment. In 2009 the park committed up to \$500 for maintenance on an annual basis. There are two tool kits for the bikes and assorted spare parts. Simple repairs have been performed on a volunteer basis by skilled staff, while more complex repairs have been taken to local bike shops. There is a checklist for inspecting the bikes at end of the season, and any repairs that cannot be immediately addressed during the inspection are documented and must be addressed before the bikes are distributed in the spring. It is the responsibility of the red bike coordinator to see that the bikes are in good condition and to address problems that crop up during the season.

5.1.2. NPS MIDWEST REGION BIKE PROGRAM, OMAHA NEBRASKA

NPS MIDWEST REGION EMPLOYEE BIKES ESTABLISHED 2005	
Population Served	NPS Employees of the Midwest Regional Office & their guests/families
Purpose	Recreational use (off-duty time)
Vendor	Various bike manufacturers
Operator	Midwest Region Activities Association
Stations	Storage shed with electric key card gate access
Bikes/ accessories	8 hybrid and 2 cruiser bicycles of varying size; helmets, combination locks, tool kits, portable bike racks for vehicles
Capital/Start-up Costs	\$5,000 for 10 bikes and accessories in 2004 (average \$500 per bike and accessories)



Figure 25: Cruiser and hybrid bikes at NPS Midwest Regional Office (Photo: NPS)

The NPS Midwest Regional Office opened in the summer of 2004 in downtown Omaha, Nebraska, employing about 130 NPS personnel and serving as the headquarters for the 3,700 mile long Lewis and Clark National Historic Trail (located adjacent to office). Several employees recognized the office was well-suited for a bike program given its close proximity to the Missouri Riverfront trail. The Midwest Region Activities Association (MWRAA), an employee group which plans recreation/social activities, initiated a bike share program.

This grass roots bike share was initiated by employees and en0joys support from regional level NPS leadership. This bike share program is consistent with the NPS Director's Order Number 57 which advises

that the NPS "will continue to invest in the health and physical well-being of all its employees" and will "support employee health and fitness goals" (NPS 1999).



How it Works

Ten bikes are available to NPS employees and their guests/families for recreational use during personal time (non-duty time). Bikes are conveniently located in a secure storage shed near the office. Employees can ride the bikes during their lunch break or after work and student interns commonly use them for commuting. Long term loans, for employee vacations and for visiting employees who need transport to the office from hotels, are available. Periodic announcements are made to promote the bikes and new employees also frequently learn about the program by word of mouth (Weekley, Kumar 2010).

Funding/ Business Model

The MWRAA used \$5,000 in grants to purchase bikes and associated accessories and equipment. Bike maintenance is performed as needed by employees as a volunteer collateral duty. Bikes are checked every couple of months for repair needs. A few project champions in the Omaha office operate this bike share, absorbing the duties on a volunteer basis.

Partnerships

National and local organizations provided grant funding partnership to this program. The organizations were:

- National Park Foundation (a national charitable NPS partner),
- Automobile Heritage Area,
- Silos and Smokestacks National Heritage Area (awards grants within Heritage Area to help preserve and tell the story of American agriculture).

Safety and Legal Liability

Concerns about possible injury, liability and workman's compensation claims were a big issue before this program was launched. Program champions sought support from leaders at high levels of the NPS. In this case, the NPS Regional Director supported the bike share as demonstrated by his statement "everything we do has an element of risk involved, and this has benefits of health which outweigh the risks."

Risk related to users' health status was minimized by using NPS protocols relating to voluntary health and fitness programs. These include medical and physical fitness screenings to evaluate current health and fitness levels and a signed liability release. All MWRAA bike users are required to read and complete four forms prior to using a bike.

- The MWRAA Program Plan
- Heart Disease Risk Profile
- Physical Activity Readiness Questionnaire
- The MWRAA Bike Program Informed Consent Waiver

In addition, program leaders held an open house to answer questions related to bike safety, trail etiquette, proper bike use, and storage.

Successes

MWRAA had little trouble finding partners who were willing to provide grants to purchase bicycles, so no government funds were required. The MWRAA serves as the fiduciary partner to NPS for this bike share with the ability to write checks. This program has been running smoothly since 2005 due to committed project champions. During this time, there have been no bikes stolen and no injuries reported. Organizers report that ten bikes are adequate for this office of about 130 people. The bikes are holding up well going into the program's fifth year.

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Challenges

An initial challenge was the cumbersome process of using appropriated funds to buy recreational equipment for employees. Employees considered purchasing bikes as fitness equipment as part of a wellness program, but were met with strong opposition. Federal procurement regulations require fitness equipment be purchased from the GSA Purchase Schedule, section 78 -IA. Exceptions require agency justification, and applications for waivers must go to GSA through the NPS procurement process. Program leaders decided grant funding was a better way to purchase the bikes.

Another challenge was the lack of a secure bike storage area. While a bike rack was already in place in front of the building, there was no secure area to store bikes overnight. MWRAA acquired a storage shed and placed it in a nearby fenced area using the original \$5,000 grant funding. At a later date, the Regional Director bought the shed to support the program for \$1,000, which went into a bike maintenance fund.

5.1.3. YOSEMITE NATIONAL PARK PLANNED EMPLOYEE BICYCLE FLEET

YOSEMITE NATIONAL PARK EMPLOYEE BIKES ANTICIPATED TO START IN SUMMER 2011	
Population Served	Yosemite Park Employees
Purpose	Commuting in and around Yosemite NP
Vendor	To be determined
Operator	Sustainable Action non-profit organization http://www.sustainableaction.org/
Stations	To be determined
Bikes/ accessories	20 bicycles, helmets and locks
Capital/Start-up Costs	\$5,000

Yosemite National Park is located in east-central California, on the western slope of the Sierra Nevada Mountains. Yosemite is one of the largest national parks (over 1200 square miles) and has a staff of just over 800 during peak season. About 250 park employees live in park housing at the western boundary of the park adjacent to the community of El Portal and the park's administrative offices. Temporary summer staff particularly benefit from a commuter bike program since many of them lack transportation options. Those who have a motor vehicle must deal with limited parking. Employee bicycle sharing at Yosemite NP and other parks has existed informally for years, mostly via staff collecting and passing down abandoned bicycles. These "free bikes" have undocumented hidden costs, such as the time spent to manage and maintain bicycles. With no organized oversight, the free bikes can also become unsafe or be abandoned. In 2008 the Resource Management and Science Division pursued a more formal employee bicycle fleet. As a participant in the National Park's Climate Friendly Parks program (www.climatefriendlyparks.org), Yosemite reached out to the National Parks and Conservation Association (NPCA), a non-profit National Park advocacy group, to fund an employee bicycle program. This program will provide organized access to a regularly maintained bicycle fleet intended to reduce emissions and alleviate parking congestion (Knipper, 2010).

How it Works

Yosemite secured a \$5,000 grant from the NPCA and partnered with a local non-profit group called Sustainable Action, whose mission is to promote bicycling as a safe and viable form of transportation. Sustainable Action already manages a bike loan program in the rural community of El Portal, adjacent to Yosemite NP. Under the current plan, the NPCA grant will cover costs and services for about twenty additional bicycles, helmets and locks, to be checked out to park employees. Sustainable Action will fit bikes with odometers so that carbon savings could be calculated. The grant will also cover Sustainable



- Executive Summary
- Introduction
- Bicycling Benefits and Initiatives
- Evolution of Public Bike Sharing
- Public Bicycle Sharing & Rentals
- Employee Bicycle Fleets**
- Recommendations
- References
- Appendix A
- Appendix B
- Appendix C
- Appendix D
- Appendix E
- Appendix F

Action’s costs to train users on bike safety, manage the bikes and report on miles traveled. Sustainable Action will assume the usual liability covered in their existing bike loan program.

Partnerships

This partnership between NPCA, Sustainable Action and the park makes it possible for Yosemite to provide bicycles for local commuters (those living in park housing near offices) without having to add bike management, repair and training to staff responsibilities. Better yet, this arrangement reduces the park’s exposure to liability.

Successes

NPCA and Sustainable Action now have an agreement in place that will benefit Yosemite NP staff. The local chapter of the NPCA can show its support for both the Climate Friendly Parks program and the park staff. Sustainable Action will receive much needed financial support to continue its community based program, and Yosemite gains use of twenty or so bikes that will benefit the temporary employees that come and work at the park. This program was initiated in the summer of 2011.

This model may apply to other areas. The NPCA has offices across the country and is an independent, advocacy group working to address major threats facing the National Park System (www.npca.org). Bike library programs such as Sustainable Action are also common across the country.

Challenges

Bicycles that are government property come with restrictions on how they can be used by riders, and commuting between work and home is not an authorized use. There may be a number of ways that a park can address this issue and still meet the standards of the law, but Yosemite chose to look to the non-profits for help. No other challenges have been identified with the current system and with the current funding and operations plans.

5.1.4. NATIONAL CAPITAL REGION B-CYCLE EMPLOYEE BIKE-SHARING PILOT

NATIONAL CAPITAL REGION EMPLOYEE BIKE SHARE PILOT ESTABLISHED AUGUST 2009	
Population Served	NPS Staff and volunteers
Purpose	Work duties (with limited personal use in future)
Vendor	B-Cycle
Operator	NPS Interpretation Division
Stations	3 stations; permanent fixed
Bikes/ accessories	30 bicycles
Capital/Start-up Costs	While this system was gifted to the NPS, a B-cycle system with 30 bikes is estimated to cost between \$75,000 to \$90,000.

The National Capital Region B-cycle Employee Bicycle Share in Washington DC is the first (and currently only) automated bicycle share program within the NPS. This pilot project is intended to help the NPS assess how bike-sharing could reduce environmental impacts to parks and help develop a healthier workforce. It is common for employees to drive less than a mile several times daily to attend meetings and carry out routine work tasks. This program provides National Park employees and volunteers with the option of using bicycles for their official work duties such as traveling between work sites, to meetings, to monitor park projects, or to patrol visitor use areas (NPS 2009a).

Legal authority for this program is found in 16 U.S.C. 1 through 4 (the National Park Service Organic Act). Additional support can be found in Executive Order 13149 - Greening the Government through Federal Fleet and Transportation Efficiency and NPS Management Policies chapter 9.1.7: Energy Management. In addition to 30 B-cycle bikes, the NPS National Malls and Memorial Parks unit has a fleet of regular bicycles



that park rangers use routinely to provide tours and patrol dispersed monuments. More information on the bike patrol and tour fleet may be found in the Guide to Promoting Bicycles on Federal Lands (FHWA 2008b) in Chapter 3 (<http://www.bicyclinginfo.org/library/>).

How it Works

This system consists of three stations, located in secure parking lots, not highly visible to the public to deter theft and vandalism. The locations are as follows:

- National Capital Region Headquarters (12 bikes).
- National Mall and Memorial Parks Headquarters (6 bikes).
- National Capitol Parks East Headquarters (12 bikes).

Participation is open on a voluntary basis to NPS staff and volunteers duty-stationed at the three different headquarters. Riders must complete a training course in safe and legal bicycling prior to enrolling in the bike sharing program.

The system uses B-cycle kiosk technology and access cards. Bicycles must be returned to one of the three kiosks within 12 hours of check-out. Bicycles may be locked to regular bike racks while checked out, and users are not limited to only traveling to the 3 stations. As long as the destination is work related and remains within 16 miles of a kiosk (approximate distance between National Capital Region and Mount Vernon), the user may go there and park. The bicycles may not be taken out overnight, nor used between dusk and dawn. The NPS/B-cycle website (<http://nps.bcycle.com>) allows riders to track their number of rides, miles traveled, average length of each ride, and total calories burned (via the kiosk access cards).

Funding/ Business Model

This is a unique pilot program where the B-cycle system was a gift from Louisville-based, health benefits company Humana and B-cycle. Until the fall of 2010, the bike share program was managed by an NPS interpretive park ranger Jason Martz, who provided bike safety training, technical assistance, and administered the online system. Mr. Martz is a certified trainer through the League of American Bicyclists, thus the NPS had the capacity to perform training in-house. In fall of 2010, Mr. Martz transferred to another work location, and other interpretive personnel took on bike share program responsibilities (Martz, 2010).

Partnerships

Humana and B-cycle LLC donated the bikes, stations and software for this pilot system. While not formal partners, bicycle safety training is based on the League of American Bicyclists course. Local bicycling advocacy and education organizations such as the non-profit Washington Area Bicyclist Association (WABA) have made significant contributions to further bicycling infrastructure and education in the area.

Safety and Legal Liability

Bicycle safety training is required of all riders. This safety curriculum covers the vehicle code for Washington D.C., Maryland, and Virginia and applicable rules and regulations governing bicycling within NPS-administered areas (NPS, 2009a). The training includes principles for safer



Figure 26: NPS B-Cycle pilot station (Photo: NPS)



- Executive Summary
- Introduction
- Bicycling Benefits and Initiatives
- Evolution of Public Bike Sharing
- Public Bicycle Sharing & Rentals
- Employee Bicycle Fleets**
- Recommendations
- References
- Appendix A
- Appendix B
- Appendix C
- Appendix D
- Appendix E
- Appendix F

bicycling, operation of the B-cycle kiosk system, and specific procedures for participation in the pilot project. The training is based on the League of American Bicyclists traffic skills 101 (typically an 8 hour course). Materials have been condensed into two hours in a classroom setting, which encourages more employees to participate.

After completing training and signing a Bicycle Use Agreement, individuals receive their kiosk access card and helmet. Helmet use is required while riding a B-cycle. Program managers report that helmet use is part of the culture of this organization in the DC area and users wear helmets. Accidents are reported to an NPS supervisor, U.S. Park Police, and/or 911. If a bike is damaged or needs repair, they contact the NPS/B-cycle Administrator.

Successes

This automated employee bike fleet pilot program was a first step to integrate bicycles as an important component of the NPS transportation fleet. It is hoped this effort will set a precedent for other Federal land units to gain support and funding for bicycles as a legitimate travel vehicle. Program champions were able to overcome barriers such as bicyclist safety and liability concerns. NPS personnel earned certification to perform bicycle safety training in-house, making it more convenient and cost effective. Tailoring training to local conditions made it relevant to participants and condensing the training into two hours allowed more people to attend.

Challenges

The B-cycle automated bikes were available to employees only for official work duties, not for personal use such as errands or recreational riding. An NPS policy that encouraged both work and personal use would make these bikes more attractive and convenient. The lack of a personal use policy makes promotion and encouragement difficult, thus, managers reported that these bicycles were under-used.

While this system can track bike use, the software was reported as cumbersome, and researchers were unable to obtain the numbers. Managing the employee bike fleet falls behind more pressing priorities and transfer of program knowledge when personnel changed was a challenge. This pilot program experienced technical problems with the solar powered station equipment making it unreliable for everyday use.

It is unknown if this program will continue in the future. The small B-cycle system is not compatible with the larger automated Capital Bike Share system, which launched in the area in 2010 and may serve as a more convenient way for employee travel. This small pilot program revealed that new technology requires testing and troubleshooting before it runs smoothly. It demonstrated that automated bike systems may not be the best systems for small employee programs. Someone, typically NPS staff, has to learn the software and specialized hardware and be in charge of running and maintaining the system, which can be difficult for small employee programs.

5.1.5. HAWAII VOLCANOES NATIONAL PARK EMPLOYEE BICYCLE FLEET

HAWAII VOLCANOES NP EMPLOYEE BIKES ESTABLISHED 2002 (PILOTED W/ RECYCLED BICYCLES IN 2001)	
Population Served	Primarily park volunteers temporarily living in the park; secondarily NPS employees
Purpose	Work duties
Vendor	Bicycle shop located in Hilo, Hawaii
Operator	Hawaii Volcanoes National Park (HAVO) Interpretation Division
Stations	No designated stations. Bikes stored in basement of Interpretation Division Headquarters Office
Bikes/ accessories	Started with about 5; have 12 bikes in 2010. Helmet and combination lock accompany bicycle.
Capital/Start-up Costs	\$4000 purchased 12 bikes, helmets and locks in 2002 (average \$333 per bike and accessories).



Hawaii Volcanoes National Park (HAVO), like many NPS units, operates a Volunteer in Parks (VIP) program. HAVO has VIP opportunities for people living on the island of Hawaii and for people coming from other states and countries. VIPs from off the island of Hawaii usually volunteer for three months and are offered housing inside the park. However, most do not bring a car. Recognizing a need to provide transportation for VIPs (and park employees) between park sites, HAVO began exploring bicycle options in 2001. Initially, HAVO gathered bicycles left by employees or retired by the Department of Defense recreational facility located in the park. In 2002, HAVO purchased 12 hybrid bicycles, helmets, and locks with the Interpretation Division's base funding.

How it Works

Bicycles are available on a first come first serve basis to VIPs and park employees. Typically a volunteer checks out a bike for a 3 month period (the length of their volunteer assignment); employees can check them out indefinitely. Bicycles are stored in a locked basement at the Interpretation Division's office building, accessible only by staff. Volunteers or employees make arrangements with Interpretation staff to check out the bicycles (generally 8 am- 5pm, Monday-Friday). Once checked out, the bicycle is the user's responsibility until they return it, leave the park, or Interpretation calls the bicycles in. Because the bicycles were purchased with government funds, they are government property and can only be ridden inside the park boundaries at this time.

Funding/Business model

All funding for purchasing the bicycles, accessories, and maintenance has come from Interpretation Division's base funding. The 12 bicycles and accessories purchased in 2002 cost around \$4,000. For the first several years bicycle shops in the City of Hilo volunteered maintenance services once a year. There is a mechanic shop inside the park where a rider can get air for tires or borrow a tool for a quick fix-up. In the winter of 2009-2010 HAVO Interpretation Division paid \$1100 for a major tune up and other much needed maintenance of the bicycles. Interpretation staff time for checking out the bicycles or address maintenance issues is minimal and absorbed into Interpretation's existing budget.

Partnerships

In the earlier years of the program, bicycle shops in Hilo assisted with bike maintenance. The HAVO Interpretation Division recently approached the park's Friends group to purchase a few additional bicycles for use outside the park boundary; especially for the short 2-mile trip to the nearby town of Volcano. The Friends group is a non-profit organization, so the bicycles would not be government property. The Interpretation Division would continue to manage check-out of these bicycles.

Safety and Legal Liability

Wearing a helmet is required, and riders are given a helmet when checking out a bike. Currently, users are not required to sign a liability form. Interpretation employees who are regular, confident riders provide riding and rules of the road advice to riders checking out the bicycles. In the future, HAVO plans a more formalized safety training process.

Park staff monitor bicycles periodically and may recall the whole fleet if bikes are in need of replacement or need specialized work beyond routine maintenance. For example, in fall 2010, part of the fork on a bicycle broke in such a manner to cause concern that this could be an issue with the other bicycles too. All of the bicycles were recalled until the Interpretation Division could get confirmation from bicycle mechanics and/or the manufacturer that the problem was an isolated issue. In early 2011 it was decided to replace the forks on the entire fleet to ensure there would be no future issues with them. The fleet was scheduled to be available again for use in the spring or early summer of 2011.





Successes

Bikes meet a critical need of transportation for employees and volunteers who come to Hawaii and do not have access to an automobile. The bicycles have been well loved and received by VIPs. HAVO Interpretation has been able to keep the bicycles operating for 8 years with limited funding.

Challenges

Park base funding is stretched thin, and bicycles are not always a priority. Bicycles which are government property come with restrictions on how the bicycles can be used by riders.

The wet weather and volcanic gases at HAVO result in increased corrosion of the bicycles. Further, with two active eruptions in or near park roads, there are often volcanic gases or plumes that create air quality issues. This is another challenge for the HAVO bicycle program as riders need to take in to account which direction the wind is blowing and make a decision if it is appropriate for them to ride. If they bike out to a park site, and air quality conditions change for the worse they stay in good air and call for a pickup so they don't expose themselves to the volcanic gases.

Rider confidence is a challenge as many VIPs have not been on a bicycle for a long time. HAVO roads are narrow and not particularly bicycle friendly. There are few trails in the park that allow bicycles, and only a few bicycle racks. Novice bicyclists lack experience riding on the road. Experienced riders can encourage beginners to ride more, take the whole lane if necessary, and avoid riding in certain weather conditions (heavy fog). In the future Interpretation staff plan to create more formal riding trainings to build confidence.

5.1.6. DUKE UNIVERSITY: DUKE BIKES PROGRAM, DURHAM NORTH CAROLINA

DUKE BIKES ESTABLISHED SUMMER 2006	
Population Served	Approximately 14,200 undergrad, graduate and professional students (bikes not currently available to faculty or staff)
Purpose	Recreation and general errands and commuting
Vendor	Bicycles purchased from local shops, which also buy back retired bikes
Operator	Duke University Office of Student Activities and Facilities (OSAF) http://parking.duke.edu/alternative_transportation/bicycling/duke_bikes/
Stations	One location, the Outpost Adventure Gear Station located on the West Campus (Open M-F when school is in session)
Bikes/ accessories	90 hybrid and cruiser bicycles plus eighteen mountain bikes (21-speed). Bikes come with adjustable seats, lights, flasher, lock and key. Helmets are available.
Capital/Start-up Costs	\$147,500

Duke University is located in Durham, North Carolina, a county of approximately 270,000 residents (U.S. Census Bureau, 2010). Duke Bikes is a bike-loan program launched in 2006 to offer students no-cost opportunities for exercise and car-free commuting. The program came about via collaboration between Duke students and the University administration to promote sustainability, alternative transportation, and healthier life choices. During its fourth year in operation, the program is popular, with an average of 75 percent of the bikes checked out daily and 100 percent of bicycles 'in good working order' checked out during spring and summer days.

How it Works

In a similar process to checking out a library book, students use their NetID/ DukeCard to check out a bike for up to a week. Bikes are available from the Outpost (a campus recreation center), located on the West Campus, which is open during academic sessions, Monday-Friday from 10am-5pm. Students request a bicycle style online at <http://dukecard.duke.edu/outpost/> and then pick up the bike at the Outpost after completing the necessary paperwork. Students receive a lock and are strongly encouraged to take a helmet.

The Duke Bike program is free for student use. Each rental is for a one-week period and students can renew online three times, for a total rental period of up to 28 days. At the end of this period, students are required to return the bike or incur a late fee. Once the bike is returned, a student must wait for a minimum of three days before checking out another bike. This allows more individuals to use the program.

Funding/ Business Model

The initial funding for the Duke Bikes program was a direct line item from Central Campus Administration. Approximate start-up costs are as follows:

Item	Approximate Cost
Bikes (130 bikes)	\$100,000 (avg \$769 per bike)
Bike Parts	\$1,000
Locks and Keys	\$6,500 (avg \$50 per bike)
Computers	\$2,000
Professional Staffing	\$25,000 /1st year
Student Employees	N/A in first year
Programming	\$13,000
Total	\$147,500 (in 1st year)

Current funding is maintained through student activity fees and is a budget line item through the Office of Student Activities and Facilities (OSAF). OSAF uses existing staff at the Outpost for bike check-in and returns. It employs a full-time mechanic for maintenance on all Outpost equipment and recently hired a part-time mechanic to assist and serve as an advocate for a more bicycle friendly city. A third person, the Outpost operations manager, provides oversight for the Duke Bikes program as one of many job duties.

Partnerships

Initially, the partners included students, the Provost's Office, the Duke Card Office, and the University General Counsel.

The Provost's office provided most of the initial funding, the Duke Card Office created the check-out/return system, and the General Counsel's office addressed liability and student use issues to launch and operate the program (OSAF/Duke Bikes, 2010).

Partnering with a local bicycle shop helped the University purchase and maintain the bicycles. This shop buys back retired bicycles and gives the OSAF's bike program wholesale costs on bicycle parts.

Safety and Legal Liability

Students must sign a liability release and assumption of risk form each time they check out a bicycle. This form releases Duke University and its employees of liability and informs students they must follow North Carolina laws. In addition, both the Outpost staff and the renter must sign a form that verifies the bicycle is in good condition. Upon return the user is asked to report any issues with the equipment. As of December 2010, there had been no significant injuries reported. These two forms are included in Appendix F.

Successes

The program is popular and widely supported by students and administration. Part of this success is attributed to integrating students on every level. The program employs students to help run it, and relies on student feedback to direct changes to the program and bicycle inventory. Program leaders have been able to reduce program costs significantly from \$600 per bike to about \$330 per bike by working with bicycle dealers. The DukeCard provides a simple, convenient method to check out bikes and allow program managers to track use. This one card serves many other purposes for students: identification, access to facilities and events, and purchase of goods and services throughout the University System.

Challenges

There is desire to add bicycles to more campus locations, but financial resources are limited. Managers report significant wear and tear on the bicycles due to high use and lack of covered parking on campus, which increases maintenance and replacement costs. Because the program is free to students, there is





no revenue generated from student bike use. Funding program expansion is challenging (OSAF/Duke Bikes, 2010).

The program loses about 10-15 bicycle a year due to theft. Managers believe this is largely due to improperly locking of bicycles. The Outpost plans to include lock training for students in efforts to reduce theft.

5.1.7. UNIVERSITY OF CALIFORNIA AT IRVINE, ZOTWHEELS

UC IRVINE ZOTWHEELS ESTABLISHED 2009	
Population Served	UC Irvine students and employees (approximately 35,000 total)
Purpose	Short distance errands and commuting around campus and nearby community.
Vendor	Central Specialties LTD. & Collegiate Bike Company http://www.collegebikes.com/
Operator	UC Irvine Transportation and Parking Services: http://www.parking.uci.edu/zotwheels/main.cfm
Stations	4 permanent fixed stations: concrete pads, hooked up to existing grid, wireless communications; stations located in Academic area of campus
Bikes/ accessories	30 bicycles with baskets. Helmets, locks, flashing light, and water bottle given at member sign-up (member is responsible for bringing these when checking out a bike).
Capital/Start-up Costs	~\$225,000 including bicycles, stations, construction and installation, software and labor

In 2006 the Associate Director of UC Irvine's Parking and Transportation Services conceived the idea for a bike share program while renting a stroller from an automated system at the mall. In 2008 the university contacted the manufacturer of the stroller rental system, Central Specialties, Ltd. (CSL) and presented them with an idea to modify it for bicycles. The university and CSL reached out to Collegiate Bike Company to supply the bicycles. ZotWheels, as the UC Irvine bike share program is known, launched in October 2009 (ZotWheels, 2010) and is available to all UC Irvine affiliates who have a University ID card.

How it Works

Users register online for a card to check out bikes for an annual fee of \$40 dollars. Bicycles can be checked out for an unlimited number of three hour periods. Upon bicycle return, a rider may check out another bike immediately. Bicycles can only be used on pavement. Failure to return a bicycle within 3-hours results in the user's card being deactivated and unusable until it is cleared in the system database. Failure to return a bicycle within 24 hours results in the presumption that it was lost or stolen, and the user is charged a replacement fee of \$200.

As of September 2010, ZotWheels had over 80 members. Parking and Transportation Systems has recorded up to 50 users a day in 2010. Most members take the bicycle for about an hour at a time. There have been no thefts and only a couple of instances where a member kept the bicycle beyond the 3-hour allotted time. As the membership base is still small, the program manager was able to call these members and get them to return the bicycles immediately and avoid having their privileges temporarily revoked.

Parking and Transportation Services heavily promotes ZotWheels via new student orientation packets, brochures, a website, and Twitter. Freshmen living on campus are not allowed to bring/park a car on campus, so they are a target audience for the program. ZotWheels has a lot of room for growth, and has



Figure 27: Online map with real-time bike availability (UC Irvine Transportation & Parking)

expansion plans for the bike share system. The program tracks its contribution to California's emission reduction targets. As of 2011 the program had helped reduce emissions by 3 metric tons a year. With expansion plans and anticipated program growth, ZotWheels estimates they could help reduce emissions by up to 32 metric tons a year.

Funding/ Business Model

As part of the University of California system, ZotWheels does not use private advertisements to fund the program. Start-up and operations costs are funded by UC Irvine Parking and Transportation Services, as part of their sustainability mission. The \$40 annual member fee covers a small fraction of the operations and maintenance costs. Parking and Transportation Services provides annual program funding from their operating budget and has existing employees operate the bike share. Employees' bike share duties are not significant enough to change the nature of their position. This may change as the program grows.

Regularly scheduled maintenance occurs about once a month on the entire fleet of bicycles and is performed by the Collegiate Bicycle Company. The on-campus bicycle shop also assists with basic maintenance. Maintenance is estimated at \$375 per month which equates to \$4500 per year. The program currently generates approximately \$3200 (80 annual members X \$40 annual membership) for maintenance. Expansion of the fleet and the stations is planned. It is anticipated that Parking and Transportation Services will continue to absorb the cost of adding stations, employees and increased maintenance costs.

Partnerships

Central Specialties, Ltd. (CSL) and Collegiate Bike Company partnered to deliver UC Irvine a custom bike share system. Collegiate Bike Company specializes in the production of licensed college and university bicycles, while CSL originally manufactured stroller rental systems. These two companies worked together to create an automated shared bicycle system.

Safety and Legal Liability

ZotWheels members must complete an online bicycle safety course and accept and sign a User Agreement from (see Appendix F) which is available online at: <https://www.parking.uci.edu/zotwheels/useragreement.cfm> and which is valid for one year. The User Agreement covers numerous safety and responsibility issues, including the rider's responsibility to:

- understand and practice safe riding techniques,
- ensure a bicycle is in proper working order,
- avoid riding a bicycle in dangerous weather conditions or while under the influence, and
- cover medical costs if injured while riding ZotWheels.

Members receive a light and helmet with their membership card. However, members must be at least 18 and the law does not require helmet use for adults, thus it is the rider's choice to wear a helmet. As the bicycles are not outfitted with lights, the program does not allow for bicycle checkout after dark. If bicycles are ridden after dark, it is the rider's responsibility to equip it with proper/legal lighting. There are future plans to outfit the bicycles with proper lighting accessories.

Successes

UC Irvine found it easy to launch and begin operation of the program, because they customized the system to integrate with existing infrastructure and services at the university. In other words, they kept it simple to expedite implementation.





Challenges

Almost all program costs come from UC Irvine Parking and Transportation Services’ annual budget. While not a significant strain currently, as the program grows, more funding will be required to support a larger system. This small automated system of 30 bikes and four stations needs to grow to better serve a student and faculty population of approximately 35,000 people.

5.2. EMPLOYEE BICYCLE FLEET CAPITAL AND OPERATING COSTS

The employee bike fleets reviewed here ranged in size from 10 to over 100 bicycles. Fleets typically consisted of bicycles and accessories such as locks, baskets and helmets. One of these programs included bike racks to enable bike transport on vehicles. Bicycle fleet start-up costs range widely depending on bike style and accessories.

Start up costs for bike fleets using standard bicycles (versus smart bikes) averaged between \$330 and \$600 per bike with accessories.

- Glacier NP used \$9,000 to purchase 20 bikes, a tricycle, helmets, locks and bike racks in 2003 (average \$450 per bike and accessories).
- Hawaii Volcanoes NP used \$4000 to purchase 12 bikes, helmets and locks in 2002 (average \$333 per bike and accessories).
- The NPS Midwest Regional office purchased 10 bikes and accessories in 2004 for \$5,000 (average of \$500 per bike and accessories).
- Duke University reduced bicycle costs from about \$600 per bike to about \$330 per bike by working with bicycle dealers.

Estimated start-up costs for automated smart bike systems averaged between \$2500 and \$7,500 per bike including station installation, software and associated communications and computer systems.

- The National Capital Region NPS automated B-cycle system has 30 bikes and three fixed stations. It was a gift to the NPS and has an estimated value between \$75,000 and \$90,000 (average of \$2500 to \$3,000 per bike).
- The University of California at Irvine purchased 30 bicycles; four stations, baskets; helmets, locks, flashing light, and water bottles for about \$225,000 (average of \$7,500 per bike). This cost included station installation, software and associated labor.

Small employee bike fleets are typically managed by existing employees with costs absorbed into job duties. Bike maintenance is often performed by volunteers. Maintenance and repair costs are not well documented and will vary widely depending on the level of use, exposure to weather and type and quality of bicycle.

- Glacier NP reported a \$500 annual maintenance fund, though much of the maintenance is performed by volunteers.
- In 2009, Hawaii Volcanoes NP reported paying \$1,100 for a major tune up and repairs to the entire fleet. Bike maintenance is typically performed by volunteers as needed.
- When procuring bicycles, it is good practice to inquire about discounts for purchasing multiple bikes, baskets, locks and other accessories.

5.3. EMPLOYEE BICYCLE FLEET BUSINESS MODELS AND FUNDING

No specific business models were identified for employee bicycle fleets. Funding may come from within an organization, public lands support/advocacy groups and/or various grants. Employee bike fleets profiled in this chapter received funding from the following groups:

- Glacier National Park Fund, the park’s endorsed fund-raising arm, funded Glacier’s Red bikes.
- Hawaii Volcanoes NP Interpretation Division’s base funding supports employee bikes.

Regular bikes (versus automated ‘smart’ bike systems) are inexpensive and work well for employee programs.

- The Midwest Region received grants from the National Park Foundation (a national charitable NPS partner), the Automobile Heritage Area, and the Silos and Smokestacks National Heritage Area.
- Yosemite NP plans to fund bicycles with a grant from the National Parks and Conservation Association (NPCA), a national non-profit National Parks advocacy group.
- The University of California at Irvine used funds from its Parking and Transportation Services, as part of their sustainability mission. Duke University uses funds from within their organization including student activity fees and a budget line item through the Office of Student Activities and Facilities.

5.4. EMPLOYEE BICYCLE FLEET: SAFETY AND LEGAL LIABILITY

Bicycle Safety and Share the Road Education and Training

Employers have more control over the users of their bicycle fleets than public bike sharing systems and can hence require training, helmet use and direct how and where bikes are used. None of the programs profiled in the case studies reported problems with injuries. The NPS National Capital Region has developed in-house bicycle safety training using a program that is tailored to specific concerns in their urban setting. Their safety curriculum covers the vehicle code for the local area and applicable rules and regulations governing bicycling within NPS-administered areas (NPS, 2009a). These types of safety materials should be tailored to the appropriate setting. Training should be based on well-established programs that educate both cyclists and motorists on sharing the road. The League of American Bicyclists has developed education materials and a safety training that could serve as a template at <http://www.bikeleague.org/programs/education/>.

Employee Bicycle Fleet User Agreements

Employee bike fleet riders should sign a user agreement that includes:

1. Purpose of agreement and term or length of agreement
2. General rules for bicycle use (specify work use, commuting between home/work, personal use, etc.) and how the program works (operating hours, rental time period, where to pick up and return bikes, etc.).
3. User's responsibilities (including helmet use requirements) and assumption of risk, indemnification
4. User's contact information (name, address, phone number, email)

Appendix F contains several examples of employee bike fleet user agreements, which could serve as starting templates. User agreements should be tailored to the area's specific needs and each agency should get a legal review of their user agreement.

Employee Bicycle Fleet Helmet Use

Employee bike fleet managers have more control over helmet use than public bicycle program operators. A culture of safety within an organization (and/or fear of losing one's job) can result in greater helmet use. Based on the case studies, employees who bike as part of their job duties are more likely to wear a helmet than employees who bike for other purposes. It is up to the bicycle fleet manager and organization leaders to decide whether bike helmet use should be mandatory and how helmet use will be enforced.

Employee Bicycle Fleet Insurance

Employees using bike fleets for work duties are typically covered under workers compensation insurance. User agreements for employee bicycle sharing programs should have statements to inform riders of their assumption of risk and indemnifying the organization from legal liability. None of the employee bike fleet managers profiled in Chapter 5 reported carrying insurance policies specific to their bike fleets.

5.5. ELEMENTS OF SUCCESSFUL EMPLOYEE BICYCLE FLEETS

This section presents elements of successful employee bike fleets based on Section 5.1 case studies and a guide for creating employee bike fleets (Bicycle Federation of Australia 2007).



5.5.1. PLANNING

Leadership support – Gain the support of senior level managers/leaders within the organization to support a bicycle fleet.

Partnerships – Engage multiple partners to create and operate the fleet. Partnerships create synergy and can provide resources for funding and maintenance. For example, purchasing through local bicycle shops is a good way to support local business that can provide advice and assist with maintenance.

Bicycle purpose – If bicycles are to be used for non-work or personal use such as commuting to/from work, errands, or recreation, and they are government owned property, special authorization for personal use may be required. The NPS Midwest Regional office, Yosemite NP and the National Capital Region employee bicycle fleets all encountered issues with using bicycles for personal use. Each of these areas addressed personal use of bicycles in a different manner as described in the respective case studies. Purchasing bicycles with non-government appropriated funds and ownership of the fleet by a recreational users group (such as the Midwest Region NPS office) provides employees with bicycles for personal use, but restricts use for work duties.

Short trips in specific areas – Bicycle trips in Glacier NP are made within campgrounds, the headquarters area and other compact areas. Even though robust bicycling networks may not yet exist in many Federal land units, bikes can replace short motor-vehicle trips in specific areas such as within campgrounds, within work or residential campus areas or along river trails connecting key attractions.

5.5.2. BICYCLE FEATURES

Keep it simple – Bicycles with fewer gears require less maintenance. Regular bikes (versus smart bike systems) work well for employee programs and are significantly less expensive.

Functional – Bicycles should be tailored to the riders' needs and the intended function. For example, Glacier's Red Bikes are single speed, heavy duty bikes intended for short trips within campground areas or within the park's headquarter campus. If longer trips on steeper terrain were desired, lighter-weight bikes with more gears would work better.

Variety – Consider purchasing a number of different types of bikes to appeal to different users. There are many bike styles to choose from including single speed bikes, cruiser bikes with single or multiple gears, mountain bikes, road bikes and hybrids.

5.5.3. OPERATIONS & MAINTENANCE

Responsible Manager – Identify one person who is responsible for operating the bike fleet; ideally a program champion who will lead by example. This person will be responsible for creating written standard operating procedures to help 'institutionalize' bike fleet operations. This will assist new managers in keeping a program running smoothly when a manager or program champion moves on. This person will incorporate bike fleet management into existing staff duties, which works well for small employee bike fleets.

Train existing staff – The ability for staff to perform in-house bicycle safety training is efficient and cost effective. The Capital Region NPS has League of American Bicyclist certified instructors who can train others in the organization for a low cost and at times that are convenient for staff, while promoting a safety culture within the organization.

Use established identification card – If an organization has an established identification card system, it may simplify bike fleet operations. For example, Duke University incorporated the bike check out/ return procedure with their existing DukeCard identification system. Duke's on-line system even sends reminders to students when bikes are due.



Bicycles require regular maintenance – Purchasing new bikes is a good practice and organizations should plan to upgrade bikes every five years or as needed depending on use and wear. Used bikes can work well if they are good quality and well maintained. While the use of abandoned bikes is attractive, they tend to require excessive maintenance due to exposure to the elements and lack of maintenance. Qualified bike mechanics are important to keep bikes safe for riders. Establishing relationships with local shops supports local business and benefits bike programs by providing qualified personnel to assist with purchasing, repairs and maintenance. Employee fleets that rely on volunteers for bike maintenance should require regular training for volunteers.

Create a process to report and address maintenance issues – Having a standard process for maintenance and repairs is important and is often overlooked. For larger programs, such as Duke Bikes, it is important to have a mechanic available at all times during open hours.

5.6. EMPLOYEE BIKE FLEET COMMON CHALLENGES

Low priority – Bicycles are often low on the priority list and are not considered as a solution to health, transportation and environmental concerns. Raising awareness of the benefits of bicycling and the supportive initiatives described in Chapter 2 can help move bicycle fleets higher on the priority list. Public lands friends groups, public health organizations and others are expressing increasing interest in funding bicycling programs as demonstrated in the case studies.

Changing habits – Many people are in the habit of driving for every trip, no matter how short. Changing habits is challenging and takes time. In addition to having a bicycle readily available, employees need incentives and encouragement to ride.

Government-owned property policies – Rules governing government-owned property and how it may be used can make employee bicycle fleets inconvenient. If riders cannot stop for a lunch break or run an errand while riding during their work day, it becomes a less attractive option than driving. Obtaining authorization for limited personal use of bikes has been reported by some Federal lands managers to require significant time and dedication. Land managers have addressed this issue by purchasing bicycles through a recreational users group and only allowing use during non-work time, or by having another organization purchase and manage bicycles. Ideally, agencies should explore policy revisions that make it simpler to integrate employee bicycles into every day routines for both work and personal use. Replacing short motor vehicle trips with bicycles can help agencies meet environmental and sustainability goals while promoting healthy employees.

5.7. INTEGRATING EMPLOYEE BICYCLE SYSTEMS FOR FEDERAL LANDS

Employee bicycle fleets have been shown to benefit employees, volunteers and students in many different settings. Bicycles are well-liked by office staff working in urban settings (NPS regional headquarters in Omaha, Nebraska); in remote parks for short trips within campgrounds or campus areas (Glacier NP, MT); and in university campus settings (Duke Bikes in Durham, NC). Employee bicycles could benefit virtually any Federal land and can be pursued as a low cost, low impact travel option.

Start now – Integrating bikes into everyday operations can begin with one individual who champions the cause and answers the ten questions in the following section.

Federal land managers can encourage concessionaires to minimize their environmental impacts and provide bicycles to employees who don't have access to an automobile.

Share information – This document can be shared with lodging establishments, concessionaires and gateway community organizations in or near Federal lands to encourage them to integrate bicycles into daily operations. Figure 28 shows bicycles available to guests at a Durango, Colorado lodging establishment, who encourage guests to explore by bike.



Employee bicycle fleets can be a low cost and simple way to introduce bicycling into Federal lands. Bicycles as part of everyday routines have potential to develop a culture that is less dependent on motor vehicles for every trip.

5.8. EMPLOYEE BIKE FLEETS: TEN KEY QUESTIONS

These questions (adapted from Bicycle Federation of Australia 2007) will help program leaders consider how best to develop an employee bicycle fleet that meets their needs.

1. Is there support from leaders in the organization and staff for shared bicycles?
 - Bicycles can perform work more efficiently than other modes
 - The organization may benefit financially by implementing a fleet
 - Staff will appreciate and value bicycles.
 - To promote environmentally friendly transport
3. What will be the likely trip purpose with bikes given the travel needs of the employees?
 - work duties
 - commutes between home and work
 - errands (off work hours)
 - recreational trips during work breaks or off work hours
4. Who will use the bikes?
 - employees
 - employee family members
 - volunteers
 - others
5. Where will users ride?
 - Within Federal land boundaries, Outside of Federal land boundaries
 - On pavement or dirt trails/roads, steep or mild slopes... (to help choose bike style appropriate for the area).
6. How will liability and risk be managed?
7. Who will be responsible for managing and maintaining the bikes?
8. How will the organization benefit directly and indirectly from a bike fleet?
9. What are the funding sources for bikes and bike maintenance?
10. Program details:
 - How many bikes are needed?
 - What type of bikes do employees want or need?
 - Are end-of-trip facilities needed? (showers, lockers, bike storage...)
 - Where will the bikes be stored?



Figure 28: Shared Bicycles for Guests at a Durango, Colorado hotel (photo: R. Gleason)

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



6. RECOMMENDATIONS

FLMAs vary widely in their characteristics and settings, and as a result have a variety of transportation needs. The transportation needs of National Parks, National Wildlife Refuges, and BLM and USFS managed lands often require a diverse set of solutions. For many Federal land units, bicycling can be a key component of their transportation system that can help reduce automotive traffic, promote sustainable healthful recreation and protect resources.

The Guide to Promoting Bicycling on Federal Lands (FHWA, 2008), sought to raise awareness of the environmental, public health and resource management benefits of bicycling as part of a multi-modal public lands transportation system. The purpose of this report, which is a follow up to the 2008 guide, has been to present various methods to make bicycles more available in Federal lands through bike sharing programs, rental operations and employee fleets.

This final chapter recommends methods to make bicycles more available and convenient for travel in Federal lands based on the case studies and literature review previously presented in this report. Whether for the public or employee use, there is no single bicycle program that will work well for all Federal lands. Elements of various bicycle rental and sharing programs can be chosen to design a model that meets the specific needs of each unique area. What follows are a series of recommendations for consideration that have been identified within this report.

6.1. PUBLIC BICYCLE SHARING PROGRAMS- FEDERAL LANDS WITH URBAN CHARACTERISTICS

Public bicycle sharing systems have proven successful in urban settings in part because of their high population densities, bicycle friendly facilities and concentrated amenities. These characteristics, when paired with a well-designed public bike system, allow many people to conveniently take frequent short trips by bike. Depending on land unit characteristics, both urban and rural Federal lands may make good locations for public bike systems and pilot programs. Recommendations:

1. Explore the feasibility of a public bicycle sharing system for Federal lands in urban settings; especially where existing public bicycle sharing systems are already established. Providing space to install automated bicycle parking stations as part of an existing urban system will improve access to urban Federal lands.
 - The NPS is currently exploring how to integrate Minnesota's Nice Ride public bicycle system into the Mississippi National River and Recreation area,
 - San Antonio Missions National Historical Park is pursuing a partnership with that city's bike share system, and the
 - NPS in Washington, DC is considering how to work with the Capital Bikeshare program.
2. Explore the feasibility of a public bike share for Federal lands in rural areas that have high visitation rates, bicycle friendly places to ride and many destination/attractions in close proximity.

High visitation rates provide a source of riders (similar to high population densities). Bicycle friendly connections between lodging, destinations and other attractions are similar to concentrated amenities in urban areas. Bicycle sharing systems designed for short urban trips can be piloted in Federal lands settings that share these characteristics. Consider whether a bike share program could also meet the needs of community members during times that they are not visiting the public land unit.

6.2 PUBLIC BICYCLE SHARING PROGRAMS AND BICYCLE RENTALS: FEDERAL LANDS IN RURAL SETTINGS

Public **bicycle sharing** programs provide bicycles for short-term use through a network of convenient locations for low cost, and have an extended network that allows for one-way trips. Bicycles are typically durable and heavy and these systems typically have high start-up costs. In contrast, **bicycle rental operations** typically rent bikes for longer trips, with bikes that are checked out and returned from a single location (not allowing for one way trips). Bike rental shops can offer different styles of bikes such as road, mountain, cruiser or children's bikes to accommodate a wide range of riders and terrain. Bicycle rentals



- Executive Summary
- Introduction
- Bicycling Benefits and Initiatives
- Evolution of Public Bike Sharing
- Public Bicycle Sharing & Rentals
- Employee Bicycle Fleets

Recommendations

- References
- Appendix A
- Appendix B
- Appendix C
- Appendix D
- Appendix E
- Appendix F

currently do not use smart bike technology, and are currently the most common method for making bicycles available to the public in Federal lands.

Most Federal lands are in rural settings and are unlikely to have the necessary characteristics to support a public bike share system designed for short trips and frequent use. However, rural areas have features that support more traditional bicycle rental businesses, such as longer extents of scenic roads and paths, and visitors who are more likely to stay for one or several full days and nights. Land managers in rural areas should consider how they can combine components of public bicycle share and bicycle rental programs to establish a system that meets the needs of their visitors and local communities.

The following recommendations can make bikes more convenient, comfortable and attractive to more people visiting Federal lands. They combine concepts from both public bike sharing programs and more traditional bike rental programs that already exist in Federal lands.

1. Review the League of American Bicyclists bicycle resources to learn how to become a bicycle friendly place. <http://www.bikeleague.org/programs/bicyclefriendlyamerica/> Reading the League’s “Bicycle Friendly America: The Blueprint” is a good start.
2. Explore partnerships with public lands friends groups, gateway communities, public health organizations and others who are interested in sustainable, healthy transport options. Agencies may find large or multiple small organizations interested in sponsoring or supporting bicycling rental or sharing programs, making bikes lower cost and thus a more attractive option for more people.
3. Establish bike rental facilities in two or more convenient locations. This set-up could allow for one-way trips, where the customer may bike one-way and hike, drive, or shuttle back.
4. Provide rental bicycles appropriate for the terrain and distance customers will most likely ride. Consider road bikes, mountain bikes, upright cruiser styles or a combination of these to address rider preference. Lightweight bicycles with more gears will be more attractive to visitors in hilly or mountainous terrain. Upright cruise styles or road bikes may appeal others in recreational settings.
5. Create a strong brand/logo to integrate into all rental bicycles. Uniform appearance and strong branding can make customers feel they are taking part in something larger and more important that relates to an agency’s mission and the greater good. Agency branding/logos could be used nationwide on bicycle programs at multiple units.
6. Use online and social marketing techniques such as those used by Nice Ride, B-cycle and Capital BikeShare to increase public awareness and interest in bike use. Integrate agency initiatives into messaging such as to connect children to nature, improve public health, reduce dependence on foreign oil, save money on fuel, to encourage visitors to bicycle.
7. Work with a third party non-profit or private organization to operate the bike rental facilities to minimize FLMA liability. Review public bicycle sharing user agreements (they could serve as templates). Consider existing bicycle rental shops, concessionaires, lodging establishments, bicycle advocacy groups, gateway communities, non-profit organizations or public lands friends groups as potential program operators.
8. Provide bicycling options for children and people with disabilities. Bicycle rentals can provide children’s bicycles, trailers, adult tricycles or hand cycles. Bicycle sharing systems in the U.S. are less useful to these riders, as they require riders to be at least 16 years of age and frequently do not have provisions for children or people with disabilities.
9. Offer pricing structures attractive for longer rides, as compared to urban pricing schemes that promote short trips (typically 30 minutes or less).

6.3. EMPLOYEE BICYCLE FLEETS

Employee bicycles have been shown to work well for office staff working in urban settings (NPS regional headquarters in Omaha, Nebraska); in remote parks for short trips within campgrounds or campus areas (Glacier NP, MT); and in university campus settings (Duke Bikes in Durham, NC). Shared bicycles for employee use could benefit virtually any Federal land and can be pursued as a low cost, low impact travel option.



1. Start now to integrate bikes into everyday operations.
2. Partner with organizations in or near Federal lands such as lodging establishments, public lands concessionaires, and gateway community businesses. Encourage them to incorporate bicycles into everyday routines.
3. Identify a project champion within the land unit and develop support for shared bicycles among land unit and agency leadership as part of a healthy, efficient and more environmentally friendly workplace.

In summary, combining concepts from bike sharing models and traditional bike rentals has potential to make bicycling cost effective, convenient, and attractive to more people visiting Federal lands. Incorporating employee bicycle fleets into daily operations can benefit virtually any Federal land unit. Finally, making bicycles convenient to more people can assist Federal land managers in meeting agency missions and creating more healthful and sustainable transportation choices.



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APPENDIX A: BICYCLE SHARING RESOURCES

A.1. BICYCLE SHARING LITERATURE

The New York City Department of Planning (2009) presented case studies on five different public bicycle sharing systems: Vélib' (Paris, France); Bicing (Barcelona, Spain); SmartBike (Washington, DC); Bixi (Montreal, Canada); and Velo (Toulouse, France). Major findings of the NYC (2009) report include:

- High population density is important to creating a successful program.
- Small programs do not work well because they do not offer enough bikes and stations to make bicycling a convenient form of transportation.
- The three main groups who use public bicycles are commuters, recreational/errand riders and tourists (NYC 2009).

Transport for London (2008) reviewed existing public bicycle systems and presents an overview of seven different programs: Vélib' (Paris) and Vélo'v (Lyon, France); Cyclocity (Brussels, Belgium); Bicing (Barcelona, Spain); Call a Bike (Stuttgart, Germany) and OYBike (London, England). Common themes identified in these programs include:

- Public bicycles have increased the cycling mode share in the cities where they operate.
- Placing bicycles in densely populated city centers provides a steady source of customers, improving chances for a successful program.
- Each program has a dedicated funding source, whether from advertising, revenue from car parking or municipal funding.
- Transport Canada (2009) presented case studies on five public bicycle systems: Vélib' (Paris, France); Call-a-bike (Munich, Germany); SmartBike (Washington, DC); Bixi (Montreal, Canada); Nice Ride (Minneapolis, Minnesota). It is difficult to compare the many different public bicycle sharing systems because they differ in size, funding, objectives and style of bicycles and stations. No one program is the best and each should be tailored to the needs of a specific place.

A.2. BICYCLE FRIENDLY ENVIRONMENTS

<http://www.bikeleague.org/programs/bicyclefriendlyamerica/> Learn how to become a bicycle friendly place through the League of American Bicyclists well established process.

<http://www.completestreets.org/> Complete streets policies ensures that transportation planners and engineers consistently design and operate the entire roadway with all users in mind - including motor vehicles, bicyclists, public transportation vehicles and riders, and pedestrians of all ages and abilities.

www.bicyclinginfo.org/ The Bicycle Countermeasure Selection System (BICYCLESAFE) is an online tool created by the FHWA to help practitioners improve bicyclists' safety and mobility.

www.fhwa.dot.gov/publications/research/safety/pedbicycle/06065/index.cfm FHWA's University Course on Bicycle and Pedestrian Transportation. Lesson 22 focuses on liability issues. It discusses tort liability, risk management principles and techniques for monitoring and evaluating bicycle facilities and programs. This lesson recommends a systematic approach to identify and manage risks, even if an agency cannot afford to remedy all problems immediately.

National Cooperative Highway Research Program (NCHRP) 2010. "Liability Aspects of Bicycleways" Legal Research Digest 53. April 2010. This NCHRP report describes legal risks to public entities on bikeways and shared roadways. Two key conclusions of this report are: 1) Most public entities have strong defenses to tort claims for bikeways, and 2) Most tort claims result from maintenance issues, such as the failure to replace or repair a sign or remove an obstruction from or repair the surface of a bikeway (NCHRP 2010). The report concludes that although there have been some tort claims against public entities for bikeway accidents, the defendant public entities prevailed in nearly all cases.

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Exploring Bicycle Options for Federal Lands

A.3. BICYCLE SHARING RESOURCES

www.bike-sharing.blogspot.com Gives updates on public bicycle sharing programs around the world with recent articles as well as bicycle sharing tenders, feasibility studies and various other planning documents.

www.niches-transport.org A common source for bicycle share initiatives is the NICHES consortium, a coordinated action funded by the European Commission within the Sustainable Surface Transport program. NICHES promotes the most promising new concepts, initiative and projects to move them from their current niche position to a “mainstream” urban transport policy application. NICHES Policy Notes (2007) are a common bicycle sharing resources based on the experience of bicycle sharing systems in European cities, which can be found on this website.

A.4. BICYCLE SHARING VENDORS AND EQUIPMENT

Table 11 contains some prospective bicycle-sharing service vendors. This vendor list will change as bicycle sharing systems are rapidly evolving. This is a partial list of some of the larger bicycle sharing companies operating as of April 2010.



TABLE 11: BICYCLE SHARING VENDOR/EQUIPMENT CONTACTS			
COMPANY	CONTACT/WEBSITE	SYSTEM TYPE	DESCRIPTION
1. B-cycle	Nate Kvamme 500 W. Main St., Louisville, KY 40202nkvamme@humana.com www.bcycle.com/	fixed and portable stations	Collaboration of Humana (health care), Trek Bicycle Corporation and Crispin Porter & Bogusky (advertising). B-cycle designs and sells a turnkey system of automated bicycle sharing equipment. Denver B-cycle launched in April, 2010 and several other U.S. cities have or plan to implement B-cycle systems.
2. Call-a-Bike	www.callabicycle.de (Use online translator tool)	Some fixed (at railway stations); some flexible (in dense urban areas)	Located in German cities, bicycles have wirelessly controlled locks. Registered users locate a bicycle with a green flashing light and text or call to retrieve a code to unlock it. Upon return, they must call/text to close out their use. Bicycles can be returned anywhere in the designated service areas, even if picked up at a fixed railway station.
3. Cemusa	Mark Madden 420 Lexington Ave., Suite 2533, New York, NY 10170 mmadden@cemusainc.com	fixed stations	Cemusa manages urban furniture and advertising stands in 160 cities in 13 countries in Europe and the Americas. Cemusa has developed its own bicycle-sharing technology, which is station-based and requires a smartcard.
4. CityRyde	Timothy Ericson 3225 Arch St., Philadelphia, PA 19104 tjericson@cityryde.com http://www.cityryde.com/	Bike-sharing consultant	CityRyde consults on bicycle sharing projects. They do not provide equipment, but will assist with planning and implementing bicycle share projects, including locating stations identifying infrastructure and providing software to manage a bicycle share.
5. Collegiate Bicycle Company	Erik Camp 4655 Cass St., Suite 201, San Diego, CA 92109 erik@collegiatebicycles.com 858-272-2476 or info@collegebicycles.com or http://www.collegebicycles.com/ aboutus.asp	Fixed station	CBC offers bicycle share programs for universities, who can choose frame style, gearing, accessories and custom artwork. CBC can help set up infrastructure to operate a lending program, or a traditional non-automated community bicycle program. They use Ecotrip Automated Bicycle Share software, which processes a transaction, identifies the user, communicates via text message and email, charges based on time, and collects data. Administrators can monitor the system remotely.
6. Hourbicycle	39 Pilgrims Way, Bisley, Surrey, Surrey GU24 9DQ, United Kingdom Phone: 0871 598 2453 info@ hourbicycle.com www.bicyclesharingsystems.com http://www.hourbicycle.com/ mysitecaddy/site3/about.htm		Hourbicycle has been developing and operating automated bicycle sharing programs in the UK and Ireland since 2006. They provide full service assistance for development and operations, including feasibility assessments. They specialize in sustainable transportation and travel solutions and consist of transport consultants, technicians, web developers and marketers.
7. Intrago	3970 Broadway, Ste. 201A, Boulder, CO 80304 http://www.intragomobility.com/	Flexible; Use smart-card and cellular managed systems.	Intrago offers a variety of sharing systems including: electric bicycles, electric scooters, segways, neighborhood electric vehicles and pedal bicycles. Stations can be configured to hold a variety of these vehicles. Registered users obtain a chip/key to check out a vehicle or bicycle and return to any station in the service area. The software and GPS technology allow the operator to track use, handle billing, and manage the system. Future plans will allow users to reserve in advance.

Continued on Next Page



TABLE 11: BICYCLE SHARING VENDOR/EQUIPMENT CONTACTS

COMPANY	CONTACT/ WEBSITE	SYSTEM TYPE	DESCRIPTION
8. MetroBike LLC	Paul DeMaio Washington, DC http://www.metrobike.net/index.php	Fixed station	MetroBike provides public bicycle and employee system research and planning, implementation, development and marketing and system evaluation. They established a bike sharing blog at http://bike-sharing.blogspot.com/
9. Nextbike	Thomasiusstrasse 16, 04109 Leipzig, Germany kalupner@Nextbike.de http://Nextbike.net/	Bike-sharing consultant	Nextbike has bicycle sharing in more than 20 cities in Germany, Austria and New Zealand. Bicycles can be rented around the clock at official rental locations. Registration, rent and return is possible by phone or online. Advertiser, city councils, partner-shops or franchiser can set up the bicycle sharing system.
10. Public Bicycle System Company/ Bixi (PBC)	Alain Ayotte 704, Saint-Jacques Montréal (Québec) H3C 1E9 Canada aayotte@statdemtl.qc.ca www.bixisystem.com/home www.bixi.ca (Montreal's Bixi)	Portable station	PBC developed the turnkey bicycle sharing system Bixi, which has been launched in Montreal, Canada; Minneapolis, MN (Nice Ride); and Washington DC (Capital BikeShare) as of December 2010. This company is working with Boston, Melbourne and other cities to launch public bicycle systems.
11. SandVault Group Global Solutions Corp.	Richard Murray, President 108 - 3840 Jacombs Rd., Richmond, BC, Canada V6V 1Y6 rmurray@sandvault.com 604 278 9500 www.sandvault.com	Portable	Engineering company that designs and builds bikeshare systems (typically solar powered). The cyclestation bike share system from QISystems has evolved into a new CycleStation system from SandVault Group. Installed new systems in Miami Beach, Florida www.Decobike.com and in Tulsa Oklahoma.
12. Social Bicycle System (SoBi)	Ryan Rzepecki ryan@socialbicycles.com http://socialbicycles.com	Flexible	SoBi is a developing A public bicycle system that uses GPS, mobile communications, and a lock that can attach to most bicycles and lock to any rack. Developers report SoBi costs about \$1,000 per bike and state it can be deployed in a wide range of settings - small cities, universities, and corporate campuses. SoBi began testing in New York City in fall 2010
13. Smoove	Laurent Mercat 912 rue de la Croix Verte, 34198 Montpellier Cedex 5, France l.mercat@smoove.fr http://www.smoove.fr/	appears to be fixed and/ or flexible depending on needs	Smoove set up a 1200 bicycle system called "Velomag" in Montpellier, France and "Vélopop", 200 bicycles in 17 stations in Avignon, France. (www.velopop.fr) They design, manufacture and market products and services facilitating sustainable mobility and have two automatic systems for bicycle-share services and products for renting and parking bicycles.
14. Worksman Cycles	Worksman Trading Corp Worksman Cycles Industrial Park 94-15 100th St Ozone Park, NY 11416 1-866-655-4244 Cycle Sales: cycles@worksman.com Vending Cart Sales: vending@worksman.com http://www.worksman.com/	Bicycle Manufacturer	Worksman Cycles started as a manufacturer of durable, industrial bicycles in 1898. They have expanded styles to target both recreational and commuter purposes and offer a variety of bicycles products which are popular for bicycle share programs.



APPENDIX B: ARLINGTON VENDOR CONTRACT FOR CAPITAL BIKESHARE START UP/ OPERATING COSTS

Bicycle Share Contract May 2010 (between Alta Bicycle Share and Arlington, Virginia)

CAPITAL EQUIPMENT COSTS:

One-time fee payable only upon acquisition and verification by the Project Officer of the following:

Complete Station (includes 3-speed Bicycles, Terminal, Technical Platforms, Map Frame, Customer Keys, spare parts, Supplies, shipping):

Extra Small Station - including four (4) Bicycles and seven (7) Docks: \$26,064

Small Station - including seven (7) Bicycles and eleven (11) Docks: \$34,801

Medium Station - including ten (10) Bicycles and fifteen (15) Docks: \$43,539

Large Station - including thirteen (13) Bicycles and nineteen (19) Docks: \$52,276

STATION INSTALLATION (LABOR) COSTS:

Fee for a complete Station installation made operational before the Fully Operational Date (includes Site Plan design, permit/use acquisition, installation, and tax):

Cost per complete Station installation: \$5,551

Fee for a complete Station installation made operational after the Fully Operational Date (includes Site Plan design, permit/use acquisition, installation, and tax) (i.e. for expansion of the Service):

Cost per complete Station installation: \$4,500

OPERATING (LABOR) COSTS:

Monthly operating cost after Operational Date per operational Bicycle: \$155

ONE-TIME PAYMENTS FOR ADDITIONAL EQUIPMENT:

Bicycle (3-speed) (Each): \$1,003

Bicycle (7-speed) (Each): \$1,058

Second Original Paint Color (per Bicycle): \$28

Bicycle Fender (Each): \$14

Complete Terminal (Each): \$10,258

Complete Dock (Each): \$791

Station Component Cable: Blue (Each): \$110

Black (Each): \$107

Red (Each): \$90

Technical Platform (Each): \$1,024

Map Frame (Each): \$1,402

Station Battery (Each): \$200

Customer Key (Each): \$2.50

Bicycle Spare Parts (Per Bicycle, on as needed basis): \$106

Station Spare Parts (Per Station): \$375

Toolkit (Each): \$1,104

Station Paper (Each): \$32

Contractor Movement of a Station (includes removal and reinstallation): \$2,000

Executive Summary

Introduction

Bicycling Benefits
and Initiatives

Evolution of
Public Bike
Sharing

Public Bicycle
Sharing & Rentals

Employee Bicycle
Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



APPENDIX C: TWIN CITIES BIKE SHARE REPLACEMENT COSTS AND CASH FLOW ANALYSIS

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bicycle Sharing

Public Bike Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F

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%											



DECEMBER 3, 2008

PAGE 47 | TWIN CITIES BIKE SHARE



Exploring Bicycle Options for Federal Lands

CASH FLOW ANALYSIS

Pro Forma Cash Flow Analysis

Year	1	2	3	4	5	6	7	8	9	10
Revenue										
Subscriptions & fees	\$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	\$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	\$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	\$140,329	\$258,560	\$268,903	\$279,659	\$290,845	\$302,479	\$314,578	\$327,161	\$340,247	\$353,857
Other maintenance expense	\$23,363	\$47,138	\$62,822	\$78,250	\$103,120	\$80,417	\$94,225	\$107,907	\$121,502	\$115,741
Administrative	\$31,125	\$43,160	\$44,886	\$46,682	\$48,549	\$50,491	\$52,511	\$54,611	\$56,796	\$59,067
Operating contract	\$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	\$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	\$104,032	\$144,258	\$150,028	\$156,029	\$162,270	\$168,761	\$175,512	\$182,532	\$189,833	\$197,427
Community program expense	\$25,000	\$26,000	\$27,040	\$28,122	\$29,246	\$30,416	\$31,633	\$32,898	\$34,214	\$35,583
Insurance	\$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	\$0	\$0	\$0	\$0	\$549,869	\$57,186	\$59,474	\$61,853	\$64,327	\$461,937
Replacements due to expiration of useful life – Kiosks	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$94,659	\$289,656	\$984,831
Contingency	\$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	\$135,914	\$239,523	\$441,108	\$729,431	\$483,127	\$743,326	\$1,005,159	\$1,174,537	\$1,149,783	\$67,599



- Executive Summary
- Introduction
- Bicycling Benefits and Initiatives
- Evolution of Public Bike Sharing
- Public Bicycle Sharing & Rentals
- Employee Bicycle Fleets
- Recommendations
- References
- Appendix A
- Appendix B
- Appendix C
- Appendix D
- Appendix E
- Appendix F



APPENDIX D: PUBLIC BICYCLE SHARE USER AGREEMENTS

D.1. DENVER B-CYCLE BIKE SHARING LIABILITY TERMS AND CONDITIONS

DENVER BIKE SHARING AGREEMENT TERMS AND CONDITIONS, RIDER'S RELEASE OF LIABILITY, ASSUMPTION OF RISK, INDEMNITY AND HOLD HARMLESS.

Source: Denver B-cycle website <https://denver.bcycle.com/joinnow.aspx> Accessed 7/10/10

RIDER should CAREFULLY READ all terms and conditions before entering this Agreement.

1. PURPOSE OF AGREEMENT

This document constitutes the entire Agreement ("Agreement") between (a) RIDER, the person agreeing to lease and use the bike ("Bike"), and (b) Denver Bike Sharing ("DBS").

2. GENERAL RENTAL AND USE OF BIKE Agreements and Restrictions

2.1 RIDER is sole user: DBS expressly agrees to let, and the RIDER expressly agrees to take on, rental of the Bike subject to the terms and conditions set out herein. DBS and the RIDER are the only parties to this Agreement. The RIDER is the sole lessee and is solely responsible for compliance with all terms and conditions contained herein.

2.2 RIDER is 18 or older: RIDER represents and certifies that RIDER is at least 18 years old. If RIDER intentionally or unintentionally misrepresents his/her age, RIDER accepts full responsibility and is liable for any consequence, claims, demands, causes of action, losses, liabilities, damages, injuries, costs and expenses, penalties, attorney's fees, judgments, suits or disbursements of any kind or nature whatsoever related to any such misrepresentation.

2.3 RIDER is a competent bike operator: RIDER represents and certifies that he/she is familiar with the operation of the Bike, and is reasonably competent and physically fit to ride the Bike.

2.4 Bike is exclusive property of DBS: RIDER agrees that the Bike and any equipment attached thereto, at all times, remains the exclusive property of DBS. RIDER will not make any modification to the Bike at any time.

2.5 Bike Operating Hours and Bike Availability: RIDER agrees and acknowledges that the Bikes are available seasonally, 7 days/week. Bikes must be rented within the maximum rental time limits set forth in 2.6 below. Bikes are limited and Bike availability at any station is never guaranteed.

2.6 MAXIMUM RENTAL TIME AND CHARGES: Maximum rental time is 24 hours. RIDER agrees that RIDER will return the Bike to a designated DBS Bike Station within 24 hours of time that rental of the Bike began. RIDER may then rent again. RIDER agrees that he/she is solely responsible for being aware of any elapsed time related to the timely return. Bike Rental Charges are \$0.00 for the first half hour, \$1.10 for the second half hour, \$2.20 additional for the third half hour, \$3.30 additional for the 4th half hour, and \$4.40 additional for each half hour thereafter. The maximum day charge is \$65 and is based on a calendar day. Upon return of the bicycle, the rider will be charged the accumulated rental charges, or the maximum day charge; whichever is less. Bikes not returned within 72 hours will be considered stolen, and Rider will be charged \$1000. Applicable local and state sales tax of 7.72% included in Rental and Replacement Charges.

2.7 Bike may be used and/or operated only in the City and County of Denver: RIDER agrees to only use, operate and/or ride the Bike in the City and County of Denver. RIDER will not, under any circumstances, remove the Bike from the City and County of Denver.

2.8 RIDER must follow rules of use and/or operation of Bike: RIDER agrees to follow all laws pertaining to the use, riding and/or operation of the Bike, including all state and local laws and the rules and regulations pertaining to bicycles in the City and County of Denver.



2.9 Bike is intended for only limited types of use: RIDER agrees that he/she will not use the Bike for racing, mountain bike riding, stunt or trick riding. RIDER agrees that he/she will not operate and/or use the Bike on unpaved roads, through water, or in any location that is prohibited, illegal and/or a nuisance to others. RIDER agrees that he/she will not use the Bike for hire or reward, nor use it in violation of any law, ordinance or regulation.

2.10 RIDER's use of front carrier/basket is limited: RIDER acknowledges that the front carrier/basket of the Bike is intended for light goods only, and that he/she will not carry people or animals anywhere on the bicycle.

2.11 RIDER must report accident, stolen or lost Bike and/or DBS Membership Card: RIDER agrees that he/she must immediately report an accident, or a stolen or lost Bike to DBS and Police. Stolen or lost membership cards will be reported to DBS. RIDER agrees that he/she is responsible and liable for any misuse, consequences, claims, demands, causes of action, losses, liabilities, damages, injuries, costs and expenses, penalties, attorney's fees, judgments, suits or disbursements of any kind or nature whatsoever related to a stolen or lost Bike and/or DBS Membership Card.

2.12 RIDER responsibility related to Bike use and damage: RIDER agrees to return the BIKE to DBS in the same condition received, ordinary wear and tear expected. RIDER agrees to ensure that the Bike is always locked and secured when unattended. Bikes may be equipped with wire locks; however, DBS will not be responsible for any lost, stolen, destroyed and/or damaged Bike under any circumstances, regardless of whether Bike locks are used or not properly functioning. RIDER agrees to pay for destruction or loss of Bike and for any damage, including replacement parts. (RIDER agrees to pay for any loss even though damage was caused by someone else). All repairs needed as a result of any damage, will be performed at the normal labor rates. In the event the Bike is lost or damaged beyond repair, regardless of fault or cause, RIDER agrees to pay DBS the full replacement value of the equipment.

3. WAIVER AND/OR LIMITATION OF LIABILITY

3.1 For and in consideration of rental and use of the Bike, RIDER specifically forever releases and relinquishes and discharges DBS, B-cycle, LLC, the City of Denver, all DBS Sponsors as well as owners of property upon or near which stations are located ("Released Parties") from any and all claims, liability, cause (s) of action and/or damage or wrongful death, injury to others and/or third parties, which arise out of, result from or relate to this Agreement; the rental, maintenance, design, use and/or operation of the Bike; the DBS program, and/or its website, including any and all claims, liability, cause(s) of action and/or damages related to the sole or partial negligence of Released Parties and/or the negligence of others. By this agreement any such claims, rights, and causes of action that RIDER (and RIDER'S legal guardian(s), if applicable) may have are hereby waived, released and relinquished, and RIDER (and guardian(s), if applicable) does(do) so on behalf of RIDER'S heirs, executors, administrators and assigns.

3.2 RIDER expressly agrees to indemnify, release and hold harmless Released Parties from all liability for any such property loss or damage, personal injury or loss of life, whether caused by the sole or partial negligence of DBS and/or the negligence of others, whether based upon breach of contract, breach of warranty, active or passive negligence or any other legal theory, in consideration for using and/or operating the Bike.

3.3 RIDER voluntarily agrees, understands and recognizes that RIDER will have no right to make a claim or file a lawsuit against Released Parties arising out of this Agreement, the rental, maintenance, design, use and/or operation of the Bike, the DBS program, and/or this website, in consideration for using and/or operating the Bike.

3.4 This agreement is governed by the applicable laws of the State of Colorado. If any provision of this agreement is found to be unenforceable, all other provisions will be given full force and effect.



4. ACCEPTANCE of AGREEMENT and TERMS and Conditions by RIDER: RIDER expressly acknowledges that he/she has carefully read the entire Agreement, including the Terms and Conditions, and understands this Agreement, including, but not limited to, the Waiver and Liability, Assumption of risk and Indemnification Provisions fully and expressly agrees to be bound by this Agreement. After careful deliberation, RIDER voluntarily gives his/her consent and expressly agrees to all the conditions included in this Agreement as set forth above.

This Privacy Policy was last updated on June 1, 2010.

D.2. CAPITAL BIKESHARE USER AGREEMENT SECTIONS 10-14

The full User agreement is available online at: <https://www.capitalbikeshare.com/signup>

Section 10 General Assumption of Risk by User. User agrees that riding a Capital Bikeshare bicycle involves many obvious and not-so-obvious risks, dangers, and hazards, which may result in injury or death to User or others, as well as damage to property, and that such risks, dangers, and hazards cannot always be predicted or avoided. User agrees that such risks, dangers, and hazards are User's sole responsibility. User agrees that if User's use of any Service causes injury or damage to another person or property, then User may be liable for all resulting injuries, damages, and related costs. By choosing to ride a Capital Bikeshare bicycle, User assumes all responsibility for all related risks, dangers, and hazards, and User agrees that Alta is not responsible for any injury, damage, or cost caused by User with respect to any person or property, including the Capital Bikeshare bicycle itself. User is solely and fully responsible for the safe operation of the Capital Bikeshare bicycle at all times. User may need to take additional safety measures or precautions not specifically addressed in this Agreement.

Section 11 Prohibited Acts

- a. User must not ride a Capital Bikeshare bicycle while carrying any briefcase, backpack, bag, or other item else, if it impedes User's ability to operate a Capital Bikeshare bicycle safely.
- b. User must not use any cellular telephone, text messaging device, portable music player, or other device that may distract User from safely operating a Capital Bikeshare bicycle; provided, however, that User may use a cellular telephone only while employing an activated hands-free device that does not hinder User's ability to safely ride a Capital Bikeshare bicycle.
- c. User must not operate a Capital Bikeshare bicycle while under the influence of any alcohol, drugs, or other substance that may impair User's ability to safely operate a Capital Bikeshare bicycle.
- d. User must not carry a second person on a Capital Bikeshare bicycle.
- e. User must not dock or lock any bicycle in any Station other than Capital Bikeshare bicycles.
- f. User must not use any locking mechanism, other than the locking mechanism provided by Alta at the Bike Dock, to lock a Capital Bikeshare bicycle to a Bike Dock.
- g. User must not violate any applicable federal, state, or local law, including those for bicycle riders.
- h. User must not dismantle or modify a Capital Bikeshare bicycle in any way. This rule does not apply to the use of the seat height adjustment feature on Capital Bikeshare bicycles.
- i. User must not exceed the maximum weight limit for the Capital Bikeshare bicycle (260 pounds) or the cargo carrier (17 pounds).
- j. User must not operate a Capital Bikeshare bicycle in extreme weather conditions, including snow, hail, and electrical storms, which make it more dangerous to operate a Capital Bikeshare bicycle. User is advised to adjust User's riding behavior and braking distance to suit the weather conditions.
- k. User must not allow others to use a Capital Bikeshare bicycle that User has removed from a Bike Dock. User understands that when User removes from a Capital Bikeshare bicycle from a Bike Dock, it is to be



used only by User. User must not transfer User's system key, 7 digit code on the system key, 5- digit code at the Pay Station or any other Account information to any other person.

Section 12 Additional User Obligations.

a. User agrees that User is a competent bicycle operator, is sufficiently fit to safely operate a Capital Bikeshare bicycle, and has received medical clearances for such physical activity. Like any physical activity, riding a Capital Bikeshare bicycle may cause minor or major injuries or discomfort and may worsen or complicate underlying medical conditions or diseases. By choosing to ride a Capital Bikeshare bicycle, User assumes all responsibility for all such injuries or other medical conditions.

b. User agrees that bicycles are machines that may malfunction, even if the bicycle is properly maintained, and that such malfunction may cause injury. User agrees that before using a Capital Bikeshare bicycle, User must conduct a safety inspection of the Capital Bikeshare bicycle, which includes inspecting the following: (i) proper tire pressure; (ii) trueness of the wheels; (iii) safe operation of all brakes and lights; (iv) proper attachment of the seat, pedals, and basket; (v) good condition of the frame; and (vi) any sign of damage, unusual or excessive wear, or other mechanical problem or maintenance need. User agrees not to ride the Capital Bikeshare bicycle if User notices any mechanical or other problem or safety issue, and User agrees to promptly notify Alta of all problems and issues and to use a different Capital Bikeshare bicycle. User agrees to press the "Faulty Bike" button within 1 minute of docking a Capital Bikeshare bicycle that User notices has any mechanical or other problem or safety issue.

c. User agrees that Alta does not provide or maintain places where to ride Capital Bikeshare bicycles, and that Alta does not guarantee that there will always be a safe place to ride a Capital Bikeshare bicycle. Roads, bicycle lanes, and bicycle routes may become dangerous due to weather, traffic, or other hazards. User must not use a Capital Bikeshare bicycle for racing, riding off road, or any other use, besides safe operation on public or private roads or property and designated bicycle routes.

d. User agrees that Alta is not a common carrier. Alternative means of public and private transportation are available to the general public and to User individually, including public buses and light rail service, taxis, and pedestrian paths. Alta provides Capital Bikeshare bicycles only as a convenience, and such rental availability is intended by Alta to be used only by those persons who are able and qualified to operate a Capital Bikeshare bicycle on their own and who have agreed to all terms and conditions of this Agreement.

e. User must return the Capital Bikeshare bicycle to a Station and must insert the Capital Bikeshare bicycle into a Bike Dock, within 24 hours from the time the Capital Bikeshare bicycle was originally removed from a Bike Dock. User agrees that if the Capital Bikeshare bicycle is not returned to a Station and inserted into a Bike Dock within 24 hours, then the Capital Bikeshare bicycle is deemed missing or stolen, and User does hereby authorize Alta to charge User's credit card a \$1,000 fee.

f. User agrees that Alta may require User to return a Capital Bikeshare bicycle at any time.

g. User agrees that access to the Service is denied to any person less than 16 years of age, whether or not accompanied by a parent or guardian. Minors who are at least 16 years of age may use the Service, but only if the Service is subscribed for by or under the responsibility of the minor's parent or guardian; and, the parent or guardian is fully liable for all injuries, damages, and costs caused by the minor's use of the Service.

h. User must report all accidents and injuries involving a Capital Bikeshare bicycle to the local authorities and to Capital Bikeshare's Customer Service at 1-877-430-BIKE (2453) as soon as possible, but in no event later than 24 hours after the occurrence of the accident or injury. Section 13 Additional Fees.

If the Capital Bikeshare bicycle is not returned to a Bike Dock within the Permitted Period of Continuous Use, then User will be charged a fee of \$1,000. If the Capital Bikeshare bicycle is returned to a Bike Dock

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Exploring Bicycle Options for Federal Lands

damaged or in a state of disrepair, then User will be charged a fee that is equal to the cost of repair. Such fees may be charged as soon as 24 hours after the Capital Bikeshare bicycle is not returned or is returned in a damaged state. Alta will attempt to contact the User via telephone and email before charging the User's credit card, by using the contact information provided by the User when subscribing to the Service.

Section 14 Helmets.

Wearing a Snell, CPSC, ANSI, or ASTM approved helmet, properly sized, fitted, and fastened, while cycling may protect against an injury, or may lessen the severity of an injury, caused by an impact to the head; however, bicycle helmets are not 100% effective, do not protect against all head injuries, and do not protect against other injuries. Although some state and local laws do not require bicycle riders to wear helmets, Alta recommends that all riders wear a Snell, CPSC, ANSI, or ASTM approved helmet that has been properly sized, fitted, and fastened, according to the manufacturer's instructions. Alta does not represent or warrant the quality or safety characteristics of any helmet, and User agrees that Alta must not be held liable for any injury suffered by User while using the Service, whether or not User is wearing a helmet at the time of injury.



APPENDIX E -GRAND CANYON BICYCLE RENTAL COMMERCIAL USE AUTHORIZATION

(Select information from http://www.nps.gov/grca/parkmgmt/cua-bicycle_rental.htm Accessed Sept. 2011)

E.1. BICYCLE RENTAL COMMERCIAL USE AUTHORIZATION FREQUENTLY ASKED QUESTIONS

1. Will there be employee housing available within Grand Canyon National Park?

The National Park Service will not provide housing for the permittee or its employees. The permittee or its employees will be responsible for securing all housing associated with the bicycle rental operations commercial use authorization.

In park trailer sites large enough to accommodate a travel trailer may be available by contacting the park's South Rim hospitality concessioner, Xanterra South Rim, L.L.C., on the web at <http://www.grandcanyonlodges.com/> or via telephone at 1-888-297-2757 or (928) 638-2631.

Additional housing may also be available in the towns of Tusayan, Arizona, approximately 10 miles from the South Rim, Valle, Arizona, approximately 35 miles from the South Rim, Williams, Arizona, approximately 60 miles from the South Rim, or Flagstaff, Arizona, approximately 75 miles from the South Rim.

2. Will there be electrical and internet access available at the rental site?

It is likely that there will not be electrical or internet access at the rental site. The National Park Service will work with the permittee to provide access if possible. During the 2010 season, extensive construction is planned at Canyon View Information Plaza and the Grand Canyon Visitor Center and the rental site may be moved several times during the season to accommodate the construction. The permittee should plan for rental infrastructure that is mobile and that does not require internet or electricity.

3. What is the size of the location available for the bicycle storage?

The area designated for bicycle storage is in the Commercial Vehicle Lot at Canyon View Information Plaza and will be the size of two 40-foot bus parking spaces.

During the 2010 season, extensive construction is planned at Canyon View Information Plaza and the Grand Canyon Visitor Center and the bicycle storage site may be moved several times during the season to accommodate the construction. The permittee should plan for storage infrastructure that is mobile.

4. What are the National Park Service's specific goals for bicycle rental and what is the minimum numbers of bicycles required?

The National Park Service is not requiring a minimum or setting a maximum number of required bicycles. Based on periodic evaluations of safety, resources and visitor experience, the National Park Service may set a maximum number of rentals during the term of the commercial use authorization. Goals for the bicycle rental operation include providing visitors with a method of accessing park sites and infrastructure without relying on their personal vehicles and improving overall visitor experience. The bicycle rental operation is a new visitor service at Grand Canyon National Park and the National Park Service will use data and information collected during the term of this commercial use authorization to determine how future bicycle rental operations will be managed.

5. How many people visit Grand Canyon National Park annually?

Approximately 4.5 million people visit Grand Canyon National Park annually, with the majority visiting the South Rim. General statistics about Grand Canyon National Park and park visitation by year and month can be found by visiting the park's website at <http://www.nps.gov/grca/parkmgmt/statistics.htm>

6. Where will visitors be able to ride rented bicycles?

Visitors will be able to ride rented bicycles on all park roadways open to general vehicle traffic, on roadways such as the Hermit Road and Yaki Point Road that are open only to shuttle bus traffic, and on

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Exploring Bicycle Options for Federal Lands

the park's paved multi-use greenway system. Visitors will not be allowed to ride on the park's pedestrian rim trail.

The park's multi-use greenway system currently connects Canyon View Information Plaza and the Grand Canyon Visitor Center with Market Plaza, Mather Campground, Trailer Village and the historic Grand Canyon Village area. There is also approximately three miles of paved greenway open to bike use near the canyon rim along the Hermit Road.

The distance from the rental area near the Grand Canyon Visitor Center to Market Plaza, Mather Campground and Trailer Village is approximately one mile. The distance from the rental area near the Grand Canyon Visitor Center to the Grand Canyon Village area is approximately three miles. The distance from the rental area near the Grand Canyon Visitor Center to Hermit's Rest at the end of the Hermit Road is approximately ten miles.

The National Park Service plans to develop additional multi-use greenway infrastructure in the near future, including sections connecting the Grand Canyon Visitor Center with the South Kaibab Trailhead and the gateway community of Tusayan. These sections of greenway trail, however, will not be available during the 2010 season.

7. Is there a map of Grand Canyon National Park bicycle paths?

Currently the best map of the roadways and greenway trails in and around the Grand Canyon Village can be found by visiting the park's websites at:

<http://www.nps.gov/grca/parknews/upload/2009-10WinTranMap.pdf>

http://www.nps.gov/grca/planyourvisit/upload/200909village_map.pdf

The National Park Service will provide the permittee with a copy of a map delineating areas where visitors will be allowed to ride bicycles. The permittee will be responsible for providing copies of this map to all customers.

8. Can the park's shuttle buses support bicycles?

Each of the park's shuttle buses is equipped with a rack that accommodates up to three bicycles.

9. What is the required operating season and hours of operation for the bicycle rental operation?

The National Park Service has not set a required operating season or required hours of operation for the bicycle rental. However, all dates and hours of operation must be submitted to and approved by the National Park Service. In general, Grand Canyon National Park sees high visitation from mid-March through October. Information about National Park Service facility and visitor center operating hours is available by visiting the park's website at <http://www.nps.gov/grca/planyourvisit/visitorcenters.htm>



**PART 2:
CATEGORY SPECIFIC FORM
BICYCLE RENTAL OPERATIONS**

**APPLICATION FOR A
COMMERCIAL USE AUTHORIZATION
U.S. DEPARTMENT OF THE INTERIOR**



Grand Canyon National Park

Please type or print in ink. Answer all questions completely or mark "N/A" if not applicable

1. APPLICANT'S NAME (as stated in Part 1: General Information Form):

2. AGREEMENT WITH TERMS AND CONDITIONS OF CUA:

A copy of the CUA conditions for Bicycle Rental Operations at Canyon View Information Plaza in Grand Canyon National Park is attached to this Part 2 form. Applicants should carefully review these terms and conditions, as they set out the CUA holder's rights and obligations in the event that a CUA is issued.

Applicant's signature at the end of this Part 2 form evidences the Applicant's agreement, if selected for issuance of the CUA, to (1) accept the terms and conditions applicable to the CUA for which the Applicant is applying and (2) accept any issued CUA in writing no later than thirty working days after that CUA is issued by the National Park Service.

Applicant Initials: _____

3. REQUIRED SUBMISSIONS: Provide each of the following items and check to indicate the item is attached or otherwise enclosed with the Part 2 application (please note, item number 10 is not sent in with application but is submitted only when CUA is awarded):



	Required Submission	Checklist
(1)	Certifications: Business License	<input type="checkbox"/> Copy of Business License
(2)	<p>Client Orientation: An outline of the client orientation that the permittee will provide. At a minimum, the orientation must cover:</p> <p>(a) The National Park Service mission: “to preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations”</p> <p>(b) Practices to be followed that will protect the resources while riding a bicycle at Grand Canyon National Park. (flora and fauna, recycling, directions, etc.)</p> <p>(c) General descriptions of hazards/safety issues (such as inclement weather, climate, wildlife, bicycling in high traffic areas, etc.) associated with Grand Canyon National Park.</p>	<input type="checkbox"/> Outline Attached (a) <input type="checkbox"/> Mission (b) <input type="checkbox"/> Practices (c) <input type="checkbox"/> Hazards/Safety Issues
(3)	<p>Operating Plan: Submit an Operating Plan. All Operating Plans will be reviewed by NPS for compatibility with the guidelines for commercial services, interpretation, and resource protection at Grand Canyon National Park. CUA’s will not be issued and rentals must not begin until the Operating Plan has been approved. The CUA holder will be required as a condition of the CUA to comply with the approved Operating Plan.</p> <p>The Operating Plan, at a minimum, should include:</p> <p>(a) Explanation of services to be provided.</p> <p>(b) List and description of proposed storage and security measures of bicycles.</p> <p>(c) Maximum number and description of bicycles types and helmets proposed to be stored on site.</p> <p>(d) Outline of safety, environmental and cultural resource education orientation that will be provided to your clients (in addition to the materials issued to you by the NPS).</p> <p>(e) Safety and/or sanitation precautions/procedures that apply to your service.</p> <p>(f) Resource preservation and protection measures.</p> <p>(g) Explanation of the procedures to be taken in case of accidents or other emergencies.</p>	<input type="checkbox"/> Operating Plan is attached and includes: (a) <input type="checkbox"/> Service Explanations (b) <input type="checkbox"/> Proposed Storage/Security (c) <input type="checkbox"/> Number of Bicycles/Type on Site (d) <input type="checkbox"/> Safety and Resource Education Orientations (e) <input type="checkbox"/> Safety Procedures (f) <input type="checkbox"/> Resource Protection (g) <input type="checkbox"/> Emergency Procedures



(4)	Rate Schedule: Provide rate schedule for services that the Applicant proposes to offer through the CUA.	<input type="checkbox"/> Rate Schedule Attached
(5)	Insurance: Provide copies of current Certificate of General Liability Insurance, Land Transportation Liability Insurance, (if applicable) and Workers' Compensation Insurance required by the attached CUA. Certificates of insurance for the general liability and any land transportation liability insurance must include an endorsement listing the United States of America as an additional insured.	(a) <input type="checkbox"/> Certificate of General Liability (b) <input type="checkbox"/> Certificate of Land Transport Liability (if applicable) (c) <input type="checkbox"/> Certificate of Workers Compensation Insurance
(6)	Qualifications and Experience of Key Personnel: Provide resumes of key individuals who will carry out management and operations under the CUA.	<input type="checkbox"/> Resumes
(7)	Experience and Past Performance: Submit a description of applicant's experience providing similar commercial services to those to be authorized by the CUA. Include examples of relevant past performance, including experience working in remote and protected or environmentally sensitive areas and in using environmentally acceptable methods.	<input type="checkbox"/> Description of experience and past performance
(8)	Application Fee: A non-refundable application fee of \$150 is due with the application packet. <i>Note: Fees may be paid by cashier's check, certified check or money order and should include the applicant's employer identification number and be made payable to the National Park Service. Credit Cards are also accepted. Please provide card holder's name, card number, expiration date, security code, and address associated with the credit card for all credit card payments.</i>	<input type="checkbox"/> Check for \$150 – Application fee OR <input type="checkbox"/> Credit Card Information for \$150 – Application fee



(9)	<p>Administrative and Monitoring Fees: The Administrative Fee for the initial 12 month CUA is \$525.00 and the Monitoring Fee is \$2050.00. Do not send these amounts with the initial application; these fees are due upon selection, written on two separate checks or through two separate credit card transactions. Failure to pay these fees with the required written acceptance no later than thirty working days after the CUA is issued by the National Park Service will render the application null and void.</p> <p>If the CUA is extended for an additional year an additional Monitoring Fee will be due no later than 30 working days after the CUA is extended. This fee will be reevaluated to take in to account any changes to National Park Service costs associated with monitoring.</p> <p><i>Note: Fees may be paid by cashier's check, certified checks or money orders and should include the applicant's employer identification number and be made payable to the National Park Service. Credit cards are also accepted. Please provide card holder's name, card number, expiration date, security code, and address associated with the credit card for all credit card payments.</i></p>	<p><input type="checkbox"/> Check for \$525.00 – Administrative fee OR <input type="checkbox"/> Credit Card Information for \$525.00 – Administrative fee</p> <p><input type="checkbox"/> Check for \$2200.00 – Monitoring fee OR <input type="checkbox"/> Credit Card Information for \$2200.00 – Monitoring fee</p> <p>Do not send in with initial application. Submit after CUA issuance notification</p>
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4. SIGNATURE:

False, fictitious or fraudulent statements of representations made in this application may be grounds for denial or revocation of the Commercial Use Authorization and may be punishable by fine or imprisonment (U.S. Code, Title 18, Section 1001). All Information provided will be considered in reviewing this application. Applications signed by an agent must be accompanied by evidence of that agent's authority.

By my signature, I hereby attest that all my statements and answers on this form and any attachments are true, complete, and accurate to the best of my knowledge.

Signature

Date

Printed Name

Title



E.2. APPLICATION FOR A BICYCLE RENTAL COMMERCIAL USE AUTHORIZATION FORM

E.3. BICYCLE RENTAL CUA SPECIAL PARK CONDITIONS

SPECIAL PARK CONDITIONS

Each Appendix and Exhibit listed below is a part of the CUA.

Appendix A – General Conditions

Appendix B – Special Park Conditions: Bicycle Rental Operation

Appendix C – Reporting and Recordkeeping

• Exhibit 1 – Commercial Use Authorization (CUA) Monthly Report

Appendix D – Insurance Requirements

Appendix E – Fees

Appendix F – Rates

Appendix G – Operating Plan

Appendix H – Trial Period and Possible Modification of CUA Bicycle Rental 2

Grand Canyon National Park Commercial Use Authorization Appendix A

GENERAL CONDITIONS

Failure to comply with any of the following conditions or special park conditions could result in warnings, citations or revocation of your Commercial Use Authorization.

1. The permittee is prohibited from knowingly giving false information. To do so will be considered a breach of conditions and be grounds for revocation: [RE: 36 CFR 2.32(a)(3)(ii)]. The permittee will comply with any special instructions received from the Superintendent, and/or representative thereof, concerning activities within Grand Canyon National Park.
2. The permittee shall exercise this privilege subject to the supervision of the park area superintendent. The permittee shall comply with all applicable laws and regulations of the area and terms and conditions of the authorization. The permittee must acquire all permits or licenses of state or local government, as applicable, necessary to provide the services described above, and, must operate in compliance with all applicable federal, state, and local laws and regulations, including, without limitation, all applicable park area policies, procedures and regulations. The commercial services described above are to be provided to park area visitors at reasonable rates and under operating conditions satisfactory to the park area superintendent.
3. This authorization is issued upon the express condition that the United States, its agents and employees shall be free from all liabilities and claims for damages and/or suits for or by reason of any injury, injuries, or death to any person or persons or property of any kind whatsoever, whether to the person or property of the (permittee), its agents or employees, or third parties, from any cause or causes whatsoever while in or upon said premises or any part thereof during the term of this authorization or occasioned by any occupancy or use of said premises or any activity carried on by the (permittee) in connection herewith, and the (permittee) hereby covenants and agrees to indemnify, defend, save and hold harmless the United States, its agents, and employees from all liabilities, charges, expenses and costs on account of or by reason of any such injuries, deaths, liabilities, claims, suits or losses however occurring or damages growing out of the same.
4. The permittee agrees to carry general liability insurance against claims occasioned by the action or omissions of the permittee, its agents and employees in carrying out activities and operations under this authorization. The policy shall be in the amount that is outlined in Appendix D and underwritten by a United States company naming the United States of America (National Park Service, Grand Canyon National Park, PO Box 129, Grand Canyon, Arizona 86023) as additional insured. The permittee agrees to have on file with the park copies of the above insurance with the proper endorsements.

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Exploring Bicycle Options for Federal Lands

5. Cost incurred by the park as a result of accepting and processing the application and managing and monitoring the authorization activity will be reimbursed by the permittee. Administrative costs and estimated costs for activities on site must be paid when the authorization is approved. If any additional costs are incurred by the park, the permittee will be billed at the conclusion of the authorization.
6. Benefit - Neither Members of, nor Delegates to Congress, or Resident Commissioners shall be admitted to any share or part of this authorization or derive, either directly or indirectly, any pecuniary benefit to arise there from: Provided, however, that nothing herein contained shall be construed to extend to any incorporated company, if the authorization be for the benefit of such corporation.
7. This authorization may not be transferred or assigned without the written consent of the park area superintendent.
8. This authorization may be terminated upon breach of any of the terms and conditions herein or at the discretion of the park area superintendent.
9. The permittee is not entitled to any preference to renewal of this authorization except to the extent otherwise expressly provided by law. This authorization is not exclusive and is not a concession contract.
10. The permittee shall not construct any structures, fixtures or improvements in the park area. The permittee shall not engage in any groundbreaking activities without the express, written approval of the park area superintendent.
11. The permittee is to provide the park area superintendent upon request (and in any event, immediately after expiration of this authorization) a statement of its gross receipts from its activities under this authorization and any other specific information related to the permittee's operations that the park area superintendent may request, including but not limited to, visitor use statistics and resource impact assessments.
12. The permittee is to maintain an accounting system under which its accounts can be readily identified within its system of accounts classification. This accounting system must be capable of providing the information required by this authorization. The permittee grants the United States of America and the General Accounting Office access to its books and records at any time for the purpose of determining compliance with the terms and conditions of this authorization.

Grand Canyon National Park Commercial Use Authorization Appendix B

SPECIAL PARK CONDITIONS

BICYCLE RENTAL OPERATION

THESE CONDITIONS ARE APPLICABLE TO ALL AUTHORIZED ACTIVITIES OR AREAS LISTED ON THIS PERMIT. **All pages of this permit must be on site and available for inspection by the permittee or its employees at all times while operating within Grand Canyon National Park.**

1. Permits/Licenses – The permittee must obtain all permits or licenses of Arizona State or local governments, as applicable, necessary to conduct the business activities specified above and must operate in compliance with all applicable federal, state, and local laws and regulations. Vehicle, operator, license, and permit compliance inspections may occur at any time by National Park Service or law enforcement personnel.

2. Business Operations - This permit authorizes the permittee to advertise, solicit business, collect fees, and sell services on lands owned and controlled by the United States. This permit does not authorize the permittee to sell goods on lands owned and controlled by the United States. The Permit is for incidental business operations occurring within the park. The commercial activity may originate and terminate inside the park, money may change hands on park lands and comm

The following activities are authorized under this CUA:

Bicycle Rental Operations. The permittee may rent bicycles to park visitors for self-guided in-park use, at an hourly, half day or daily rate, consistent with the use conditions specified in this CUA. Initially, no limit will be placed on the number of bicycles or rentals under this CUA, however, during the term of the CUA the National Park Service may set limits on the number of bicycles or rentals (see Appendix H).



13. Cost incurred by the park as a result of accepting and processing the application and managing and monitoring the authorization activity will be reimbursed by the permittee. Administrative costs and estimated costs for activities on site must be paid when the authorization is approved. If any additional costs are incurred by the park, the permittee will be billed at the conclusion of the authorization.
14. Benefit - Neither Members of, nor Delegates to Congress, or Resident Commissioners shall be admitted to any share or part of this authorization or derive, either directly or indirectly, any pecuniary benefit to arise there from: Provided, however, that nothing herein contained shall be construed to extend to any incorporated company, if the authorization be for the benefit of such corporation.
15. This authorization may not be transferred or assigned without the written consent of the park area superintendent.
16. This authorization may be terminated upon breach of any of the terms and conditions herein or at the discretion of the park area superintendent.
17. The permittee is not entitled to any preference to renewal of this authorization except to the extent otherwise expressly provided by law. This authorization is not exclusive and is not a concession contract.
18. The permittee shall not construct any structures, fixtures or improvements in the park area. The permittee shall not engage in any groundbreaking activities without the express, written approval of the park area superintendent.
19. The permittee is to provide the park area superintendent upon request (and in any event, immediately after expiration of this authorization) a statement of its gross receipts from its activities under this authorization and any other specific information related to the permittee's operations that the park area superintendent may request, including but not limited to, visitor use statistics and resource impact assessments.
20. The permittee is to maintain an accounting system under which its accounts can be readily identified within its system of accounts classification. This accounting system must be capable of providing the information required by this authorization. The permittee grants the United States of America and the General Accounting Office access to its books and records at any time for the purpose of determining compliance with the terms and conditions of this authorization.

Grand Canyon National Park Commercial Use Authorization Appendix B

SPECIAL PARK CONDITIONS

BICYCLE RENTAL OPERATION

THESE CONDITIONS ARE APPLICABLE TO ALL AUTHORIZED ACTIVITIES OR AREAS LISTED ON THIS PERMIT. **All pages of this permit must be on site and available for inspection by the permittee or its employees at all times while operating within Grand Canyon National Park.**

1. Permits/Licenses – The permittee must obtain all permits or licenses of Arizona State or local governments, as applicable, necessary to conduct the business activities specified above and must operate in compliance with all applicable federal, state, and local laws and regulations. Vehicle, operator, license, and permit compliance inspections may occur at any time by National Park Service or law enforcement personnel.

2. Business Operations - This permit authorizes the permittee to advertise, solicit business, collect fees, and sell services on lands owned and controlled by the United States. This permit does not authorize the permittee to sell goods on lands owned and controlled by the United States. The Permit is for incidental business operations occurring within the park. The commercial activity may originate and terminate inside the park, money may change hands on park lands and comm

The following activities are authorized under this CUA:

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Bicycle Tours and Ranger Lead Tours. The permittee may, at the discretion and with the approval of the National Park Service, offer guided bicycle tours. The National Park Service may require the permittee, in coordination with the National Park Service, to organize ranger lead bicycle tours.

3. Damages – The permittee shall pay the United States for any damage resulting from this use which would not reasonably be inherent in the use which the permittee is authorized to make of the land described in this permit.

4. Health and Sanitation – The permittee will comply with applicable public health and sanitation standards and codes. The permittee or employees will promptly report information about any human illness, whether employees or guests, to the Public Health Consultant at 928-928-7355. This information, along with other information received, will be evaluated by the Public Health Consultant to help identify outbreaks of illness associated with contaminated water or food sources or caused by other adverse environmental conditions.

5. Nonexclusive Authorization – The permittee will have none of the rights or privileges of P.L. 105-391, Title IV [National Park Service Concessions Management Improvement Act of 1998] specified for concession contracts. The National Park Service does not grant the permittee a preferential or exclusive right to conduct business in any area administered by the National Park Service.

6. Equal Employment Opportunity/Nondiscrimination - The permittee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended by Executive Order No. 11375 of October 13, 1967, and of the rules, regulations, and relevant orders of the Secretary of Labor (Exhibit A).

7. Storage and Sales Area – This permit is applicable only for the use of the area, term, and conditions designated herein. The area(s) authorized for use under this permit must be left in substantially the same condition as it was prior to the activities authorized herein.

The following areas are temporarily authorized for use under this CUA:

Bicycle Fleet Storage. The National Park Service will temporarily provide one to two large parking spaces located in the eastern side of the commercial bus parking area at Canyon View Information Plaza behind the Grand Canyon Visitor Center for bicycle fleet storage. The permittee is authorized to place a permittee provided a temporary storage unit to house the bicycle fleet in this area. The storage unit must be secured to withstand inclement weather in a manner that ensures safety and does not damage park resources. The storage unit must be approved by the National Park Service prior to placement. Security of the unit and its contents is the responsibility of the permittee.

Bicycle Rental and Visitor Service Area. The National Park Service will temporarily provide a paved location in the pedestrian area at Canyon View Information Plaza for a bicycle rental and visitor service area. The permittee is authorized to use a temporary permittee provided shade structure(s) and a table(s). The structure(s) and equipment must be secured to withstand inclement weather in a manner that ensures safety and does not damage park resources. The location of the bicycle rental and visitor service area and all equipment to be used in the area must be approved by the National Park Service prior to installation. Security of the area and equipment is the responsibility of the permittee.

Areas Authorized for Bicycle Use. Rented bicycles may be used on all park roadways open to the use of motor vehicles by the general public and paved greenway trails open to bike use as noted in the Superintendent’s Compendium of Restrictions and Closures. Bicycles may not be used on any dirt or unpaved paths, roads or trails. The permittee must provide customer with information and instructions describing park areas where bicycles may be used.

Due to construction that will be occurring in the vicinity of the Grand Canyon Visitors Center, the location of the bicycle rental and visitor service area and the bicycle storage area may change one or more times over the term of the CUA.



The National Park Service may order the temporary or permanent removal of any infrastructure or equipment associated with the bicycle rental operation at any time.

8. Equipment – The permittee must provide bicycles and safety equipment appropriate for paved travel and in sufficient numbers and styles to accommodate a variety of visitor ages, abilities and skill levels.

The permittee is responsible for retrieving all abandoned equipment from any location within the park.

9. Safety – The permittee must provide the National Park Service with a description of its safety procedures for the Bicycle Rental Operations.

Bicycle Maintenance. The permittee must maintain all rental bicycles in accordance with manufacturers' recommendations and industry standards. The permittee must perform necessary preventative maintenance on each bicycle between rentals. The permittee must ensure that each bicycle is adjusted for the individual rider prior to rental.

Helmets and Safety Equipment. The permittee must provide helmets that, at a minimum, meet the standards required by the law of the State of Arizona and the Arizona Consumer Product Safety Commission, to all riders. The permittee must also provide all other equipment necessary to safely operate the rented bicycles.

10. Orientation – The permittee must provide each customer with an orientation to the park and their bicycle. The orientation must include the safe operation of their bicycle, park and permittee emergency contact information, information on the park areas approved for bicycles, possible hazards that riders may encounter and information on resource protection.

The National Park Service will provide the permittee with an electronic map of authorized areas for bicycle use. The permittee must provide a copy of this map to each customer to aid in the orientation and safe navigation of the park.

11. Hours and Dates of Operation – All hours and dates of operation must be approved in advance by the National Park Service. The National Park Service may change the authorized hours and dates of operation at any time.

12. Archeological Sites – Permittee must abide by the Grand Canyon National Park Cultural Site Information SOP (8213-0001). Under this SOP, permittees may disclose the location and direct clients to Class I archeological sites. Permittees may direct visitors to Class II archeological sites as long as they do not promote them to their clients and only direct them when specifically requested to do so by a client.

13. Reporting Accidents – An accident resulting in personal injury, death or property damage shall be reported to the National Park Service, as soon as possible. [36 CFR 2.33, 3.4, 4.4] All accidents resulting in injury, personal/government property damage, or injury to park wildlife or resources must be report to park law enforcement immediately at 928-638-7805 or by dialing 911.

14. Overdue or Missing Clients – The permittee is responsible for providing their clients with the necessary information to orientate themselves to the park so as not to become lost. The permittee must report overdue or missing clients to park dispatch as soon as possible and without unnecessary delay, at 928-638-7805. While self-rescue is encouraged, in cases where no additional resources are needed, the National Park Service retains the authority to make the determination to employ additional resources when the situation warrants.

15. Employee/agent responsibility – The permittee must ensure that all company employees working in the park are informed of all of the conditions of this permit. (The permittee may be cited for any permit violations committed by their employee and/or agent.)

16. Permit Compliance – The permittee and all participants authorized herein must comply with all of the conditions of this permit, including all exhibits, amendments, application requirements, and written



or verbal directives from the Superintendent. Failure to obtain a permit to provide commercial services, and have a copy of the document available for inspection at any time while in the park, are violations of the permit terms for which a citation may be issued, and may subject the commercial operator to penalties as prescribed by law or regulation, including exclusion from doing business in the park. The Concessions Office will receive a notice of any written warnings or citations issued to permittees and these documents will become part of the permittee's park record.

Each violation will be evaluated according to the particular events of the incident. The Superintendent reserves the right to suspend or revoke a permit for cause at any time.

15. Term - This CUA is issued for an initial term of one (1) year. Following the initial year, the National Park Service may, at its discretion, extend the term of this CUA for up to an additional year making the total term of this CUA up to two (2) years. The National Park Service may, at any time during its term, terminate this CUA or reduce the authorized services under this CUA. (see Appendix H)

Permittee Signature

Date

Grand Canyon National Park Commercial Use Authorization Appendix C

ADDITIONAL REPORTING AND RECORDKEEPING REQUIREMENTS

1. Each month after the approval of this CUA, the permittee shall complete and submit to National Park Service a CUA Monthly Report in the form set out in Exhibit 1. This Report must be submitted within fifteen (15) calendar days after the end of each month.
2. The permittee is required to offer a visitor satisfaction survey to all clients. Surveys at a minimum must cover:
 - a. Client satisfaction with bicycle rental services;
 - b. Client satisfaction with park biking trails and bike related infrastructure; and
 - c. Locations where clients utilized rented bikes in the park.

Copies of surveys are to be submitted to the National Park Service, Office of Concessions Management on a monthly basis. These surveys must be submitted within fifteen (15) calendar days after the end of each month.

Grand Canyon National Park Commercial Use Authorization Appendix D

INSURANCE REQUIREMENTS

1. The permittee shall purchase at a minimum the types and amounts of insurance coverage as stated herein and agrees to comply with any revised insurance limits the Superintendent may require during the term of this permit. The Superintendent shall not be responsible for any omissions or inadequacies of insurance coverage and amounts if such prove to be inadequate or otherwise insufficient for any reason whatsoever.
 - General Liability – The permittee shall obtain general liability insurance in at least the amount of one million dollars (\$1,000,000).
 - Workers Compensation – The permittee shall obtain worker's compensation insurance for eligible workers as required and described by Arizona State law.
 - Land Transportation – The permittee shall obtain automobile liability insurance for any owned, hired, and non-owned vehicles used by the permittee in connection with carrying out activities and operations under this authorization in at least the amount of one million dollars (\$1,000,000); provided, however, in the event the limit required by the State of Arizona is higher than the limit listed above, the permittee will provide the higher level of coverage.

The permittee shall provide the Superintendent a Certificate of Insurance at the inception of this permit and annually thereafter, and shall provide the Superintendent thirty (30) days written notice of any material change in the permittee's insurance program hereunder.

This insurance shall name the United States of America (National Park Service, Grand Canyon National Park, 1 Village Loop, Grand Canyon, Arizona 86023) as an additional insured.



2. The permittee shall carry proof of vehicle registration and automotive liability insurance at all times while operating within Grand Canyon National Park
3. Liability Insurance Lapse or Cancellation – Upon notification that the permittee’s workman’s compensation, transportation or general liability insurance has lapsed or cancelled for any reason, the permit to operate in the park shall be suspended until new insurance is in place.
4. Coverage provided by insurance companies must meet the following minimum requirements:
 - a. All insurers for all coverages must be rated no lower than A- by the most recent edition of Best’s Key Rating Guide (Property-Casualty edition).
 - b. All insurers for all coverages must have a Best’s Financial Size Category of at least VIII according to the most recent edition of Best’s Key Rating Guide (Property-Casualty edition).
 - c. All insurers must be admitted (licensed) in the State in which the entity is domiciled.
5. The name on the certificate of insurance must match the permittee’s business name, including any names used as a d/b/a (“doing business as”).
6. The permittee may not request or require guests participating in activities to sign a liability waiver form, insurance disclaimer and/or indemnification agreement. The CUA Holder may request that a park visitor sign an acknowledgement of risk form. If permittee intends on using an acknowledgement of risk form, the form will be submitted to the Concessions Management Office for approval by the Superintendent prior to use.

Grand Canyon National Park Commercial Use Authorization Appendix E

FEES

1. The following fees are in effect at Grand Canyon National Park for the Bicycle Rental Operations CUA:
 - Application Fee: \$150.00
 - Administrative Fee (. Cost Recovery) for permit: \$525.00
 - Management/Monitoring Fee (. Facility Use Fee) for initial 12 month permit: \$2200.00
2. The Application Fee must be submitted at the time of application for the CUA.
3. The Administrative Fee and Management/Monitoring Fee are due upon selection of permittee and must be submitted no later than 30 working days after the CUA is issued by the National Park Service. Failure to pay the required fees will render the CUA for Bicycle Rental Operations application null and void.
4. If the National Park Service extends the term of the CUA for any length of time following the initial 12 month period, an additional Management/Monitoring Fee will be due. The National Park Service may reevaluated the fee at the end of the first year of operations and may updated the fee to reflect changes in the costs associated with CUA management and monitoring. This fee will be due no later than 30 working days after the CUA is extended. Failure to pay the required fee will render the CUA for Bicycle Rental Operations null and void.
5. Fees may be paid by cashier’s check, certified checks or money orders and should include the applicant’s employer identification number and be made payable to the National Park Service. Credit cards are also accepted. Please provide card holder’s name, card number, expiration date, security code, and address associated with the credit card for all credit card payments.
Bicycle Rental 10

Grand Canyon National Park Commercial Use Authorization Appendix F

RATES

1. All rates charged to the public by the permittee for commercial services authorized by this CUA shall be reasonable and appropriate for the type and quality of services required or authorized under the CUA. All rates must be approved by the National Park Service in advance. Bicycle Rental 11

Grand Canyon National Park Commercial Use Authorization Appendix G

OPERATING PLAN

1. The permittee must comply with the Operating Plan covering all commercial services authorized by this CUA. The Operating Plan must be prepared by the permittee and approved

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Exploring Bicycle Options for Federal Lands

in writing by the National Park Service prior to the start of any operations under the CUA. Any modifications or revisions to the Operating Plan will become effective only if approved in writing by the National Park Service. The approved Operating Plan will be considered part of this CUA, although it need not be attached to each copy of the CUA. Bicycle Rental 12

Grand Canyon National Park Commercial Use Authorization Appendix H

USE LIMITS AND POSSIBLE MODIFICATION OF CUA

Periodically throughout the terms of the CUA the National Park Service will evaluate the impacts and effectiveness of the Bike Rental Operation, including whether the authorized commercial service is meeting visitor needs and park management objectives and whether the operation has adversely affected park resources. Impacts considered to be adverse could include (among other things) large numbers of abandoned bicycles throughout the park, a substantial increase in conflicts between vehicle and bicycle or bicycle and pedestrian, a substantial increase in injuries resulting directly from the Bike Rental Operation, or damage to natural resources due to the inappropriate use of bicycles. Based on the evaluations, at any time during the term of the CUA, the National Park Service may adjust the level and conditions of the authorized service considering such factors as the impact to park resources, visitor use demands, safety concerns and other management objectives. **The National Park Service may temporarily or permanently suspend the authorized activity at anytime during the term of the CUA.** Following the expiration of this initial CUA the National Park Service may choose to manage in-park bicycle rental in one of the following ways: (1) issue another similar competitive CUA for bicycle rental operations with a term of one or two years; (2) issue a competitive concession contract for bicycle rental operations with a term of ten years; (3) combine bicycle rental operations with other visitor services under a concession contract; or (4) discontinue bicycle rental operations. The National Park Service will consider management objectives and operational data collected under this CUA to determine the how in-park bicycle rental operations will be managed in the future. The successful permittee will not have a preference or non-competitive right to renew or compete for a new opportunity following the expiration of the initial CUA.




APPENDIX F: EMPLOYEE BICYCLE FLEET RESOURCES

www.travelsmart.gov.au/toolkits/bicyclefleets/pubs/bicyclefleets.pdf "How to set up a successful employee bicycle fleet." Learning from other's experience, this toolkit identifies barriers to starting employee bicycle fleets. It gives five examples of employee bicycle fleets including one at an oil refinery, a Police department, an engineering firm, a local government and a University. It includes: how to select bicycles and associated equipment; how to manage an employee fleet; and managing risk and financing options. It contains sample questions for a staff survey, a two minute safety check and accident reporting forms (Bicycle Federation of Australia, 2007).


F.1. GLACIER NATIONAL PARK RED BIKE PROGRAM USER AGREEMENT

**Glacier National Park
Green Team News**

National Park Service
U.S. Department of the Interior



The Nuts & Bolts of Glacier's Red Bike Program



The Red Bike Program provides 27 bikes for NPS employees and volunteers to operate within park boundaries. This bike-share program, funded by the Glacier National Park Fund, gives employees an alternative to driving a vehicle, thereby preventing a cold start from an engine. Fuel consumption and pollution output are much higher in the first minute or two after a cold start than when the engine has achieved normal operating temperatures. Plus, it's good exercise!

Bikes are stationed at the following locations:


- WLD Headquarters building
- WLD USGS - Rocky Mountain Field Stn.
- WLD Museum; Library
- WLD Native Plant Nursery
- WLD Fee Stn.
- Apgar VC ; Apgar BC Permit Stn.
- Campgrounds (most front-country)
- West Lakes R.S. /Science Center
- Many Glacier Ranger Station
- St Mary dorms

Reasons-to-ride a Red Bike?

Meetings: Ride a Red Bike between work sites and to meetings.

Campground monitoring: Fee collection and monitoring. Less visual/noise impacts than a vehicle.

Recreational Use: They are available for recreational use by park staff/volunteers.



Access: Keys to access the bikes are checked out for the entire season from either the Headquarters warehouse or resident assistant (RA) at the St. Mary dorm.

Conditions of Use:

1. Choose only a bike that is labeled the same as where it is stationed. If a bike is labeled with the name of a different station then it is already being utilized. Station labels are on the front bar.
2. Bikes must be ridden within park boundaries or not more than ¼ mile radius outside of park boundaries.
3. Return of bike: Maximum loan time is 3 days. Bicycle, lock, and helmet must be returned to its station within 72 hours of check-out. Use the kick stand and park bikes outside of the bike rack so they don't tip over in the bike rack! When a bike tips over the front tire torques and bends.
4. Helmets are required and are located in the nearest building to the bike stations.
5. Assumption of Risk for recreational riding: User agrees that bicycle riding can be a dangerous activity and assumes the risk of bicycle riding to be your own liability during off-duty time.
6. User performs a safety check and ensures bike is safe/ready to ride. Contact the Red Bike coordinator, 888-5827, with concerns. Lock bikes when not in use.
7. Bikes are **not** to be used for rough trial riding or descent of the Going-to-the-Sun Road.

6/15/2009. Glacier Green Team. Contact number for Green Team: 888-7971. Red Bike Coordinator 888-5827



User Agreement Form

Glacier National Park Shared Red Bike Program

Fill out this form and turn it in to either the West Lakes Warehouse or to a resident assistant at the Hudson Bay Ranger Station Dorm.

User Name: _____

Local Residential Address: _____

Local Mailing Address: _____

Local Phone: _____

Email address: _____

The Red Bike Program aims to provide Glacier Park employees with an alternative to driving vehicles for short trips, thereby reducing emissions in the Park. Enjoy using the bikes, but please be respectful that they are for shared use. Glacier National Park agrees to provide use of bicycle, lock, and helmet and User agrees to the following:

- 1) **Condition:** Bicycle, lock and helmet must be returned in the same condition as when issued. Use the kick stand and park bikes outside of the bike rack so they don't tip over in the bike rack.
- 2) **Assumption of Risk for Recreational use:** User agrees that bicycle riding can be a dangerous activity and assumes the risk of bicycle riding to be your own liability.
- 3) **Helmet:** Helmet use is required in Glacier National Park. User acknowledges that a helmet is available to them as part of the program. Helmets available in building located nearest to bike station.
- 4) **Return of bike: Maximum loan time is 3 days.** Bicycle, lock, and helmet must be returned to its original location within 72 hours of check-out. Failure to return bicycle, lock and helmet will subject user to legal liability of up to \$300.

Release from Liability

By signing below, I hereby release Glacier National Park from any and all liability arising out of injury to myself, persons or property, and any loss, damages, or expenses arising out of my participation in the Red Bike Program during recreational use.

Signature _____ Date: _____

6/15/2009. Glacier Green Team. Contact number for Green Team: 888-7971. Red Bike Coordinator 888-5827



- Executive Summary
- Introduction
- Bicycling Benefits and Initiatives
- Evolution of Public Bike Sharing
- Public Bicycle Sharing & Rentals
- Employee Bicycle Fleets
- Recommendations
- References
- Appendix A
- Appendix B
- Appendix C
- Appendix D
- Appendix E

Appendix F

F.2. MIDWEST REGION MWRAA BIKE PROGRAM PLAN

Thank you for your interest in the MWRAA Bike Program. Please take a minute to review this plan and feel free to ask or refer questions to Mark Weekley, Marty Sterkel, or the current MWRAA committee President.

If you have any questions about using the bicycles, please consult your medical provider prior to using the bikes.

Use equipment safely. Read the information provided related to safety, proper use and adjusting bicycle heights, or ask the office bike program leadership for instructions. If a particular piece of equipment is not functioning properly, do not try to repair it yourself. Instead, advise the bike program leadership of the problem as soon as possible. Also, it would be helpful to put an out-of-order sign on the equipment so that others don't injure themselves when trying to use equipment that doesn't work. Should a particular bike or piece of equipment break down, the bike program leadership will ensure that proper maintenance is conducted to take care of the problem.

- Keep the bike storage area clean and take your personal items with you when you leave. Abandoned items may be discarded. Bikes are available on a first-come, first-serve basis, via the computer check-out system.
- Please be courteous to other members. When using the bikes, wipe off your perspiration, and maintain good hygiene.
- Return bike accessories & equipment to their proper place after use.
- Only NPS employees & guests/family they accompany may utilize the bikes.
- Familiarize yourself with the first aid kit and the nearest telephone location for emergency calls in case of injury to yourself or others.
- Don't forget to drink plenty of water to avoid dehydration. To avoid injuries, always warm-up, stretch, and cool down.
- Use of the bikes will be on your own personal time and not on work time.
- A Physical Activity Readiness Questionnaire, and RISKO Heart Disease Risk Profile, and Informed Consent Waiver will be completed by each bicycle user prior to participation in this MWRAA voluntary Bike Program.

F.3. NPS MIDWEST REGION PHYSICAL ACTIVITY READINESS QUESTIONNAIRE

This questionnaire is designed to help you help yourself. Many health benefits are associated with regular exercise. Completing the questionnaire is a sensible first step to take if you are planning to increase the amount of physical activity in your life. For most people, physical activity should not pose any problem or hazard. This questionnaire has been designed to identify the small number of adults for whom physical activity might be inappropriate or those who should have medical advice concerning the type of activity most suitable for them. Common sense is your best guide in answering these few questions. Please read them carefully and check YES or NO for each question.

1. Has your physician ever said you have heart trouble?
2. Do you frequently have pains in your heart and chest?
3. Do you often feel faint or have spells of severe dizziness?
4. Has your physician ever said your blood pressure was too high?
5. Has your physician ever told you that you have a bone or joint problem such as arthritis that has been aggravated by exercise or might be made worse by exercise?
6. Is there a good physical reason not mentioned here why you should not follow an activity program even if you wanted to?
7. Are you over the age of 65 and not accustomed to vigorous exercise?

If you answered. . .YES TO ONE OR MORE QUESTIONS:

If you have not recently done so, consult with your personal physician by telephone or in person BEFORE increasing your physical activity or taking a fitness test. Tell him or her what questions you answered YES on the PAR-Q or show your copy.

PROGRAM

After medical evaluation, seek advice from your physician as to your suitability for :

- Unrestricted physical activity, probably on a gradually increasing basis.
- Restricted or supervised activity to meet specific needs, at least on an initial basis. Check in your community for special programs or services.

If you answered. . .NO TO ALL QUESTIONS:

If you answered each question accurately, you have reasonable assurance that you are suited for:

- A GRADUATED EXERCISE PROGRAM. A gradual increase in proper exercise promotes good fitness development while minimizing or eliminating discomfort.
- AN EXERCISE TEST. Simple tests of fitness or more complex types may be undertaken if you so desire.
- POSTPONE. If you have a temporary minor illness, such as a common cold, vigorous exercise or exercise testing should be postponed

F.4. MWRAA BIKE PROGRAM INFORMED CONSENT WAIVER

I, the undersigned, wish to participate in the Voluntary Bike Program offered by the Midwest Region Activities Association at 601 Riverfront Drive, Omaha, Nebraska.

I realize that any time one engages in physical activity there are inherent dangers. I understand that it is strongly recommended by the MWRAA that I consult with my own doctor and obtain his or her approval before participating in any physical activity (i.e. bicycling) regardless of my age. I understand that if I am over 40 years of age that I am required to consult with my own doctor and obtain his or her approval before participating in any physical activity. I know I should not participate in any exercise program if I am not capable of doing so without endangering my health.

Therefore, I accept any and all responsibility and assume the risk of any and all injury or damage to my person or others, which may arise, directly or indirectly, as a result of my participation in the Bike Program. I hereby release and hold harmless from any liability whatsoever, the Midwest Region Activities Association (MWRAA), the National Park Service, any employee association organization, as well as their affiliates, directors, officers, employees, and representatives.

I also agree to abide by the plan as established by the MWRAA, with the understanding that violations may result in withdrawal of my privileges to utilize the bicycles or engage in the Bike Program

I certify that I have read and understand the contents of this release.

Printed Name: _____

Signature: _____

Witness: _____

Date: _____ Work phone: _____

Emergency Notification Telephone: _____



F.5. DUKE BIKES LIABILITY RELEASE AND BIKE INSPECTION FORMS

DukeCard Office – Outpost – Admin Checkout

2/2/10 3:23 PM

The following property has been checked out for this request:

Request Number: 3876
 Member Name: [REDACTED]
 Member Unique ID: [REDACTED]
 Member Email: [REDACTED]
 Member Phone: [REDACTED]
 Request Date: 2/2/2010
 Checkout Date: 2/2/2010 3:23:48 PM
 Return Date: 2/9/2010

Property Received:

Bike Number	Bike Type	Helmet	Basket
1644	Mountain	N	N

Release and Assumption of Risk

I intend to utilize the loaner bicycles provided by the Duke University. I understand these bicycles are being made available for my convenience and I am under no requirement to use them. While NC law does not require helmet use for anyone over 16 years of age, I understand that I am strongly encouraged to do so and that helmets are available to borrow. I agree to adhere to the bicycle laws of NC, including the use of a front lamp and rear reflector if riding at night. I hereby voluntarily assume all risk of injury to myself and damage to my property arising from the use of these bicycles. I assume such risks regardless of their causes. In consideration of Duke University providing me with the free service, I will not hold the aforementioned parties, their trustees, officers, agents, employees or any sponsor or contributor, in both individual and representative capacities, liable in damages for any injuries or damage I may sustain and I release, discharge and hold forever harmless the aforementioned parties from any and all liabilities, claims, damages, or losses stemming from injury to person or property that arises from, or in any way relates to the operation of my bicycle. I further assume the duty of inspecting the bicycle prior to my use and agree that I will not operate it unless I can determine it is road-worthy. I agree to notify the Bicycle program coordinator at the Outpost of any damage or defect in any bicycle as soon as I become aware.

I have carefully read this Release and Assumption of Risk and fully understand its contents. I voluntarily sign it and realize that this will bind me, my heirs, and my personal representative.

[REDACTED]

Signature

2/2/10
Date

Signature of Parent or Guardian(if minor)

Date

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Duke Bikes Inspection Form

Please inspect your bike with an Outpost employee. It is your responsibility to note any and all damages, before you take the bike into your possession. By signing this form you take full responsibility for returning your bike in good condition. Any damages, other than normal wear and tear, reported upon the bikes return are your fiscal responsibility. Please circle the problem areas on your bike on the form and write a detailed description explaining your inspection. Bikes are not to be checked out without this form.



1200 & 1400 Blue Cruiser



1000 White Cruiser



1500 & 1600 Mountain/Hybrid

Bike Number 1644 Rental Date 2/2/2010

Renter Signature  Outpost Employee Signature 



F.6. UNIVERSITY OF CALIFORNIA AT IRVINE ZOTWHEELS USER AGREEMENT

<https://www.parking.uci.edu/zotwheels/useragreement.cfm> Accessed 12/18/10

1. PURPOSE AND TERM OF AGREEMENT

This document constitutes the entire Agreement (“Agreement”) between the person agreeing to participate as a bike user (hereinafter called “Rider”) and The Regents of the University of California on behalf of the University of California, Irvine, ZotWheels program (hereinafter called “ZotWheels”).

This Agreement will remain in effect for one year from the date of Rider’s acceptance unless terminated sooner by ZotWheels..

NOTICE: By entering this Agreement, Rider is permitted certain limited use of bikes provided by ZotWheels. By participating, Rider also WAIVES and RELEASES certain rights and claims, and ACCEPTS certain responsibilities.

2. GENERAL RULES OF USE

- i. Rider will release only one bike at a time from a ZotWheels station for his/her sole use.
- ii. Rider is 18 or older.
- iii. Rider certifies that he/she is a competent bike operator.
- iv. Bike and any equipment attached thereto remains exclusive property of ZotWheels at all times. Rider will not modify the bike or equipment.
- v. Rider will use bike for general commuting purposes only and not for racing, mountain bike riding, stunt or trick riding. Rider will not use the bike for hire or reward, nor use it in violation of any law, ordinance or regulation.
- vi. Rider will not use the bike on unpaved roads, through water, or in any location where bike riding is prohibited.

3. FEES, OPERATION AND AVAILABILITY

- i. ZotWheels Operating Hours are from approximately Sunrise to Sunset. No bike can be rented after dark. . Bikes may be used seven (7) days a week, twelve (12) months per year. There are a limited number of bikes. There is no guarantee of bike availability.
- ii. The permitted rental period will not exceed three (3) hours from the time the bike is released to the Rider, however if Rider’s permitted rental period will extend for any period after Sunset the Rider must use his/her own front and rear lights. Rider will return the bike to a ZotWheels station within the permitted rental time, or ZotWheels may assess a late fee. Once bike is returned, Rider may then immediately rent again if desired and it is not dark.
- iii. Rider agrees to pay non-refundable membership fee (of \$40.00), and if applicable any rental fees.
- iv. Rental fees are subject to change throughout a Rider’s subscription period. The fee requirement in effect at the time of the completion of Rider’s online Bike Rental Application shall take precedence over any subsequent change in price.
- v. Rider must return bike by ensuring that the bike is properly inserted into a ZotWheels station docking point within the permitted rental period set forth in paragraph 3.2. Rider must return the bike to another ZotWheels station if the desired endpoint ZotWheels station is full.

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Exploring Bicycle Options for Federal Lands

vi. If Rider fails to return bike within the permitted rental period, ZotWheels may: report bike as lost or stolen, retake possession of the bike, prohibit Rider from further participation in ZotWheels with or without notice and without refund.

vii. Rider must report a stolen or lost bike and/or ZotWheels subscription/user card to ZotWheels and UCI Police Department immediately. Any ZotWheels Card that is lost or rendered unusable may be replaced at the Riders's request and expense (\$4.00).

viii. Rider will report any accidents and/or incidents (including theft or loss) within 24 hours of the incident and/or accident via the UCI online incident report available on the Risk Management Web site.

ix. Rider must not lend or transfer his/her ZotWheels subscription/user card, which remains the property of ZotWheels.

x. Rider must return the bike to ZotWheels in the same condition received, ordinary wear and tear excepted. Rider must ensure that the bike is locked and secured when unattended. Bikes may be equipped with wire locks, however, ZotWheels will not be responsible for any lost, stolen, destroyed and/or damaged bikes, regardless of whether bike locks are used, broken and/or not properly functioning.

xi. Rider agrees to pay for any loss or damage to bike and equipment, even if it was caused by someone else, including payment for repairs and replacement parts, or the full replacement cost for bike and/or equipment if it is lost, destroyed, damaged beyond repair, or not returned to a ZotWheels station within 24 hours of the end of Rider's permitted rental period.

4. SAFETY AND RESPONSIBILITY

i. Rider will follow, and certifies that he/she is familiar with, all laws pertaining to the use of the bike, including all Campus, state and local laws and the rules and regulations pertaining to bicycles on Campus. To the extent Rider needs to review such information, Rider can go to www.bike.uci.edu.

ii. Helmets are not provided by ZotWheels but it is recommended that Riders purchase and wear a helmet when riding. If riding after sunset, Rider agrees to provide and use required front and rear bicycle lights.

iii. Rider will inspect and ensure that the bike is in proper working order BEFORE using the bike and will report any and all necessary repairs to ZotWheels immediately. Rider agrees to adjust bike seat, using the lever under the seat, to fit physique. Rider must ensure that the seat post is not extended beyond a safe level.

iv. Rider shall not use the bike if inspection and initial testing of the bike indicates any defect, damage or failure to operate as a normal bike, and if the bike should become defective during the use of the bike, Rider will cease use and call ZotWheels. ZotWheels may issue another bike to Rider at the nearest ZotWheels station, arrange to pick up the faulty bike, and/or provide other services, at the discretion of ZotWheels.

v. Rider will not use a bike if he/she is under the influence of alcohol or drugs.

vi. Rider will not use a bike during rain or dangerous weather.

vii. Rider will not fill the front carrier/basket with items weighing more than 10 lbs.

viii. Rider will not carry passengers, or pull or push anything with the bike.

ix. Rider is solely responsible for any violations, fines, fees or costs incurred by Rider during rental of the bike.



5. INSURANCE, WAIVER LIABILITY, ASSUMPTION OF RISKS, AND INDEMNIFICATION

i. No Insurance: ZotWheels does not provide any insurance to Rider covering property damage, personal injury, injury to others, or coverage of any kind.

ii. Waiver of Liability: In consideration of rental and use of the bike, Rider, for his/her self, heirs, personal representatives or assigns, does hereby release, waive, discharge, and covenant not to sue ZotWheels, its directors, officers, employees, and agents from liability from any and all claims including negligence of ZotWheels resulting in personal injury, accidents or illnesses (including death), and property loss arising from, but not limited to, Rider's use of ZotWheels services, use and/or operation of bike and equipment.

iii. Assumption of Risks: Rider participates at his/her own risk. Rider understands that bicycling is a physical activity that by its very nature carries with it certain inherent risks that cannot be eliminated regardless of the care taken to avoid injuries. Riding a bike involves strenuous exertion and quick movements involving speed and change of direction which can place stress on Rider's cardiovascular system and various muscle groups. Specific risks vary, but range from 1) minor injuries such as scratches, bruises, and sprains 2) major injuries such as eye injury or loss of sight, joint or back injuries, heart attacks, and concussions 3) catastrophic injuries including paralysis and death. Rider understands that bicycle protective gear such as helmets are not provided, but are recommended. Rider understands that such gear, even when used, does not eliminate the risk of injury in the event of an accident. Rider has read this paragraph and understands and appreciates these and other risks that are inherent in the activities made possible by participation in ZotWheels. Rider hereby asserts that his/her participation is voluntary and that he/she knowingly assumes such risks.

iv. Severability: Rider expressly agrees that the foregoing waiver and assumption of risks is intended to be as broad and inclusive as is permitted by the law of the State of California and that if any portion thereof is held invalid, it is agreed that the balance shall, notwithstanding, continue in full legal force and effect.

v. Indemnification and Hold Harmless: Rider agrees to INDEMNIFY AND HOLD HARMLESS The Regents of the University of California and ZotWheels from any and all claims, actions, suits, procedures, costs, expenses, damages and liabilities, including attorneys' fees, brought as a result of Rider's participation in ZotWheels and to reimburse ZotWheels for any such expenses incurred.

6. OTHER TERMS AND CONDITIONS

i. Governing Law: This Agreement shall be construed in accordance with the laws of the State of California without regard to its conflicts of laws rules.

ii. Termination of Agreement: ZotWheels may terminate this Agreement at any time, with or without cause, legal process, or notice to the Rider. Rider waives all claims, causes of actions, expenses, and/or damages connected and/or related to any such termination. If terminated without cause ZotWheels agrees to refund a pro-rata membership fee, if applicable.

iii. No Waiver: ZotWheels' failure to insist upon or enforce strict performance of any provision of this Agreement shall not be construed as a waiver of any provision or right. Neither the course of conduct between the parties nor trade practice shall act to modify any part of this Agreement. No waiver by ZotWheels shall be construed as a waiver of any proceeding or succeeding breach of any provision in this Agreement.

iv. Severability: Each provision of this Agreement, including any exclusions, waiver, or limitations of liability, shall be construed separately, applying and surviving even if for any reason any provision in this Agreement is held to be inapplicable or unenforceable under any circumstances.

Executive Summary

Introduction

Bicycling Benefits and Initiatives

Evolution of Public Bike Sharing

Public Bicycle Sharing & Rentals

Employee Bicycle Fleets

Recommendations

References

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F



Exploring Bicycle Options for Federal Lands

v. Entire Agreement: This Agreement constitutes the entire Agreement between ZotWheels and Rider. ZotWheels shall have the right to revise, change and modify the terms and conditions contained in this Agreement at any time without prior written notification by posting the revised Agreement on the ZotWheels Website: www.bike.uci.edu . Rider shall be solely responsible for reviewing and becoming familiar with any modification to this Agreement. Use of the bike by Rider following any modifications to this Agreement constitutes Rider’s acceptance of the Agreement as modified.

Acceptance and Acknowledgement of Understanding: Rider expressly acknowledges that he/she has carefully read and understands the entire Agreement, including but not limited the Terms and Conditions, Waiver of Liability, Assumption of Risks, and Indemnification and Hold Harmless provisions, and expressly agrees to be bound by this Agreement. Rider understands that he/she is giving up substantial rights, including his/her right to sue. Rider acknowledges that he/she is signing the agreement freely and voluntarily, and intends by his/her signature to completely and unconditionally release all liability to the greatest extent allowed by law.





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